The Emperor's New Clothes: The Remaking of an Accounting Framework

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Abstract: This paper discusses the relation between the accounting framework, as it is laid down in the SNA, and the empirical reality which is summarised in the accounts. In the paper it is argued that more attention should be given to measurability as the main guiding principle in the shaping of the SNA. By clearly separating the parts of the current core accounts which have a good correspondence with the empirical reality improvements in terms of reliability and comparability can be achieved. The National Accounts should include the social cost of using natural resources and give more attention to the measure of net domestic product, which also takes the social costs of using fixed capital into account. Such a shift would give a more accurate picture of the outcome of economic activities for the benefit of comparability between countries.

The paper also discusses some recent changes of SNA in relation to accounting principles. Notably the current interpretation of income and net lending are questioned. It is concluded that there is a need for more accurate definitions of the economic reality the balancing items of SNA are intended to show. Furthermore, issues currently under discussion in the NA-community like globalisation and classification of institutional units are reflected upon with the aim of resolving some outstanding issues, particularly the distinction between goods and services and the division of holding companies between the financial and non-financial corporate sectors. Examples are also given where the recording of economic evens can be closer aligned to business accounting practice for the benefit of a transparent representation of the relations between units in the economy.

List of abbreviations:

AEG	Advisory Expert Group
CoFC	Consumption of fixed capital
EU-ETS	European Union Emission Trading Scheme
FASB	Financial Accounting Standards Board
FISIM	Financial intermediation services indirectly measured
GFCF	Gross fixed capital formation
IASB	International Accounting Standards Board
IFRS	International Financial Reporting Standards

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Introduction

In discussing the future of SNA it is tempting to become visionary and propose grand plans of changes and above all expansions of the applications of the national accounts (NA). But, we should remind our self that extension also involves compromises with already established principles and conventions agreed upon. Furthermore, the data compilation will also struggle with the difficult balancing between different interests like the ambition to reduce the burden of respondents at the same time when the expansion of the NA-system needs more data. In such a situation it might be attracting to use data of inferior quality from a statistical perspective or resort to models in order to compensate for the lack of empirical information.

Studying the changes of SNA during last decades and how information from the NA-system is used two main tendencies occur to me as particularly clear. First of all, theoretical models are to a larger extent used in the compilation of the NA. Secondly, administrative needs, backed by political demands, dominate over the economic-analytical interests in the recording of NA. An example of the latter is the treatment of so called super dividends. The NA-system is first and foremost an accounting system and as such should be designed to facilitate the recording of economic events in order to reveal the relations between the units in the economy.

One of the fundamental principles in the compilation of NA is the use of high quality empirical sources and as far as possible avoid modelling based on economic theory. This is especially important when NA data is used to analyse the business cycle. The underlying economic theory should not have such a large impact on the recording in NA so that there is a risk of carrying the assumptions of the model on to the conclusions of the business cycle analysis. I suppose all can agree on that but the judgement of how serious the conflict really is, between the demand for data to fill the NA-system and the availability of empirical information, divides the NA-community.

In the same pace as we expand the NA-system and fills it with secondary information we also take the risk of moving farther away from the empirical reality we want to account for. In the extension this threatens to decrease the reliability of the descriptive power and reduces the NA to a tool for the legitimation of economic policy. During the last decades the tendency to transform the NA from a social description of domestic economies to a bureaucratic instrument for the administration of economic development has increased. Well, this tendency is not surprising regarding the fact that the interest and the economic resources needed, in order to engage in the development of the SNA, mainly is to be found among government agencies and central banks (including their international organisations respectively).

Above that, governments shows an increasing interest in knowing how economic policies will be recorded in the NA in order to design them not to impact on central policy indicators like net lending and government debt. It so happens that, in the preparation of economic policy decisions, representatives of the government administration are consulting the NA department. It is not only the users who have to be more of NA experts. Also the NA experts get busy, investigating the impact of economic policy on the balancing items in NA. In the light of this development it is commendable that at least within the EU initiative is taken to strengthen the independence of national statistical institutes (NSI). This also means that the central administration in the EU respects the integrity and independence of NSI.

The empirical content of national accounts

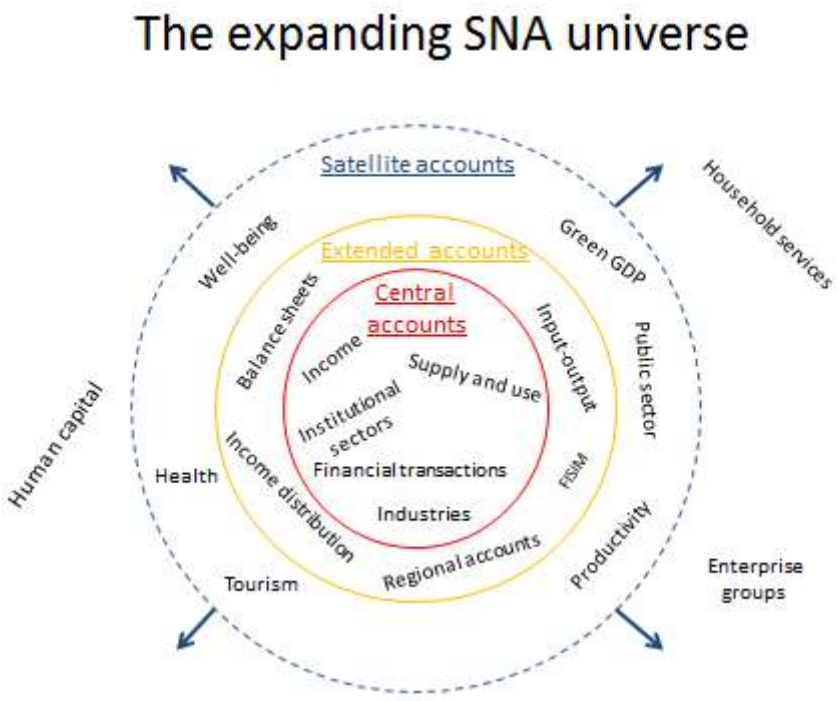
In connection to the next update of SNA/ESA it is advisable also to look into areas, where the current recommendations are experienced being unclear or problematic from a statistical point of view. We should put some effort in clear-cutting the guidelines of the current accounting framework. This will

not only make the SNA more transparent but also facilitate extensions in the central framework and new areas of applications. There exist several areas with loose treads, which lacks clear boundaries or where administrative and political interests diverge from economic descriptive and analytical demands. The complexity of the NA-system has gradually increased which have made it harder for users to realise how the economic events will be recorded. The primary objective should not be simplicity, but by increasing clarity it will be more evident to users what distinguishes national accounting from business accounting and the advantage it is in using the balancing items of the NA-system.

The extension of the NA-system has another disadvantage. A large part of the countries in the world do not have the resources needed to compile NA with good quality and even less to keep pace with the rapidly changing framework and the extensions of applications. This implies that comparability between countries on a world scale will be lower. In the long run this might lead to a situation where comparisons between countries are made with simple indicators instead of by a consistent economic-statistical descriptive data.

The NA-system should therefore be designed in a way so that it will be relatively straightforward to compile the fundamental parts of what is to be measured, the economic activity. By drawing up a clear line between what is measurable in relation to other parts of the central framework it will be possible to make a description of the economic reality which has a high degree of reliability and by that should be a good basis for judgement of the economic development and economic policy decisions. This more statistical part of the framework should consist of the central accounts and the delineation will be determined by the ability of measurement (see figure 1 below, note that this is a rough sketch).

Figure 1: A principal sketch of separating the core accounts into two parts; central and extended accounts.



More advanced representations of the accounts can be given a special position as extended accounts. These go beyond the statistical description and use assumptions based on economic theory and model calculations in order to make the picture of economic interrelationship more complete.

The extended accounts do not have the same rigour and empirical reliability as the central (statistical) accounts. Above this we can also continue to have applied NA tables and accounts group under the heading of satellite accounts. These accounts present a detailed picture of different parts of the economy or aspects of economic relations like tourism and well-being. What is important with these kinds of accounts is that they are clearly separated from the central framework. This is not the least important since they might deviate from fundamental conceptual definitions used in the central framework like the production boundary.

Focus on measurability

In the shaping of the SNA, regard has been taken to the possibilities and practical problems in measuring economic transactions. These limitations have been included as implicit conditions when transactions are measured. For the central accounts, i.e. the statistical description of economic relations we should have high demands on the economic events being possible (at least in principle) to observe and measure. This means that transactions that offers practical problems, for example illegal activities where the units are unwilling to participate in surveys, but where it in principle is possible to observe and measure the economic activity, can nevertheless be included in the central accounts. What should be avoided is the splitting up of transactions unless the parts in principle can be measured one by one.

A worse case is the output of non-market producers. The value of their transactions cannot be given social values by only measuring the transaction prices. The payments which eventually exist are not made in according to the production costs and can therefore not be a reasonable valuation. In order to escape this problem, in these and other cases like production for own final use, SNA accepts that the estimation is based on the measurable costs possibly including a mark-up taking into account the economic behaviour of the unit in the case of for profit activity.

Economic events which hardly can be measured and instead has to be estimated by the use of model calculations should preferably be recorded in the extended part of the central framework. These kinds of events include depletion of natural resources. An indirect method not particularly suitable for the central accounts is discounting of future income and outlays. This method depends on unmeasurable data on future relations which can cause big variations in the estimate caused by assumptions on the discount rate. The consequences of this is that some assets which we are unable to estimate from the cost side like natural resources and some immaterial assets should appear in the extended accounts only.

The foundation for measurability is that the economic units can report on their economic activities, e.g. transactions. In case of assets and liabilities these should be recognized by the economic agents and in this context pension debts calculated by actuarial methods which involve discounting can be accepted as measurable and included in the central accounts. The demand on measurability is that the values in a sense are recognised by the units engaged in a mutual economic relation. What we should demand from such relations is that the valuation corresponds to social valuation principles and that the relation is possible to record according to the principles the NA-system is founded upon. A one-sided relation such as ownership of natural resources will in this sense fall outside the definition of what is measurable. General defined benefit pension obligation

The discussion about measurability and observability etc. might seem obvious but there are cases when departure has been done from these criteria in order to complete the picture and the result has rather been more of confusion than clarity especially with the users of NA. A recent example is the distribution of FISIM by activity and expenditure. The value of the financial service as it is defined in the SNA cannot be directly measured. And the use of indirect measurement is not sufficient to distribute FISIM by activity.

The first possibility we could regard would be if the service can be estimated by the costs the interest payment covers. The advantage of the indirect method is that it also captures the entire income and the uncertainty about what mark-up to be assumed is eliminated. On the other hand when it comes to the distribution of FISIM by activity units it is not possible either to observe nor to measure the cost in production. The main reason is that the establishment lacks this kind of financial information unless the enterprise only consists of only one establishment.

Following the idea of distinguishing between central and peripheral parts of the core framework the model based distribution of FISIM should only appear in the extended accounts. In the central part FISIM would only be recorded as undistributed in the same way as by the default option of 1993 SNA. One advantage is that the comparability with countries lacking the information and/or resources to make a model based distribution of FISIM by institutional sector and activity will be better. A disadvantage of the split between central and peripheral accounts, which I am the first to admit, is that in cases like FISIM we will have different estimates of GDP. It will be a big challenge to explain to users how to handle this difference which is carried through some of the accounts in the NA-system.

Observe that what I have not been discussing going back to an earlier version of SNA or to change the production boundary. I have proposed a way of arranging the accounts so that we can distinguish between the statistical-empirical and the model based theoretical compilation parts of the NA respectively. This would give users a better possibility to evaluate the economic development in relation to the uncertainty of the estimates.

After this short introduction of the main principle that should be used as a guide in the shaping of SNA I now will turn to some issues where I think there is need for development or where the current SNA lacks the precision needed. This exposition is divided into three main areas:

A. Social valuation and the net domestic product
B. Globalisation
C. Classification of institutional units

A. Social Valuation and the Net Domestic Product

Introduction

In the latest update of SNA it was decided that own account costs on R&D has to be accounted as gross fixed capital formation (GFCF). This change has an impact on the level of GDP. GDP is the most widely use measure of economic activity and a reasonable conclusion of the changed recording is that the level of economic activity previously has been underestimated. But in reality nothing had happened in the economy or with the production boundary, it is only the way we measure the activity which has changed. The impact on the level estimate depends of course on the fact that the GDP measure excludes the part of the production costs which consists of the reduction in value on fixed capital when used in production.

The term Gross in GDP refers to the value of these costs before they are subtracted from value added. If the measure of economic activity instead would be Net Domestic Product (NDP) then, on average for a longer period, there would have been no change in the level estimate. The inclusion of R&D in the concept of GFCF has only an impact on the level of NDP for specific years but the sum of increases and decreases respectively are, in volume terms, of equal magnitude.

GFCF contributes so to say twice to GDP, first when assets used as GFCF are created and secondly when assets are used in the creation of new values. A part of the asset value (normally corresponding to the CoFC) is transferred in the production process to the value of the newly created products. But since CoFC is not subtracted from output it is included in the value added (gross) and by that GDP. In the case of output which is estimated by the sum of costs this is even more evident since CoFC is included in the costs value added consists of.

The fact that CoFC is an intermediary cost which reduces the value added from a social point of view is probably not an issue. But there are also other costs caused by production which not are recognised in the NA in a correct way, for example extraction of natural resources and quality reduction of natural assets like polluted land and water. It would be a considerable improvement of the NA system if these costs also where recorded in the production account as a complement to CoFC. The problem with them is that their measurability is limited which by including them would reduce the reliability of the balancing items in the NA system.

The income concept of SNA

When we discuss social valuation it is inevitable not to say something about the income concept of the SNA. In the production account two adjustments are made of the original resource costs in order to make a social valuation of the resources are used in production. In both cases it regards costs for goods which have not be exchanged on the market in the current period. The first case is when goods are taken out of the inventory to be used as intermediate consumption and the second case regards the value of using fixed assets. The latter adjustment only refers to the net value, i.e. net domestic product.

In the SNA, as has been pointed out by Utz-Peter Reich[1], it is implicitly assumed that everyone who is receiving wages and salaries also is productive and contributes to output and economic activity. Those who only are employed to manage the wealth of individuals or corporations and where the payments consists of holding gains and to some extent property income would actually fall outside the production boundary. Regarding value added and operating surplus it will be negative in this kind

[1] Cf. Reich, Utz-Peter – Concept and Definition of Income in the National Accounts, *Review of Income and Wealth no 3/37*, September 1991

of activity. The problem is that it is hard not to say impossible to sort out this kind of activity within a larger finance corporation or insurance company.

A little bit carelessly we express this as holding gains/losses should not be included in the income. One interpretation is that this claim only regards the generation of income, i.e. the when productive resources, which are bought in earlier periods at different prices than the current ones, are used. All transaction in the current period have impact on income and savings of both parties involved in the transactions. The net of possible holding gains included in these transaction values will therefore be zero and does not impact on total savings, domestically or globally. Transactions only changes where in the economy the income is received. It is only when the resources used in production originates from previous periods we risk to over- or underestimate GDP. Accordingly, the question we should ask is what do we want to express with the balancing items GNI, disposable income and net lending?

Since the introduction of the concept reinvested earnings (1993 SNA), the tendency has been to exclude the impact of holding gains from all balancing items, and especially so when it comes to net lending. The adjustment of dividends, as a consequence of super dividends being recorded in the financial account only, is more arbitrary estimated and has not the same precision in the exclusion of holding gains as reached by reinvested earnings. Taxes paid on holding gains are, on the contrary, still recorded in the secondary redistribution of income account and have impact on disposable income of individual sectors. The treatment of holding gains is, all in all, not logical and a little bit confusing. To me this is an area where some kind of tidying up is needed.

I think we have three main alternatives, maybe with some sub-variants, to decide on. The first which also was discussed at the latest update of SNA is to continue on the chosen course with reinvested earnings. In that case we should, as for foreign enterprises, estimate the distributable income of the current year of all enterprises and distribute to the owners. If the actual dividends are larger we put the difference with negative sign in the reinvested earnings entry. From a statistical point of view this will be a challenge, but probably easier to apply than the exclusion of super dividends because we only have to regard ownership of affiliates and subsidiaries, 10 percent ownership or more. So, in this sense we will not have a complete exclusion of holding gains.

In this case we also, from a logical point of view, should exclude taxes on holding gains. From analytical point of view holding gain taxes can vary considerably from year to year and obscure the sustainability of government financing. The reinvested earnings alternative can be followed all the way to net lending by recording the extraordinary transactions, i.e. reinvested earnings and holding gain taxes, as financial transactions only. Thus, holding gains will not have impact on net lending because we disregard redistributions of saved income from earlier periods including holding gains paid out of the income of the unit who is buying assets. Disposable income and savings for a single institutional unit is in this alternative interpreted as the savings which is the outcome of the activities in the current period only.

The second alternative is the same as the first alternative with the difference that in this case we record holding gains taxes and reinvested earnings in the capital account instead of in the financial accounts only. Income will still not have an impact from holding gains but net lending will reflect the actual need of lending money. Regarding that we in the capital account bring back costs which never were paid, like consumption of fixed capital (CoFC) this indicates that net lending should reflect the actual situation rather than the situation which would occur if income from previous periods had not been redistributed. Overall, the capital account and the financial transactions account are the accounts where we in the NA records transactions which in the business accounts are recorded directly against the balance sheet. In the capital account we find among all the recording of GFCF. One exception is the recording of dividends. The reason for placing dividends in the primary distribution of income account is that dividends are treated as part of the distribution of income.

This leads us up to the third alternative which also is closest to the recording according to 1968 SNA. No adjustments are made for holding gains included in mutual transactions like dividends. Reinvested earnings to and from the RoW is also excluded. In this way disposable income will more accurately reflect what actually is disposable in the economy for consumption and saving. Reinvested earnings are not at hand and cannot be used domestically. The exclusion of redistributed income from earlier periods would hamper the analysis of household behaviour when they actually have the money in their pockets we in the NA have excluded. Another advantage is that net lending will also express the actual need of lending when the net reinvested earnings from the rest of the world are excluded. A modification of this alternative would be to record reinvested earnings to and from the RoW as in the second alternative not impacting on net lending.

The balancing items are the most vital parts in the NA. Therefore it is of greatest concern that it is clear and obvious what they should express. But, as I have tried to show, the changes during the SNA updates has made the content of the balancing items harder to grasp. It is time to let accounting principles be more dominating than other demands. In the next revision of the SNA we therefore should include this as an issue for discussion.

Problems in the comparison of GDP-measures

In the discussion of well-being GDP can be regarded an estimate of resources available. How these resources are used is also shown, at least by large, but in both cases the resources are over-estimated due to the fact that social costs related to the use of non-financial assets including natural resources are not recognised. Some researchers make use of NDP instead of GDP and the NA system offers this opportunity, but that adjustment is not enough especially for economies which to a large extent are depending on the use of natural resources.

When countries are compared with each other in economic respect it is common to use GDP/capita as the standard measure. Besides the fact that economies are in different demographic situations which is reflected in GDP/capita countries with a high share of GFCF will appear in a better shape, due to a higher share of productions costs not subtracted from GDP in such a comparison. By the inclusion of R&D in GFCF this difference has been reinforced and makes GDP/capita less useful as an absolute measure. In ranking countries, though, this change will probably have less impact. The main focus is still on GDP, maybe it is time to change the centre of gravity in the SNA by putting more emphasis on NDP.

Consumption of fixed capital[2]

How to correctly settle NDP does not depend on lacking information of the total costs of consumption of fixed capital (CoFC) to be subtracted from GDP, but rather on how these costs, after the GFCG has been undertaken, should be distributed over the future production periods. Observe that this problem already exists and influences the contribution to GDP growth from non-market producers unless volume indicators are used.

According to SNA two factors are important for the reduction in value of fixed capital. The first and most obvious one is wear and tear, i.e. the physical degradation caused by using the equipment and the second and probably the more important is obsolescence and depend on the social benefits derived from the fixed assets which in turn depend on the economic development where technological change plays a predominant role.

[2] 2008 SNA para. 6.240-6.257

The physical degradation is related to the age of the asset and how much the asset is used over the years. The obsolescence depends on economic factors making the GFCF less profitable. The development of new production methods as well as market relations like the world market prices, are factors of vital importance for profitability. One way of estimating the pattern of the CoFC is studying prices on secondary markets for assets of different age. But for most of the assets second hand markets do not exist or are small. In most cases statistical inference is therefore not possible.

In order to fully take the technological change into consideration some kind of adjustment for the increase in productivity is necessary. For example the productivity increases of new machinery in relation to existing older ones. In the same pace new and more efficient machines are used the relative efficiency of older machinery will be lower in creating output both in a physical sense and more important of value added. How much lower the efficiency will be depends on the productivity increase created by the introduction of new production processes involving the new machinery.

If we assume that the increase in productivity is of the same percentage from year to year then a larger proportion of the total CoFC will be distributed on the output produced in the first year and thereafter the CoFC of a specific asset will gradually be lower over the following years due to the decline in asset value. The geometric depreciation rate has this characteristic since it is a fixed rate of the asset value and when the value declines the magnitude of CoFC is also declining.

The choice between using GDP or NDP as a measure will fall back on the question how to correctly distribute the social costs of using fixed assets and natural resources in production. If the total production was know in advance the capital costs would be possible to distribute in proportion to output. During periods of boom the CoFC would be higher than during recessions. As a simplification we can infer that with an annual measure of the productivity the CoFC would be measurable ex. post, after the service life has ended[3].

As stated above, information on the future is needed in order to correctly measure the CoFC. But since this is not possible to get, what remains is the model based method known as the perpetual inventory model (PIM). This model needs assumptions on service lives, rate of CoFC in relation to the actual asset value (geometric) or the replacement cost (linear) and maybe some information on the scrap value. A lot of effort has already been spent on improving the measures and therefore the measurement of CoFC should not be an obstacle in shifting focus from GDP to NDP.

Actually, there are other problem areas in the compilation of NA which I judge being of at least the same dignity as the weakness of accurately estimating CoFC. We can think of some areas in relation to CoFC which give some perspective on the problem with CoFC; *transfer prices, adjustment of inventories to exclude holding gains, exchange rates of imports denominated in foreign currency, adjustment of intermediate consumption of own account workers, the market value of owner occupied housing services and last but not least undeclared and illegal activities*. In a comparison with these in some cases model based estimates of the contribution to GDP CoFC seem not to be an unsurmountable problem.

Does scientific knowledge accumulate?

A special problem in relation to CoFC is how R&D created by government mainly in the form of output of basic research should be recorded when freely available to the society. If such R&D according to international recommendations is included in GFCF, due to the benefit derived from it to the society at large, the estimation and recording of CoFC will have a significant impact on GDP.

[3] This is what Solomon Fabricant aims at doing according to Ohlsson (Ohlsson is the founder of the Swedish NA and a former head of Statistics Sweden) cf. Ohlsson, Ingvar – On National Accounting, Stockholm 1961, p. 183

Actual basic research builds upon previous research and in that sense the knowledge accumulates over the years but this will not be the shown in NA unless basic research is assumed to have a much longer service life than other kinds of R&D.

Basic research made by government contributes directly, by the estimation method, to GDP in the period the R&D is used (written off) and at the same time the value of the R&D assets declines. In a case where basic research has almost eternal service life the total amount of scientific knowledge, represented by the R&D assets, will rapidly accumulate. The current recording will in that case dramatically underestimate the net wealth and overestimate the impact on GDP. This is a topic which the future SNA should give some clear advice on. Not just for the sake of comparability between countries but also for users to understand the impact of government R&D on the balancing items in the NA.

Decommissioning costs and degradation of land[4]

In the current version of SNA it is recommended that anticipated decommissioning costs should decrease the value of the asset, for example in the case of nuclear power plants and costs related to the restoration of land after larger operations like opencast mining. Other measures are also undertaken in order to increase the economic benefit or restore the value of land and water. During the years land and water might have deteriorated in quality due to pollution. Such erosion of values can also occur to buildings. In this sense different costs in order to increase the economic value of buildings as well as natural resources are the like. It is a kind if GFCF, but how should the costs and decline in value of assets in the first phase be recorded?

Well, it can hardly be regarded as CoFC. It is neither the ageing nor the technical change which is the cause to these costs. It is true that it is the productive use of a nuclear power plant which has caused the future restoration needs but these needs do not reduce the efficiency of the plant itself in the continued production of electricity, it is rather something like an externality which has occurred and which is recognised by society. This externality has to be removed in order to make use of the site for other purposes and the construction parts of the building has to be deposited in a secure way in order to avoid further radioactive pollution. By this reason the society demands that land and buildings are cleared from radioactivity or that opencast mining fields are restored. Already when the plans are made up for the power plant the operator knows of this obligation. The obligation of restoring lies with the corporation owning and operating the plant and in that sense the value of the corporation will be reduced by such costs.

The clean-up activities could in part be done each year and be treated as a current cost. But this is not economically due to two reasons: loss of production and a higher total clean-up cost. Decommissioning costs has to be regarded as capital costs since the restoration they are financing have an impact for several years. But unlike GFCF they do not increase the value of the fixed capital stock. So, they have to be recognized as a special kind of capital cost like in the case of valuables. The costs of this capital formation (CF) should therefore, if there is an anticipated obligation to restore the site, be recorded in advance of the actual CF over the same period the damaging activity has taken place or at least at the time the CF is undertaken. In relation to CoFC the costs in the former case are distributed in advance of the CF.

So far I think the recommendation according to SNA is correct and the main concern here is how to record the costs in the accounts. Occasionally there is a tendency to elaborate on specific NA solutions to this kind of accounting challenges without improving the substance of the NA. There is no reason to deviate from business accounting unless it is inadequate from a social accounting

[4] 2008 SNA para. 20.56-20.60

perspective. The proposed treatment is like introducing degradation through the backdoor. But, degradation is so far not part of the social costs in the NA and therefore I would propose a different treatment (cf. the numerical example in annex 1). An obligation of future payments should be recorded as a capital expenditure in the production account and in the balance sheet as a financial liability.

We should remind our self that the obligation to restore a production site and equal measures in the first place lies with the legal unit which has been appointed the right to carry on the degradating activity. The costs of restoring the site are in this sense actual business costs even though they are accumulated and finally paid at the end of the service life of the plant. It therefore seems more correct to record these costs in the pace they are recognised and in the same time have an impact on the operating surplus of the corporation because reservations has to be done in the balance sheet in order to meet future obligations. These costs should decrease value added in the same way as other capital costs like CoFC does but shown in the accounts as a separate item. But contrary to CoFC these costs should be regarded as paid in the same period recognised by a reservation in the balance sheet if used treated as borrowed in the same manner as pensions are treated in a book reserve system.

Such a recording have by that similarities with the treatment of pensions in the NA. Annual costs which are not paid are accumulated as a liability in the balance sheet until the date of payment. Whether the subtraction for decommissioning is actually funded by the corporations or not is not relevant to the NA. If we recognise these costs as social costs, since there is an obligation to restore the site, then these costs should appear as a liability in the balance sheet as long as the obligation is not met.

The way of recording decommissioning costs proposed in this paper has at least two advantages over the current recommendation. The first is that we will not record negative values on fixed produced assets. When the value of an asset becomes negative this is a signal to stop using the asset because it is no longer adding value to the output. But in this case the use is continued because the reason to the negative value lies in the future and will not be reduced substantially by stop using the asset. In reality the valuation presupposes that the plant is operated until the date that corresponds to the when decommissioning starts. The second advantage is that in normal cases such decommissioning costs are recorded in the business accounts as a financial liability and therefore we need not make adjustments of corporate accounts by excluding this liability in order to comply with the recording in the NA. It should be noted that the main difference with the current recording of decommissioning costs is the treatment in the balance sheet.

An alternative to the proposed way of recording which also is closer to the current SNA is to let the externality in production (degradation) impact on the land value of the real estate. The land value will then be negative for some years if the restoration costs are large. The negative value will prevail until decommissioning costs are increasing the value enough to be positive again. When decommissioning is undertaken the costs will in this alternative be recorded as land improvements and increases the value of fixed assets but they should not be included in the fixed capital stock since they do not have an impact on the productive capacity of the future plant.

Depletion of natural resources

More important than decommissioning costs is the social costs of using natural resources as inputs in production. In connection to this, several ways of recording these costs have been proposed[5]. If we take the issue of social costs seriously they should have approximately the same impact on the NA estimates of the value of resources produced as CoFC, i.e. an impact on NDP in relation to GDP.

[5] Cf. Vanoli, André – *A History of National Accounting*, Amsterdam 2005, pp. 339

As I have argued above, the value of the natural resources cannot be observed independently of the price on the products they are part of. This means that the valuation has to be made in an indirect manner. This can be done by a model isolating the value of the resources extracted. In an ideal state we also should regard the possibility of compensations paid to employees being influenced by extremely high natural resource rents in the business. But since there is problems in measuring the magnitude of rent paid included in wages and salaries etc. and it might also be politically sensitive to calculate this kind of split we should disregard this alternative. The wider problem of wage discrimination is not taken care of in the NA. The reason is that we record actual transaction without adjustments as they have been agreed between the parties on the labour market.

GDP from the income side will include the natural resource rent when we account for the transaction values of natural resources. This is very obvious when we compare GDP/capita in current prices of small oil producing countries with other countries of equal size. When treating depletion in the same way as CoFC the rent will be included in gross operating surplus but not in net operating surplus.

Since this is a cost which not actually has to be paid we need to bring it back in the accounts in order for income and savings to be correctly estimated. If we want to show the social income of the period we should exclude the depletion component (natural resource rent) in rent and only bring it back in the same way as CoFC in the capital account (cf. annex 1). This solution has also been proposed at earlier stages of SNA development but was never included in the SNA. Regarding the fact that withdrawal of natural resources lack a firm empirical basis and instead are based on model calculations these costs should preferably be recorded in the extended accounts only.

Emission allowances (permits)

An issue related to the valuation of natural resources is the recording of measures to reduce the negative externalities, influencing man and nature, created by production. One of these measures is the introduction of emission trading schemes like the EU-ETS. In the latest update of SNA this issue was not included in detail. So, what exists is a recommendation by ISWGNA and AEG.

Unfortunately consensus was not reached in the discussions on emission allowances. Furthermore, my opinion is that there exists alternative with the potential of solving the differences but which has not been put forward in the discussions. The recommendations made by the AEG are not optimal from an accounting perspective. Maybe it was with respect for the consequences on the government debt in the EU member states that the current recommendation was chosen. In that case this would be another example when administrative considerations influence how economic events will be recorded in the NA.

Emission allowances under a cap and trade scheme has close similarities with convertible debentures. A convertible debenture is a financial asset which at a point in time can be converted into shares in the corporation emitting the convertible. An emission allowance is in the same way a financial assets which can be converted into a tax payment. At the time of conversion he owner can realise a holding gain/loss depending on the difference in value between the two different assets, at aquisition and at conversion respectively.

There is one big difference though, which is a consequence of the accounting principles regarding loans in the NA. The convertible debenture is a loan until conversion and according to the debtor principle the nominal value of the convertible will be unchanged. This is not the way we should value emission allowances when the auction price is fluctuating. In NA we can chose to regard the actual market value of emission allowances as a liability in the government accounts and as an asset in the owners account. Another question which has to be resolved is what kind of financial assets the

allowance is. To treat it as a prepaid tax (AF.89) is making things easy. Emission allowances can actually be bought by institutional units, not obliged to pay taxes, in order to further reduce emissions. The payments for these allowances can reasonably not be regarded as voluntary tax payments.

With the increasing political interest in reducing the damage on environment caused by production, other tax related or market organised solutions of pricing the externalities are created. Such a market solution in order to stimulate the production of electricity with renewable resources has been introduced in some countries. These schemes use a financial instrument called Green Certificate (EU) or Renewable Energy Certificate (US). The users of no renewable electricity have to buy Green Certificates in quantities proportionate to the electricity consumption. These certificates are emitted by green electricity producers and redistributes income between electricity users and the producers of less environmental damaging electricity.

B. Globalisation

Introduction

The economic development and in particular everything that can by summarised under the heading of globalisation has reshaped the relations between corporations. Within enterprise groups this have been an ongoing process for decades and often takes the form of outsourcing. But outsourcing need not only be between domestic and foreign parts of the same group of corporations it is also used to reduce the costs of production by outsourcing parts to any foreign producer with lower labour costs. The question, besides practical measurement problems, is if the principles of the SNA are enough flexible to take account of these seemingly new relations and if we are able to structure them in a meaningful way to serve the analysis or if there are fundamental needs to modify the SNA. The work done under the supervision of the UNECE[6] points in the direction that it would be sufficient to make small adjustments in the activity classification. But in spite of the thorough work made by the Task Force on Global Production some questions still remain to be straightened out.

The task force has suggested that intellectual property products (IPP) should be given the same status as inputs in goods for processing as material inputs have in the discussion on outsourcing in ISIC rev. 4. By that change units only engaged in R&D and business management would be classified in manufacturing if the product at the end of the global value chain is an output of manufacturing. This is one option we have to discuss and there might be other solutions to the problem put forward which gives similar result. Other issues touched upon in the work by the TF have been the identification of the economic owner of IPP (chapter 3 and 4) and the distinction between goods and services (chapter 10). This latter is the main problem in relation to what is discussed in chapter 10 as merchanting of services.

Factoryless goods producers

When it comes to statistical units it seems that we are at a crossroad where we can choose to continue on the same course and divide the economic agents into as homogenous units as possible or change direction. We can for example take the larger unit, the enterprise group, as starting point and define the activity unit by all parts of an enterprise group that in different ways contributes to the same output. But if we choose this way we will also reduce the possibilities to make high quality input-output (IO) accounts because IO makes use of the homogenous activity unit and the group of enterprises is the opposite. Not even if we split the enterprise group into business segments these segments will be particularly homogenous.

What is even worse with the group of enterprises as starting point and a top-down approach is that this as a consequence will lead to the splitting of legal units. The partitioning of a legal unit or an enterprise (one or more legal units) into activity units in order to improve the analysis by activity and IO accounts is one thing. Such a partitioning only regards variables in the production account including GFCF and hours worked but splitting a legal unit means that all entries in the accounts including the balance sheet has to be split up. Splitting all accounts of legal units will inevitably lead to measurement problems and should as far as possible be avoided.

In the same degree as corporations have become global it has also become harder to have an overview of their activities and how different parts relate to each other. A global value chain includes three main functions; financing, production and sales. What has been the consequence of globalisation is that it is more problematic to identify and distinguish the functions and in particular this is the case for the split between production and sales.

[6]Cf. Guide on Measuring Global Production (draft version), *UNECE,* Geneva 2015

Some units of an enterprise group might be subcontractors to other units but without observable financial transactions which corresponds to the exchange of goods and services between the units. This can with some effort be overcome at the national level but when it concerns enterprises located in different economies the problem becomes worse. The same goes with the classification of units.

The current activity classification makes a sharp distinction between enterprises and enterprise groups. The latter are seen as unstable because they change through merger and acquisitions. The enterprise on the other hand is a rather stable unit and therefore more suitable for economic analysis. But to say that the enterprise unit is stable is not to tell the whole truth. Enterprises change their product line and are also engaged in merger and acquisition but of course to a lesser extent than the group. Nevertheless, such changes on the level of enterprises create disruptions in the recording of output by activity.

Regarding the national part of a global enterprise it can be so specialised that it only carries out few of the tasks in the whole global value chain. Looking at the enterprise group on a global level the picture of what is being done might be different. We are in a sense on the horns of a dilemma in classifying units narrowly according to the precise activity undertaken by the unit and nothing more, nothing less or we can use a broader perspective and look for the final output the unit is contributing to create.

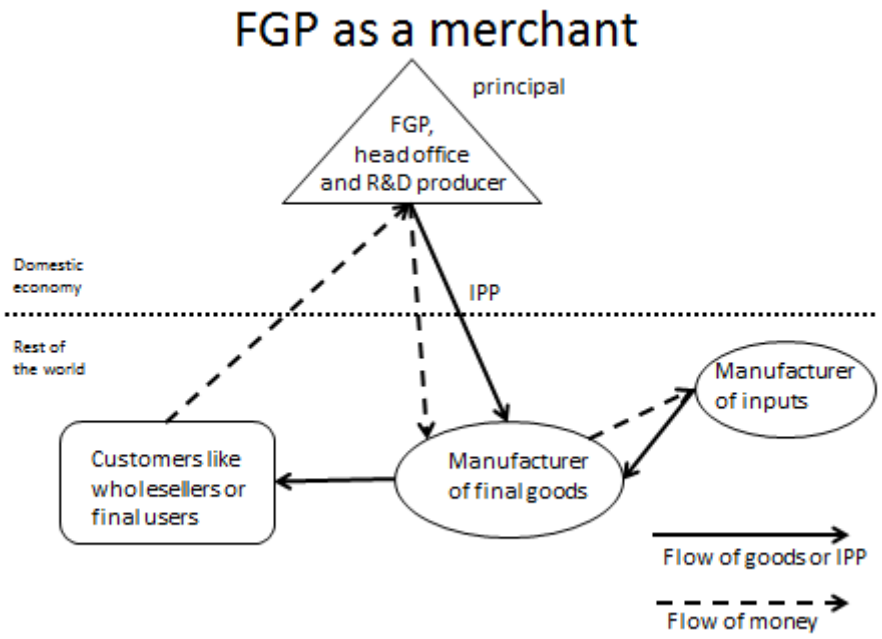
An obvious example of this kind of dilemma regards research based activities where the research mainly is undertaken by one or few units in close cooperation with the management. The R&D activity tighter with management might be located in one economy and the production located elsewhere. All units belong to the same enterprise group and the research is clearly an integral part of the activity in the group where R&D presupposes and is reciprocally depending on the production activity. According to the current recommendations this relation is of no interest and should be disregarded. The foreign part of the global enterprise is treated as any other unfamiliar unit at arm length.

The real problem is that these recommendations do not take into account the practical difficulties in establishing the kind of activity the unit is undertaking. The use of transfer prices and invoices can lead us astray if we only use such information in order to establish the actual activity performed. During the last decades several manufacturers have been outsourcing production, in part or entirely, to low cost economies. They pay the producers for the final goods and send invoices on much higher value to the wholesalers and final users. The difference should cover own R&D costs as well as management. They buy and sell a good classified within the same product category and by that presumably has not been transformed by the transaction. So, the R&D and management unit appears from a superficial statistical point of view as wholesalers (see figure 2 below).

The research based enterprise becomes so to say a wholesaler in its own product, protected by intellectual property rights. This situation has not been foreseen in the NA guidelines, e.g. ISIC rev. 4. My opinion is very much in line with the view of the TF on Global Production, it was not the meaning that units should be classified as merchants if they only trade in their own goods and services. This shortcoming in the guidelines has led to the special treatment of these units as undertaking a special kind of trading activity under the heading of merchanting separated from wholesale and retail trade.

When it comes to the classification of units (establishments and enterprises) with income from merchanting the recommendations are unsatisfactory not to say unclear. The task force has struggled with the problem in order to get rid of FGP as wholesalers and proposed a temporary solution by separately accounting for such producers as a subcategory of the same manufacturing activity they, by providing the IPP, are a functional part of.

Figure 2: The FGP only provides the manufacturer with the blueprint (IPP) and the inputs are bought by the manufacturer. The FGP is classified as a merchant.



This solution, even if it is temporary, goes, according to my view, contrary to the ISIC rev. 4 and IO accounts where the starting point is the homogenous activity unit. By mixing several kinds of activities under the same heading the IO relation becomes more heterogeneous. The IO-analysis is also under threat from the consequences of globalisation. When the relation between the units undertaking the R&D activities and the one using the result in a productive activity becomes more obscured and hard to trace because there is no information on direct payments between these units, it will be more or less impossible to estimate the social costs of R&D embodied in the final output.

Wholesale and retail trade

Units specially created for trade should according to ISIC be classified in the activity wholesale and retail trade. Such a recommendation can be interpreted in several ways. One type of units are shops (retailers) owned by the same enterprise or group of enterprises as the goods producing unit belongs to. A goods producer can have a network of retailers not only for the distribution of new goods but also for spare parts, taking care of guarantee repairs and to offer other services related to the product.

The production of consumer goods is an area where it is common to set up a network of shops. Even if such units are establishments within the same enterprise as the goods producer and operates under the same brand their activity should be separated in a different activity than manufacturing. This is also the case when retail trade is organized in the same establishment as the goods producer. In this case the establishment has to be divided into two separate local (kind of) activity units one undertaking production and the other the retail trade.

Another kind of unit are those created to be responsible for the purchase of intermediates and the selling of the final output to wholesalers or other enterprises and agencies to be used in their business. In this case it is more or less the purchasing and sales department within an enterprise which either constitutes an establishment of its own or has been separated from production as a

corporation. Such units perform mainly ancillary activities as a service to the producing units in the enterprise or group of enterprises. Unfortunately there is no deeper discussion in ISIC on the classification of these ancillary units in relation to those trading in goods produced outside the enterprise.

When it comes to the degree of independence for those units selling the output of the enterprise ISIC is rather clear. If the units are acting under the direct management of the parent corporation (head quarter) and only to some extent are selling the goods of other producers they should according to ISIC be an integrated part of the parent corporation. This rule should be generalized to include all wholesale activity of the own output.

A special kind of activity which is treated differently in the SNA as in ISIC is ancillary activity. But, border crossing ancillary activity should always be treated as primary or secondary activity. This means that a unit within an enterprise group which only undertakes ancillary activity to the benefit of goods producing subsidiaries located in other economies will have the ancillary activity as its primary activity. In so far it should not be classified according to the activity of its subsidiaries but of its own activity which in this case no longer is ancillary. In the 2008 SNA this principle has also been extended to units in different regions so that it is logically consistent with cross border transactions.

A factoryless goods producer (FGP) is a producer, located in one region or economy, organizing the production on a national or global scale and contributes to it with R&D etc. and finally sells the output (by invoicing it) without taking physical possession of it. The production of the goods is located in another region or economy and the FGP does not necessarily contribute to the material inputs of the production. In relation to the ideas of the task force this implies that the activity classification of FGPs does not have a satisfactory solution, still.

Criteria for an FGP to be classified in manufacturing

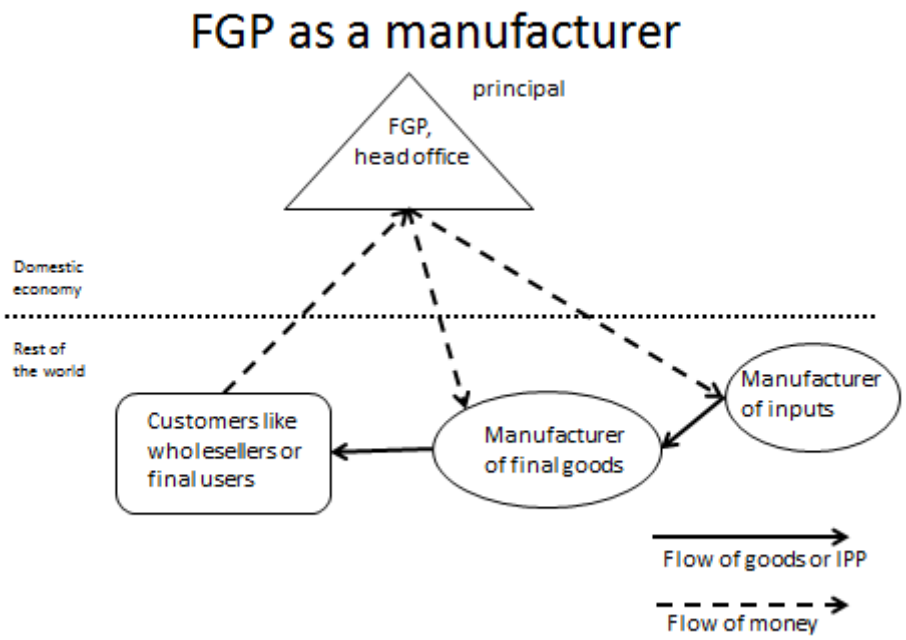
According to ISIC a necessary condition of being classified in manufacturing is that a unit at least owns and provides a part of the material inputs to be processed by a unit in another economy. The condition of providing the material input should be interpreted as an input that should have been processed by the unit providing it as goods for further processing. Without this interpretation the condition will be weak in the sense that it will not exclude units which not at all are engaged in manufacturing and only are buying inputs sent for processing. In relation to a unit which provides the original blueprint of the final output and let the producer buy all the material inputs the former unit which only buys the inputs is less involved in the production process than the R&D unit providing the blueprint (see figure 3 below).

Regarding the existing international guidelines and the interpretation I have made about the material input we can conclude that there is no possibility for an enterprise which is engaged in R&D or design of manufacturing goods to be classified as a manufacturer of the same good. If we besides that also accept that it is unreasonable to classify the FGP as a merchant since it only trades in its own IPP then only few service activities remains which it can belong to. It is important that we are not mislead by the fact that the FPG earns money by selling goods when their own activity mainly is the providing of R&D and design services, computer programming or management services.

In order for an FPG to be part of the manufacturing industry a change in the ISIC classification is needed. This can be done by splitting the R&D and design activities into two different kinds, one which has a common fundamental characteristic and the other more related to specific goods or services. The latter more applied R&D and design activity should be moved in the product classification to the same product group where the finished good it is embodied in is included. In this way part of the R&D activity will be classified as a manufacturing service and the provider would be

classified as a manufacturer accordingly. But a condition for this kind of split to be meaningful is that it is empirically possible to separate applied R&D from basic R&D.

Figure 3: The FGP provides the manufacturer with the inputs and is therefore classified in the manufacturing activity.



Example of factoryless goods producers

The typical example of a FGP is located in the publishing industry, e.g. a book publisher without own printing facilities. The publisher is processing the manuscript from the author and gives the book a graphical design. Altogether this leads up to the book title which by an agreement with the author gives the publisher exclusive right to publish the title. The publishing right as well as the copyright are examples of the end results of intellectual activity leading up to an intellectual property product (IPP).

The publishing right makes it possible for the publisher to make money on the book title by printing and selling books or publish the manuscript as an e-book. The publisher turns to a printing company in order to get the book copied and sold to bookstores. The publisher also takes care of marketing partly in cooperation with the author.

The book is a good and the medium which makes it possible for the buyer to consume the story told by the author. The story or more general the text is the immaterial asset the author has the copyright to. The story can be transmitted in several ways for example as sound-book, e-book or movie. It is in the distribution Internet has made a revolution through the possibility of electronic downloading and streaming. This has cut the distribution costs and at the same time weakened the copyright protection.

Surprisingly it is not the publishing industry which is the standard example of FGP. This is probably due to the fact that the classification of the publishing industry was revised in the latest update of ISIC. This industry is now grouped together with other service providers under the section of information-and communication activities.

Goods producers are mainly classified within the manufacturing industry and it is in this segment of the economy FPGs have their origin. By the outsourcing of the production activities these units have become factory less. The result of the publishing service is a copyright protected original which can be multiplied. This is an asset which the publisher has invested in and should be accounted as GFCF in the NA. So far the publisher has only had costs but by copying and selling the copies it hopes to cover the costs and get a surplus.

The publisher buys the final book from the printing enterprise and sells it to bookstores. Regarding the income from sales one could conclude that the publisher covers the printing costs by selling the book to the public. In this sense it seems that the publisher acts as a wholesaler but nothing can be more wrong. It is actually the work behind the book, by the author and the publishing company which the major part of the price is intended to cover.

In ISIC rev. 4 this has been solved in a rather peculiar way, by letting the book which obviously is a good, been defined as an output in a service industry. This special treatment which so far only includes the publishing industry has to be taken as an expression of the current confusion regarding FGP. The publisher buys a printing service but sells a book, these two products are far apart in the ISIC classification and therefore we can infer that the publisher has to contribute with something which transforms the input of a printing service into the output of a book.

In reality, it is the other way round, the publisher does not transform the printing service into a book and neither does it provide the printing company with material inputs, it only sends the original manuscript together with instruction of how the final copies should be designed. The books are produced by the printing company with the original as the master to be copied. How should we explain the difference between a publisher and a cell phone developing enterprise creating a new model which is produced in a low cost economy, when the only input made by the cell phone developing enterprise is to provide the producer with the blueprint and the technical specifications on the components to be used? The activities of the cell phone developer are included in Scientific R&D (M72) and Computer Programming (J62). But it is far-fetched that the cell phones should be defined as output of these activities. So, one solution would be to move the product specific development activities from R&D and computer programming activities into the relevant parts of manufacturing.

In relation to the problem with FGP there is several questions which necessitates an update of the ISIC classification and the corresponding product classification (CPC). This is certainly the case if ISIC still will be the main classification of activities in the NA. Here are some suggestions:

1) Regard material and immaterial input in the same way as input in production.
2) Define product specific R&D as a service included in the same product group as the specific product.
3) Clarify the distinction between the wholesale activity and ancillary activities in relation to the output produced by an enterprise or group of enterprises.

Goods, services and intellectual property products

The Task Force on Global Production has also discussed the delineation problem of goods and services mainly in relation to merchanting of services. We can extend the issue to other communications techniques like remote work stations and digital streaming services. The question is whether in the light of the new techniques it is necessary to reconsider the borderline between goods and services. I do not think so but regarding IPP there might be a need to make a clarification in the product classification.

All in all I think the concept of services works well. One definition is that a service can be used to process and transform goods but it is not possible to store or transport the service in itself. If this is true we cannot speak of merchanting of services since store and transport are essential for trade. So, in what sense can we speak of a service being exchanged between two units but without being consumed, either as input or as final consumption?

Let me first take an example outside the area of globalisation. A person going to a concert is buying a ticket. The ticket gives the individual the access to a seat in the concert hall at a specific date and time. The ticket is a sign of payment for this right to access the venue and consume the service provided. In most cases the ticket can be transferred to others maybe with age restrictions etc. and in this sense the ticket is a tradable contract.

When the orchestra starts playing the service is being produced and when the music is over the service has also come to an end. The result of the service can be recorded or transmitted in live or later on demand. But we should note that both recording and transmission involves more than the original service of the orchestra and the recording as well as the transmission they are also different products than the original service. The point is that, the buying of the ticket is not the same as consuming a service and reselling the ticket is not trading in services but instead the trading in a permission to have access to the concert hall when the musical service is provided.

Translating this into the problem of merchanting of services might not seem straightforward. Nevertheless, we should remind our self of the fact that it is not the service which is being traded but the result of the service. And technically speaking the result has to be materialised as a downloadable file or put on a disc in order to be transferred to the customer. So what is being sold is a good with the right to use the IPP. Normally the right to use is for one year or more an in this case it will be capital formation if used in production.

In the case of music performance and some extra inputs the result will be the original live recording of the concert. This is an IPP which can be used to make copies put on another medium and transported to customers. The same goes for computer software and in this case the medium might be a digital file transmitted through the Internet to a subsidiary corporation in the enterprise group. The software code is the result of the programming service and is stored on a disc or file. The medium carries the code between the seller and buyer after the programming service has been produced

Maybe there is a need for a third category in the product classification by activity in order to make a clear distinction between IPP and services on the one hand and material and immaterial products on the other hand. By such a distinction it should be obvious that products that also can become assets are tradable and distinct from services which never are. In the previous case of a publisher the output would only be the book title which is an IPP and the book which is a good should be regarded as the output of the printing or copying service and located in another part of the product classification.

Another way of making money on IPPs is to let someone else use it and make copies maybe to be used as input in production and integrated in a good[7]. Since the IPP can be used to create any number of copies, at no or very low costs, IPPs have special features in comparison with material fixed assets. The income from sales of the right to make and use copies should be seen as output of the same activity creating the IPP but instead of treating this, according to the current SNA, as a service it should be treated as a third category of output, a right to use the IPP, which is included in the same product group as the IPP itself.

[7] Cf. 2008 SNA para. 6.211

The distinction between IPP and services can also give us a clue of where the production of services is taking place. With access to the Internet individuals located at different places can work together and develop common software. But in doing this they download a local copy of the latest version which they modify at the local workplace and later on uploads to the common storage. The service is produced at the local workplace where the programming engineer is physically working with the software and the result, the addition to the inventory of unfinished IPP, is transferred to the common storage. The challenge will be to allocate ownership of the common inventory to the units involved.

The main problem in connection to globalisation is that the payment might be for something different than what the work is giving as result. Depending on how the production is organised the costs of R&D might be paid by selling the final good where R&D and other IPP are embodied instead of as a separate output. In the case of merchanting of services the unit in the enterprise group organising the production is also taking care of invoicing and receives the money of which a part is transferred to the unit producing the IPP and located in another economy. By following the transactions of money it might seem like a case of merchanting but this is erroneous. The payment is made for the right to use a copy of the IPP including some overhead cost related to the business activity of the seller.

Streaming services

A new and growing phaenomenon is streaming of film and music. Streaming service comes in two different formats. One is for example a time limited right to see a single movie. This is very much like renting a DVD from a local store for a period of days with the main difference being the way the movie is distributed. Instead of renting a copy of the movie on a DVD you rent a copy in the format of a data packages distributed through the Internet when you desire.

The other way streaming works is by paying a monthly or even quarterly fee for the access to a huge quantity of film or music titles to choose from. You pick what you want to see or listen to and the rest is left aside. Technically this resembles a subscription of a daily paper or journal. The number of articles is constantly increasing and you pick what you will read. As a matter of fact papers and journals can also be subscribed in the same electronic way and thus leaving the trees in the forest. The providers of the subscription services are those paying royalties and the same goes for the use of the IPPs.

The point made here is that though the new digital services might seem to be something new they only in rare cases actually are. The fundamentally new is the way the same old stuff is distributed. CDs and DVDs as well as the corresponding players are no longer needed. The paper as a medium for repeated access to newspaper stories is rapidly being phased out by the new distribution technology.

Legal and economic ownership

An over-arching principle which has been developed during the last 30 years regards the distinction between legal and economic ownership. The whole discussion of recording assets according the economic ownership started with the phaenomenon of financial leasing which popped up in the 70-ies. Financial leasing can for simplicity be compared with hire-buying. The intention is to use the asset during its entire service life but instead of buying it a financial enterprise buys the asset and become the legal owner. A leasing agreement is signed giving the right to use the asset against the payment of an annual fee.

What the NA-community regarded as wrong was that the ownership of the assets was determined by the way they were financed (in the lessors sector and activity) rather than where in the economy

they actually were used. It was also obvious that the output created by the use of the assets was not produced in the activity of the lessor, but in the activity of the lessee. This created an asymmetry between the factors of production and output. This amongst all had to be adjusted for. The problem is that it was easier said than done (cf. Annex 2).

As long as financial leasing covers a commitment over the entire service life of the asset the reclassification of financial leasing is not an unsurmountable challenge. This has certainly been true since business accounting standards has supported this recording. But the latest initiative of the IASB and FASB is to generalise the recording of leasing. All leasing lasting more than 12 month is recommended to generate a right-to-use asset and lease-payment-obligation liability in the balance sheet of the lessor and the lessee. The value of the asset will on the other hand be determined by the fees paid for the duration of the leasing contract only and not by the value of the asset. This means that assets which are leased for about half of their service life will only have half of their value in the balance sheet of the lessee at the beginning of the lease period.

So the question how leased assets will be recorded is an open matter again. Should we record the entire value of the asset in the accounts of the user (economic owner) as the current intention is or would it be better to create a new asset family, right to use assets and other long term obligations, and let the residual of the leased asset remain in the accounts of the lessor as is the case in the proposed update of IFRS[8]. Actually we have already encountered this problem in the Swedish NA. When aircrafts are leased for a shorter period of time than the remaining service life, the valuation of the leased asset is approximately the same as the discounted fees of the lease period.

I we chose the current SNA recording, we also have to distribute the residual value recorded in the accounts of the lessor to the lessees. But the information of the distribution will not be found in the accounts so we will probably have to create a model. In this sense it weakens the relation to reality and should preferably be recorded in the extended accounts.

How to record and maybe value leasing contracts will probably be an issue for the next revision of the SNA. This is even more probable if we have the ambition to strengthen the relation between the SNA core accounts and the economic reality and thereby give the empirical content a more significant position.

Financial leasing

In practice it is difficult to distinguish between financial and operational leasing. Different kinds of mixed forms exist and the recommendations currently under way draw the distinction by the length of the contract rather than by the terms of the contract. This makes it clear that the difference between the two is one of a degree rather than one of a kind. In both cases the lessor owns machinery etc. used productively by another unit, the lessee.[9] The terms are different in the two kind of leasing contracts but in both cases a fee is paid which cover CoFC, financing costs and the costs of the lessor including a mark-up. The distribution of responsibility is different in financial leasing from operational leasing but this has little practical implications. The lessor normally offers services for which the lessee has the responsibility.

[8] Cf. Exposure Draft: Leases, *IFRS Foundation*, May 2013

[9] In 2008 SNA para. 17.301 it is falsely stated that in operational leasing it is the lessor who is using the assets in its own activity, but this is obviously not the case. In an operational lease of building and construction machinery it is not the lessor who undertakes construction work. The same goes for transport equipment, it is not the lessor who uses these lorries etc. to transport own goods with. To the lessor the machinery rented are part of an inventory of goods and not included in the fixed capital stock.

The distinction between legal and the economic owner has been extended to other areas than financial leasing. Examples include when one unit for a longer period uses the assets of another unit for a fee but without a financial corporation engaged in the financing of this operation with the assets as collateral. The unit lending the assets acts as an operational lease provider but since the terms of the contract is for several years it has been regarded as an parallel to financial leasing.

The problem in such cases is that we rarely know the social value of the assets and if the contract is for only a part of the remaining service life we do not even know the value of the assets in the accounts of the lessor. So in this case we face at least two problems of social valuation, one of accurately account for the contract value and the other of accurately value the assets in question. Looking at this relation as operational leasing might have been preferable since

Limits to the concept of economic ownership

In most cases leasing contracts does not last the whole service life of the asset and for passenger cars it is as short as 20 percent of the total service life after which the cars are sold by the lessor as a service provided to the lessee. Since the lessee has agreed on the responsibility of selling the cars it is regarded as financial leasing. This means that we first redistribute the value of the cars and the corresponding liability to the units which are supposed to use the cars. When the cars after 3 years are sold we have to move the corresponding value to the sectors and activities where the new customers are located in. But the really interesting is that most of the passenger cars are privately used by the employees as a benefit in kind.

The enterprises use the leased cars in a kind of operational leasing activity to the benefit of their employees without charging the employees for the costs. Instead a benefit in kind is added to the compensation. The cars are not to any substantial degree used to produce the main output so in order to make the adjusted factors of production to match output we in the Swedish NA have to add operational leasing of cars to the unit who lease cars on behalf of their employees.

By this addition of secondary output the activity has become less homogeneous. Maybe it would have been better to define financial leasing as part of the operational leasing activity. The fee paid would then have been payment for a service given to the employees as compensation in kind. In this way it would have been more evident what it is all about. In the current situation we instead have thousands of enterprises which have operational leasing of cars as secondary activity which in a way is nonsense. Enterprises engaged in this kind of relation does certainly benefit from it. The enterprise assumes the risk and is rewarded with loyal management staff.

C. Classification of Institutional Units

Introduction

The introduction of the concepts; market producer, own account producer and other non-market producer, has caused a countless number of lengthy discussions on the classification of activity units and institutional units. This has not altogether been a bad thing. Thorough discussions are necessary in order to grasp the fundamental working principles of the NA. But, nevertheless the introduction of clearer concepts describing the essential behaviour in terms of motives or incentives of the institutional units would be welcome. Hopefully this would also make the classification of units more convenient. Regarding the increasing interest in non-government organisations (NGOs) which do not primarily act in the monetary interest of their founders there might be a reason to group them in a separate institutional sector instead including them as sub groups in each subsectors. The compilation of NPI data would by this change be presented in clearer way and easier to use.

In recent times the discussion about holding companies, headquarters and special purpose entities (SPE) has brought the problems of using concepts like independent decision making and economic activity into light. In what meaning can we for instance say that a holding company without employees is undertaking economic activity? There are also units which according to earlier version of the SNA have been allocated into less suitable subsectors which either do not correspond to their economic behaviour or is unpractical because they only will exists for a shorter period of time. The latest update has certainly implied improvements but unfortunately lack of resources and conflicting interests have led to compromises and mistakes which I hope will be corrected in future updates. Besides this earlier imperfections remain. I am specifically thinking of family trusts and estates which are included in the financial corporate sector. In these cases there are good reasons to reconsider which sector they should belong to.

Above all it is important to note that it is not the legal form of the unit undertaking economic activity which determines the sector it should belong to but the kind of activity it undertakes. The most heterogeneous sector according to the current SNA is the corporate sector. In this sector, side by side, we have all market producers regardless if they are government agencies, non-profit foundations, trusts or estates. That these units cover their costs by sales is a far too weak requirement to be classified within the corporate sector. The question to be asked is if these units really have the same economic behaviour as profit making corporations?

A tendency which has been evident especially in the latest update of SNA is that administrative demands have become more influential on the shaping of the accounts including the sector classification. This has been particularly evident regarding the government sector and the financial corporate sector. One idea put forward was to make accounts for the public sector and this is nothing more or less than accounting for the enterprise group in its extreme form. Such a classification by ownership goes directly contrary to the original ambition of classifying units by activity and institutional sector. A classification by ownership is meaningful in its own sense but will imply a big change and is for the moment therefore more suitable for being drawn up as satellite accounts.

The delineation of the financial corporate sector seem to be of strong administrative interest, amongst all for monitoring purposes. For those interested in analysing financial assets and liabilities or for the purpose of monitoring financial markets the activity based accounts do not offer enough information. As a consequence the sector breakdown has become more detailed and in a sense more important than the activity breakdown.

In some cases the reason behind a specific delineation is not so easy to apply. A specific case is the split of insurance corporations and pension funds. When the guidelines in the SNA are of little help there is a tendency to group units by other means than the activity they actually are engaged in. Such means might be the permits or licenses a unit have in order to legally engage in a specific activity or that it has to comply with certain accounting standards. Therefore it is would be helpful if it in the SNA is clearly pointed out that such legal obligations can only be an indicator of the institutional sector a unit should be classified within.

The institutional sectors in the SNA

The economic description by institutional sector can be divided into three or four distinct groups defined by their differences in economic behaviour. These four groups make up the domestic economy. This is not very much different from the current system but the ambition should be to make it clearer. Instead of starting with the dichotomy between market/non-market and then subdivide by profit/non-profit I would suggest to do it the other way round and start with profit/non-profit as the main dividing principle for institutional sectors.

The reason for this is that we should make a sharp distinction between the objectives and the way to reach them. The profit/non-profit distinction is a more pronounced expression of the overall objective with the activity of units. The way to reach it includes financial resources, factors of production, output and how the exchange of output is organised. Some ways of exchange might be more efficient for a certain objective than others, but the way the exchange is organised should not be mixed up with the objective itself.

The main sectors would be; the corporate sector, the government sector, the household sector and a sector for non-government organisations. Each of these has their own goals and means to achieve them with. The goals and means might change over time but are distinct from those of other sectors[10]. For each of the main sectors we can also identify a subsector consisting of non-profit institutions serving the same goals as units in the main sector. I practice these units are membership organisations for unit within the sector like employer organisations, unions and organisations for the cooperation between local governments.

Units in the corporate sector are for profit organisations using resources put at their disposal (financial capital in exchange of shares etc.) and used to increase the monetary value of the capital including monetary return on the shares paid to the owners. This is done by producing goods and services sold on markets in a broad sense. Let us be clear that the primary objective is not to produce a specific good or service but to maximise the monetary return on capital.

The economic behaviour of corporations as understood above differs from households. Households put their labour power or products they have produced on the market in order to buy the products they need. In the case of households it is not primarily a monetary profit interest which determines their behaviour. Households have a material self-interest and money is rather a mean used to get the products they presume necessary for a fairly acceptable life. The government sector on the other hand parts from the other two due to its overarching responsibility for the economic development of the society. This is done by supplying services which are necessary and desired but where the market producers are unable to produce in sufficient quantity or in an unbiased way as in the case of education.

A possibly fourth main sector would consist of non-government organisations. They are not created to meet the individual needs of the members. Instead they try to achieve idealistic goals or social

[10] Cf. 2008 SNA para. 4.16

needs of other households even outside the own economy. This sector includes corporations who according to 2008 SNA are market producers but by the charter of foundation or memorandum of association are not allowed to pay dividends because they are created to meet social needs for example education or employment for persons outside the regular labour market.

From an economic-political point of view the success of a nation is a question of how well the different interests and economic activity of the sectors are balanced to obtain an advantageous development for the entire nation. For that reason it is from an economic-analytical point of view important to keep these sectors apart and analyse them one by one in relation to the means they dispose in order to achieve their goals.

The financial corporate sector

In order to have a reasonable divide between the financial corporate sector and other sectors it is of vital importance to decide upon what financial activity really is all about. Ownership of financial assets and liabilities is apparently not a sufficient criterion since this is a capability of all institutional units. The guiding principles of previous versions of SNA have been financial intermediation and allocation of risk. It seems to be a tendency to group all units handling financial risks in the financial corporate sector. This need not be a correct delineation. It is the economic behaviour of the unit not the activity the unit undertakes which should determine the sector. In relation to illegal activities it would be possible that households are undertaking financial intermediation.

The two concepts, financial intermediation and risk allocation, capture the activity of banks and financial institutes as well as insurance corporations and pension funds who allocates risks between the participating legal and private persons. Other activities like changing the ownership of financial assets etc. are also included in the activities of the sector. In practice the sectors also have included units administrating and managing all kinds of pension arrangements but in some cases this is doubtful.

A pension foundation (trust) without active management can also be regarded as an ancillary unit to the corporation or government agency who has founded it. This is certainly the case when there is no difference in the legal obligation between having a book reserve or a separate pension foundation and the foundation is mainly created in order to avoid taxes. Pension foundations and mutual insurance corporations are non-profit institutions with a different economic behaviour than commercial financial institutions. Even more doubtful is the inclusion of family trusts where money is put aside for future needs.

An important characteristic regarding all kinds of activity is that it should imply some kind of change either the creation of new goods and services or changes in ownership relations. By that it is easy to infer that holding companies normally do not engage in economic activity. It is not the holding company who changes the ownership of shares this is done by a broker or a the unit managing the enterprise group. The holding company only owns the shares and this is a passive act even though the ownership composition changes over time. So, talking about activity of a holding company is a misuse of the concept and might give the wrong impression that a down-right holding company undertakes activities which contributes to GDP. The service provided by a holding company (cf. ISIC rev. 4, activity 64.2) is a service in general but not in the productive meaning of the SNA. If something else is done within a holding company it will no longer be a holding company.

Holding companies, headquarters and special purpose entities (SPE)

One of the problems with the institutional sector classification intensely discussed in later years, is the part played in the economy by holding companies and SPEs. The delineation between holding

companies and headquarters has also been touched upon. But the fundamental issue of what all these units contribute to the economy has not been satisfactory clarified, instead we have had a lot of confusion. The ambition of making a clear distinction between these units is welcome but the current definitions in the SNA are not very helpful.

The first question we should ask our self is; what is the analytical usefulness of having two kinds of units, holding companies and headquarters located in own activities. The first group does not undertake any activity at all and the second mainly serves other activity units in the enterprise. I would say that it is of little or no analytical interest to study what happens in activity 70.1 Services of Head Offices, isolated from other activities of the enterprises. The conclusion will not be very useful as input to economic policy. Is it good or bad if the activity in ISIC 70.1 decreases and should government try to stimulate the activity of headquarters for the benefit of the country?

The same goes with ownership of financial assets. Holding companies are used as links between different parts of non-financial enterprise groups. Holding companies as owners of subsidiaries is used to transfer financial resources between subsidiaries and dividends from subsidiaries and to the parent corporation to be paid to the shareholders. What analytical interest do we have in these transactions being rerouted to and from the financial corporate sector? The assets and liabilities used by non-financial corporations should mainly be accounted within the same institutional sector in order to give an accurate picture of the different kinds of resources needed.

When we, on the other hand, look at assets and liabilities in the case of border crossing ownership it will be reasonable to regard this as part of financial capital in another sense and classify such holding companies in the financial corporate sector. In this way we get a split between the capital used in non-financial corporations generating profit within the domestic economy and financial capital indirectly owned by non-financial corporations but which is used to generate profit abroad. When we analyse profitability it is only the socially needed domestic capital which is of interest unless we also include income from abroad. Maybe this was the intention with the changed recommendations in the SNA but in that sense we only have gone halfway by excluding holding companies with non-resident owners from the non-financial corporate sector. The capital of these companies is thus included in the financial corporate sector but what about the capital owned by resident units which is used to control foreign enterprises only. Such capital is located in holding companies with foreign subsidiaries at least in part and certainly in those without resident subsidiaries. But the latter group is not covered by the recommendations to be included in the financial corporate sector.

Family trusts and estates

Family trusts[11] are amongst all created with the aim of transferring wealth between generations in the household sector. In this sense they have very little in common with for profit units in the financial corporate sector. In the case of family trusts it can be pensions and money for the benefit of younger or even future generations of the family to be used for education or equivalent purposes.

Family trusts rarely have employees and do not undertake business activity. It is the founders and their successors who runs and manages the trusts according to the charter of foundation decided by the original founders. The trust can be seen as an extension of the household who has created the trust or foundation and this would motivate that trusts generally should be classified within the household sector.

An estate is formally a legal unit but at the same time it is a transitional state of a household after a deceased person and the household(s) who is (are) the beneficiaries of the deceased. By classifying

[11] Cf. 2008 SNA para. 24.75

estates in the financial corporate sector the assets will be reclassified for a short period of several month or possibly few years from the household sector into the financial sector. When the inheritance has been distributed to the beneficiary households the estate ceases to exist.

During the existence of the estate the beneficiary households have a financial claim on the net assets of the estate. I practice the net assets in the estate like in a family trust are always zero. So, the question is what do we analytically achieve by including estates in the financial corporate sector? Even if estates should not be included in the household sector it is by no means given that they should be included in the financial sector.

An estate can actually have some kind of economic activity in the meantime especially if it is an estate after an own account worker with employees. If the former activity is continued by the beneficiary of the estate there are reasons to classify the estate in the non-financial sector instead. It can never have been the purpose to include the activity of estates in the financial corporate sector. The activity can for example be agriculture or construction. In a strict sense all estates owing a residential house are undertaking real estate activities (L68). But in this case and out of practical reasons it can be disregarded, as if there is no one living in the house.

Annex 1. Decommissioning costs and depletion, numerical example

In this annex two issues are covered. The first is an alternative recording of decommissioning costs which is more aligned with the business accounting. The second issue regards the recording of depletion. In the example an enterprise has two activities the primary which leads up to decommissioning after it has been closed down and a secondary of natural resource extraction.

Decommissioning costs

In the current SNA decommissioning costs are treated in a way similar to CoFC. In the alternative recording shown in this annex the obligation (P.53dec = 5) is with the enterprise and as such not directly related to any specific asset. Since the reason for decommissioning is the social recognition of externalities in production making the site less useful for alternative activities the enterprise has the obligation to restore the site.

Since we treat this as an actual cost, a reserve to meet future capital formation in the same way as we make reservations for pension liabilities, it should not be brought back in the capital account. It is a cost at the same time a provision is made in the balance sheet. The enterprise can use the money since it is a book reserve but such a loan should be regarded as an external loan.

In the example below the provision is made in the entry, Provisions for Calls Under Standardised Guarantees (F.66), but in a future SNA it would be convenient to have a special entry for this kind of provision. The example covers the 10:th and last year of operation and the first of decommissioning. Provisions already exists for previous 9 years on the liabilities side of the balance sheet (AF.66 = 45). During the year this liability is increased with 5 and finally reaches the amount of 50. The decommissioning costs are treated as decreasing the value of the enterprise and not a specific asset. The enterprise has made an obligation to restore the production site and the costs are recorded as provisions for future measures to restore the site.

A financial debt normally has an asset as counterpart in the balance sheet of another unit. In this case we should regard the unit which has the legal power to force the enterprise into the obligation as the relevant counter party. This unit would normally have the responsibility of restoring the site if the enterprise does not meet its obligation can thus be regarded having a claim on the enterprise. I the example the provisions are treated as a book reserve but in case the provisions would be founded outside the enterprise the enterprise will have a claim on the fund corresponding to the provisions including investment income.

The work to restore the site to its previous condition starts the following year. In the first year half of the provisions (25) for decommissioning are used. This is recorded in the capital account as capital formation in the same way as for valuables and since it already has been recorded as a cost it should not impact on net lending. Therefore an entry like the adjustment for the change in pension entitlements (D.8) is introduced in the capital account as part of capital transfers (D.9). The corresponding capital formation is recorded in the same way as valuables. When the decommissioning costs are paid this will reduce the debt rather than increase the value of a specific asset. The value of land has not been influenced by the degradation or restoring of the site.

It will probably not be possible in advance to exactly estimate the decommissioning costs. In cases where the provisions are in excess or fall behind the true costs this should be regulated afterwards by recording the difference in the other changes in volume account. In the example the value of the

plant was 200 and at time of decommissioning it has been written down to zero. The value of natural resources including land is declining by the depletion in the secondary activity. By recording decommissioning costs as an obligation in the balance sheet we also escape the valuation problem of the real estate. It is not transacted so we cannot have an empirical value and since there is some uncertainty in the provisions there is no exact valuation of the degradation.

In relation to the decommissioning costs it can be discussed whether they should be recorded as an asset separated from the land value or not. Maybe there is an interest in the NA of describing which values are created by man separately from what nature gives. On the other hand, symmetry is important in the NA and if we do not, as in this example, estimate and describe the degradation by man separately, we should not record the restoration as a separate item either.

Depletion

In 2008 SNA depletion is treated as other changes in volume (K.2). In the example depletion of non-renewable natural resources is recorded in the same way as fixed capital used up in the production process. In the production account depletion has an impact on NNP (D.51dep = 10) and in the capital account this value is brought back (D.P51dep = -10), since it is not an actual payment, in order to give a true picture of net lending. Finally, in the balance sheet the extraction reduces the value of natural resources with the corresponding amount (changes in AN.212 = -10)

Last year (of ten) of operation before the decommissioning

Production account

Uses		Resources			
S.11	Transactions	S.11			
	P.1 Output	100			
40	P.2 Intermediate consumption				
60	B.1g Value added, gross				
20	P.51c Consumption of fixed capital				
5	P.53dec Decommissioning costs				
10	P.51dep Depletion				
25	B.1n Value added, net				

Generation of income account

Uses		Resources			
S.11	Transactions	S.11			
	B.1n Value added, net	25			
20	D.1 Compensation of employees				
5	B.2n Operating surplus, net				

Capital account

Changes in assets			Changes in liabilities and net worth		
S.13	S.11	Transactions	S.11	S.13	
		B.8n Saving, net	5		
	0	P.51g Gross fixed capital formation			
	-20	P.51n Net fixed capital formation			
	-20	P.51c Consumption of fixed capital			
	-5	P.53dec Decommissioning costs			
	-10	P.51dep Depletion			
5		D.9dec Adjustment for decommissioning	5		
5	35	B.9 Net lending			

Financial accounts

Changes in assets			Changes in liabilities and net worth		
S.13	S.11	Transactions	S.11	S.13	
	40	F.2 Currency and deposits			
5		F.66 Provisions	5		
		B.9F Net lending (financial accounts)	35	5	

Balance sheet

Stocks and changes in assets			Stocks and changes in liabilities		
S.13	S.11	Opening balance	S.11	S.13	
	165	AN Non-financial assets			
	20	AN.11 Fixed assets			
	145	AN.21 Natural resources			
	70	AN.211 Land			
	75	AN.212 Mineral and energy reserves			
45	100	AF Financial assets/liabilities	45		
	100	AF.2 Currency and deposits			
45		AF.66 Provisions	45		
		B.90 Net worth	220	45	
		Changes in assets and liabilities			
	-30	AN Non-financial assets			
	-20	AN.11 Fixed assets			
	-10	AN.21 Natural resources			
	0	AN.211 Land			
	-10	AN.212 Mineral and energy reserves			
5	40	AF Financial assets/liabilities	5		
	40	AF.2 Currency and deposits			
5		AF.66 Provisions	5		
		B.10 Changes in net worth	5	5	
		Closing balance			
	135	AN Non-financial assets			
	0	AN.11 Fixed assets			
	135	AN.21 Natural resources			
	70	AN.211 Land			
	65	AN.212 Mineral and energy reserves			
50	140	AF Financial assets/liabilities	50		
	140	AF.2 Currency and deposits			
50		AF.66 Provisions	50		
		B.90 Net worth	225	50	

First year (of two) of decommissioning activity

Production account

Uses		Resources
S.11	Transactions	S.11
	P.1 Output	40
10	P.2 Intermediate consumption	
30	B.1g Value added, gross	
0	P.51c Consumption of fixed capital	
0	P.53dec Decommissioning costs	
10	P.51dep Depletion	
20	B.1n Value added, net	

Generation of income account

Uses		Resources
S.11	Transactions	S.11
	B.1n Value added, net	20
10	D.1 Compensation of employees	
10	B.2n Operating surplus, net	

Capital account

Changes in assets			Changes in liabilities and net worth	
S.13	S.11	Transactions	S.11	S.13
		B.8n Saving, net	10	
	0	P.51g Gross fixed capital formation		
	0	P.51n Net fixed capital formation		
	0	P.51c Consumption of fixed capital		
	25	P.53dec Decommissioning costs		
	-10	P.51dep Depletion		
-25		D.9dec Adjustment for decommissioning	-25	
-25	20	B.9 Net lending		

Financial accounts

Changes in assets			Changes in liabilities and net worth	
S.13	S.11	Transactions	S.11	S.13
	-5	F.2 Currency and deposits		
-25		F.66 Provisions	-25	
		B.9F Net lending (financial accounts)	20	-25

Balance sheet

Stocks and changes in assets			Stocks and changes in liabilities	
S.13	S.11	Opening balance	S.11	S.13
	135	AN Non-financial assets		
	0	AN.11 Fixed assets		
	135	AN.21 Natural resources		
	70	AN.211 Land		
	65	AN.212 Mineral and energy reserves		
50	140	AF Financial assets/liabilities	50	
	140	AF.2 Currency and deposits		
50		AF.66 Provisions	50	
		B.90 Net worth	225	50
		Changes in assets and liabilities		
	-10	AN Non-financial assets		
	0	AN.11 Fixed assets		
	-10	AN.21 Natural resources		
	0	AN.211 Land		
	-10	AN.212 Mineral and energy reserves		
-25	-5	AF Financial assets/liabilities	-25	
	-5	AF.2 Currency and deposits		
-25		AF.66 Provisions	-25	
		B.10 Changes in net worth	10	-25
		Closing balance		
	125	AN Non-financial assets		
	0	AN.11 Fixed assets		
	125	AN.21 Natural resources		
	70	AN.211 Land		
	55	AN.212 Mineral and energy reserves		
25	135	AF Financial assets/liabilities	25	
	135	AF.2 Currency and deposits		
25		AF.66 Provisions	25	
		B.90 Net worth	235	25

Annex 2. Leasing between two non-financial units

This example shows a case of leasing between two units. The asset is an aeroplane of age 5 with a total service life of 25 years. At the moment the leasing starts the value of a new aeroplane is 800 which makes the value of the actual plane equal 640 (800 less 5 years of straight line depreciation). The unit owing the aeroplane leases it for 10 years to another unit and get it back after the lease period. Every year a fee is paid in relation to the book value of the aeroplane which originally was 750 and 5 years later is 600. Prices of this type of plane increase with 10 each year. For simplicity of the example the price change takes place at the end of the year. The annual fee is 50 divided into a service charge of 10 and an interest payment of 10 each year. The remainder of 30 is CoFC (600/20 years).

When we record lease arrangement of used assets we risk having a mixed recording where part of the assets value still will remain in the lessors account. We underestimate the consequences of the contract because we are unable to take the full value into account and also because the lease contract does not reflect the social costs and values which continuously are changing with market prices. In the example below the contract value which equals half of the book value of the aeroplane is 300 but the full market value is 640 so a value of 340 will remain in the records of the lessor and increase with prices (+10 each year) and less the CoFC not accounted for in the accounts of the lessee. At the end of the first year the value in the lessors account will be 348.

The value of the aeroplane in the lessees account will deteriorate with CoFC of 30 each year. This is an underestimation of the social CoFC since we do not take the price changes into account but on the other hand will the CoFC be overestimated in the lessors account if we do not pause the deduction for the lease period or at least reduce it to only reflect the price changes (first year, (640-600)/20 years = 2). Due to the way we actually make the calculations of CoFC this problem is overcome if we use the same service life for both units. In such a case we in the end of the lease period also will have a residual value of the aeroplane in the accounts of the lessee. In any case it will in practice be hard, not to say impossible, to comply with the principles of economic ownership.

In the example we have added CoFC to the accounts of the lessor to reflect the social value of CoFC (due to price increases) which in the first year should be 32 (640/20 years) and in the last year 38 (420/11 years). At the end of the lease period the value of the aeroplane in the accounts of the lessor is zero and the loan has been fully amortised. The annual earnings during the ten year lease period of 10 have accumulated into 100. In the accounts of the lessor the market value of the aeroplane is 392 (640+100 (price increase) – CoFC of 320 and approximately 25% of 100). The accumulated earnings together with CoFC not reinvested, and thus saved, accounts to 400.

Finally, in this example we have taken the view that net lending should reflect the actual need and therefore the CoFC which actually is part of the leasing fee and paid to the lessor should not be brought back for the lessee in the capital account but for the lessor.[12] In the case when both units are in the same sector this will have no practical impact but since the lessor normally is in a different sector than the lessee this will be an important issue to reflect upon if we want the net lending to be comparable between the financial and non-financial accounts. This also means that we should estimate CoFC separately for the leased objects in order to reclassify this part of CoFC in the capital account.

[12] The lessee has not made a payment for the entire asset or the value of the asset for lease period. The loan in the accounts of the lessee is only a counter party to the asset value in the accounts. The payments made are annual and therefore it would be conceptually wrong to bring the CoFC back in the capital account.

First year (of ten) of operation under a financial lease contract

Production account

Uses				Resources		
total	**lessor**	**lessee**	**Transactions**	**lessee**	**lessor**	**total**
			P.1 Output	100	10	110
20	5	15	P.2 Intermediate consumption			
90	5	85	B.1g Value added, gross			
32	2	30	P.51c Consumption of fixed capital			
58	3	55	B.1n Value added, net			

Generation of income account

Uses				Resources		
total	**lessor**	**lessee**	**Transactions**	**lessee**	**lessor**	**total**
			B.1n	55	3	58
			D.1 Compensation of employees	35	5	40
18	-2	20	B.2n Operating surplus, net			

Allocation of primary income account

Uses				Resources		
total	**lessor**	**lessee**	**Transactions**	**lessee**	**lessor**	**total**
			B.2n Operating surplus, net	20	-2	18
10		10	D.41 Interest, payable			
			D.41 Interest, receivable		10	10
18	8	10	B.5 Factor income, net			

Capital account

Changes in assets				Changes in liabilities and net worth		
total	**lessor**	**lessee**	**Transactions**	**lessee**	**lessor**	**total**
			B.8n Saving, net	10	8	18
0	-300	300	P.51g Gross fixed capital formation			
300		300	P.51n Net fixed capital formation			
-32	-32	0	P.51c Consumption of fixed capital			
50	340	-290	B.9 Net lending			

Financial account

Changes in assets				Changes in liabilities and net worth		
total	**lessor**	**lessee**	**Transactions**	**lessee**	**lessor**	**total**
50	40	10	F.2 Currency and deposits			
300	300		F.4 Loans	300		300
			B.9F Net lending (financial accounts)	-290	340	50

Balance sheet

Stocks and changes in assets				Stocks and changes in liabilities		
total	**lessor**	**lessee**	**Opening balance**	**lessee**	**lessor**	**total**
640	640	0	AN Non-financial assets			
640	640	0	AN.11 Fixed assets			
			AN.22 Contracts, leases and licenses			
0	0	0	AF Financial assets/liabilities	0		0
0	0	0	AF.2 Currency and deposits			
0	0		AF.4 Loans	0		0
			B.90 Net worth	0	640	640
			Changes in assets and liabilities			
-22	-292	270	AN Non-financial assets			
-22	-292	270	AN.11 Fixed assets			
			AN.22 Contracts, leases and licenses			
320	310	10	AF Financial assets/liabilities	270		270
50	40	10	AF.2 Currency and deposits			
270	270		AF.4 Loans	270		270
			B.10 Changes in net worth	10	18	28
			Closing balance			
618	348	270	AN Non-financial assets			
618	348	270	AN.11 Fixed assets			
			AN.22 Contracts, leases and licenses			
320	310	10	AF Financial assets/liabilities	270		270
50	40	10	AF.2 Currency and deposits			
270	270		AF.4 Loans	270		270
			B.90 Net worth	10	658	668

Last year (of ten) of operation under a financial lease contract

Production account

Uses				Resources		
total	lessor	lessee	Transactions	lessee	lessor	total
			P.1 Output	100	10	110
20	5	15	P.2 Intermediate consumption			
90	5	85	B.1g Value added, gross			
38	8	30	P.51c Consumption of fixed capital			
52	-3	55	B.1n Value added, net			

Generation of income account

Uses				Resources		
total	lessor	lessee	Transactions	lessee	lessor	total
			B.1n	55	-3	52
			D.1 Compensation of employees	35	5	40
12	-8	20	B.2n Operating surplus, net			

Allocation of primary income account

Uses				Resources		
total	lessor	lessee	Transactions	lessee	lessor	total
			B.2n Operating surplus, net	20	-8	12
10		10	D.41 Interest, payable			
			D.41 Interest, receivable		10	10
12	2	10	B.5 Factor income, net			

Capital account

Changes in assets				Changes in liabilities and net worth		
total	lessor	lessee	Transactions	lessee	lessor	total
			B.8n Saving, net	10	2	12
0	0	0	P.51g Gross fixed capital formation			
0		0	P.51n Net fixed capital formation			
-38	-38	0	P.51c Consumption of fixed capital			
50	40	10	B.9 Net lending			

Financial account

Changes in assets				Changes in liabilities and net worth		
total	lessor	lessee	Transactions	lessee	lessor	total
50	40	10	F.2 Currency and deposits			
0	0		F.4 Loans	0		0
			B.9F Net lending (financial accounts)	10	40	50

Balance sheet

Stocks and changes in assets				Stocks and changes in liabilities		
total	lessor	lessee	Opening balance	lessee	lessor	total
420	390	30	AN Non-financial assets			
420	390	30	AN.11 Fixed assets			
			AN.22 Contracts, leases and licenses			
480	390	90	AF Financial assets/liabilities	30		30
450	360	90	AF.2 Currency and deposits			
30	30		AF.4 Loans	30		30
			B.90 Net worth	90	780	870
			Changes in assets and liabilities			
-28	2	-30	AN Non-financial assets			
-28	2	-30	AN.11 Fixed assets			
			AN.22 Contracts, leases and licenses			
20	10	10	AF Financial assets/liabilities	-30		-30
50	40	10	AF.2 Currency and deposits			
-30	-30		AF.4 Loans	-30		-30
			B.10 Changes in net worth	10	12	22
			Closing balance			
392	392	0	AN Non-financial assets			
392	392	0	AN.11 Fixed assets			
			AN.22 Contracts, leases and licenses			
500	400	100	AF Financial assets/liabilities	0		0
500	400	100	AF.2 Currency and deposits			
0	0		AF.4 Loans	0		0
			B.90 Net worth	100	792	892