

THE NIGHTMARE OF ECONOMIC ACCOUNTS IN A SMALL COUNTRY WITH A LARGE INTERNATIONAL BANKING SECTOR

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Luxembourg

Presenting the Grand-Duchy of Luxembourg

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PRESENTING THE GRAND-DUCHY OF LUXEMBOURG

Situated between Germany, France and Belgium, the Grand-Duchy of Luxembourg presents the peculiarity of being one of the smallest and one of the most prosperous countries in the world. With an area of 999 square miles and a population of 366,000, the country's GDP *per capita* is estimated for 1984 at 18,250 U.S. dollars, compared with 15,356 for the United States (at current prices and 1980 exchange rates¹).

The country's wellbeing was traditionally based on a powerful steel industry producing the equivalent of 20 tons per inhabitant, at a time when the United States produced 0.5 tons per capita. The steel crisis of the mid-seventies has drastically reduced the importance of steel which dropped from a maximum of 33 per cent of GDP to about 10 per cent. Very fortunately, the City of Luxembourg at the same time developed into an international financial center, the number of banks rising from 19 in 1960 to about 130 nowadays, while their contribution to GDP rose from 1.5 to 12 per cent or even more according to the method adopted.

Computation of the banks' contribution raises a number of difficult methodological issues which have given rise to long discussions and repeated revisions of national accounts figures.

1. QUESTIONING THE INTERNATIONAL SYSTEM OF ECONOMIC ACCOUNTS

Larger countries often have their own systems of national accounts. Luxembourg has found it convenient to follow the international trend and adopted the first harmonized system of national accounts introduced in 1950 by OEEC, the

¹OECD *National Accounts 1960-1984*, Vol. I, p. 110, Paris, 1986.

Organisation for European Economic Cooperation, and since 1970 the European System of Integrated Economic Accounts² (ESA) which is the European Community's version of the United Nations System of National Accounts (SNA).

However, conventions concerning the treatment of financial intermediaries, in particular banks, gave very odd results. The basic problem is that the production of banks has an intermediary character and thus does not contribute to GDP and its growth. This theory does not seem appropriate to the analysis of activities of an international financial center, whose banks export the bulk of their services and thus work essentially for final demand. It is not surprising that national accounts calculated according to the SNA raised questions and criticisms.

1.1. *Criticisms and Questions*

The Luxembourg Government soon complained that national accounts did not give a true picture of the economy and in particular of the prosperous state of public finance. Public debt and the weight of taxes seemed excessive when compared to GDP, the main aggregate of SNA; in fact in the ratio $\left(\frac{\text{taxes}}{\text{GDP}}\right)$ the numerator took into account the contribution of banks while the denominator did not.

A provisional solution, distinguishing between GDP and GNP—the latter including factor income from abroad, i.e. the bulk of banking revenue not included in GDP—was able to explain the high level of profits and fiscal revenue. But the difference between GDP and GNP rose from 6 per cent in 1974 to 19.5 per cent in 1978 and even 39 per cent in 1985! On the other side, this solution called forth two objections: GNP plays a marginal role in SNA—it appears in a footnote—the basic notion being GDP; and GNP does not lend itself to an analysis of the structures of production.

A study conducted in 1978 in the European community on the evolution of the relative shares of branches in GDP made it clear that the conventions of the SNA did not allow for the growing contribution of banks to Luxembourg's production and growth. A paradox appeared: the most prosperous branch of the economy had no effect on GDP.

To get out of this difficulty, recourse was taken to a third concept: the sum of the value added by all branches. But this was not a concept of the SNA and moreover was difficult for the general public to grasp.

Another puzzle was the moderate long-term growth rate of the economy and of productivity, in contrast with the high level of living³. Favorable terms of trade, as conventionally measured in the national accounts, which had prevailed for some time, could only explain part of this apparent contradiction.

1.2. *First Problem: Final Versus Intermediate Demand*

Given all these problems something seemed to be wrong with the methodology. Would it not be possible to consider banking revenue from abroad

²ESA, 2nd edition EUROSTAT, Luxembourg, 1979.

³The presence of EEC institutions in Luxembourg has only an indirect effect on growth as will be shown in the final paragraph.

as a payment for the export of services and thus as part of final demand, instead of treating it only, as in SNA, as factor income on money placed abroad? This would bring GDP and GNP closer together. There is no other country where the difference between these two aggregates is as large as in Luxembourg.

The solution finally adopted was to distinguish between banking services rendered to residents and to non-residents. The latter were evaluated on the basis of non-residents' contributions to the total of banks' assets and liabilities.

The first OEEC system of national accounts made a distinction between banking services rendered to private consumers and to businesses, but this was dropped in the SNA for statistical reasons. In the case of an international financial center representing a significant part of the economic activity of a country, it seemed essential to distinguish between intermediate and final demand. In this case our solution would conform to the spirit of the international system, if not to its letter.

Treating banking revenue from abroad as an export of services had important consequences for national accounts in the following fields:

- GDP was raised considerably;
- the weight of taxes as a percentage of GDP decreased. Luxembourg left the unfavorable first place in international comparisons, and occupied a less conspicuous position;
- on the other side Luxembourg advanced to one of the best places in international comparisons of GDP *per capita* (and not only of GNP *per capita*);
- as to economic growth, the country became a member of the group of faster growing economies whereas it had so far belonged to the medium growth countries.

We were of course proud of this innovation. But soon “the native hue of our resolution was sicklied over with the pale cast of thought.” The new result seemed excessive for two reasons: the value of banking activities was substantially reduced by provisions for bad debts, and we still were unsure how to account for foreign ownership of the banks in Luxembourg in computing GDP.

1.3. *Second Problem: Provisions for Bad Debt*

So the nightmare was not over. At the dawn of the eighties a new problem arose, due to the international debt situation. Here again we were to come into conflict with the SNA as well as the ESA, the European system of accounts. But the SNA is also in opposition, on this point, with private bookkeeping practices.

Since the end of the 1970s, a great deal of bank credits to less developed countries and even to certain enterprises had to be written off in the form of bad debt allowances. What is the nature of these provisions? The SNA includes only effective losses (due to debtors' default) and they affect the capital account and have no incidence on production and value added. In private bookkeeping, however, the situation is different: losses as well as provisions for bad debts are transferred to the current account and reduce profits. Shareholders and government (represented by the tax authorities) accept this treatment, in order to avoid financial difficulties. Why should national accountants cling to a theory which

not only brings them into opposition with private practices, but gives unsatisfactory results from the point of view of economic analysis: unduly high profits, income, GDP and GNP, an unduly low level of taxes as a percentage of GDP and GNP, too low levels of public and private consumption relative to GDP etc.?

If shareholders and government agree, under certain circumstances, to treat capital losses as income losses, why should national accountants not do the same? And if this is done for real losses, why should it not also be done for potential losses, in other words for provisions for bad debts?

According to this line of reasoning, the value of banking services exported would have to be reduced by the amount of bad debt allowances.

In constant prices (or volume terms) banking production would remain unaffected because the production of services has taken place; but as they have not been paid for, or only partially, production in value terms has to be reduced. Banks' production might even grow in volume, but decrease in value, reflecting a deterioration in the terms of trade.

This theory however would, in certain years, have given a negative banking operating surplus, whereas banking profits were still highly positive. The reason is that you cannot make only one step towards the much larger notion of profit in private accounting, which includes also capital gains and losses, rent on houses, income on own funds, etc. Rather than taking into account only provisions for bad debts, it would then be necessary to replace the notion of operating surplus by the notion of profit as it is understood in private bookkeeping. Statistically this would be much easier since figures are readily available; it would also facilitate the evaluation of the weight of taxes as well as interbranch comparisons of production and value added. But this broad notion of profit seemed too far away from current ideas in national accounting.

So what is to be done? Should we leave GDP unaffected by this situation or should we deduct, say, half of the operating surplus to take due account of this peculiar situation? (See the 50 per cent solution in the tables hereafter.)

1.4. *Third Problem: Do Profits of Foreign-Owned Banks Belong to the National Economy?*

Our point that the international banking sector in Luxembourg should be treated as an export sector and that the part of the banks' intermediation margin which is earned abroad is to be considered as a final output and therefore as a component of exports and of GDP has been received favorably in international circles. The main objection was purely statistical: it is not possible to distinguish the exports of services according to their geographical destination and thus to have corresponding figures of export and import in the national accounts of the countries concerned.

But one basic question remained: Is Luxembourg really as rich as its national accounts suggest? It is to be recalled that GDP *per capita* (and not GNP) is currently used as an indicator of the level of living. Can one compare Luxembourg GDP *per capita* to the GDP of oil-producing countries who sell their own oil while Luxembourg sells services produced with foreign capital? Can one even compare with other western countries? The majority of Luxembourg banks are foreign-owned and their profits belong to the mother companies. If the "mothers"

insisted on receiving as dividends all the net saving generated in Luxembourg, there would be an inverse situation: GNP would be much smaller than GDP, instead of being larger. Fortunately they leave the money in Luxembourg, to increase the working funds of their daughters. But a sword of Damocles is pending over the economy. What if all foreign banks decided to quit Luxembourg and to take along their profits and reserves? There would be a formidable drop in GNP, and of course also in GDP. Even if this does not happen, one feels uneasy when speaking about *per capita* GDP in Luxembourg.

1.5. *A Compromise Solution: Costs Incurred*

While studying the Luxembourg economy the IMF recognised that “the growth of international banking activities raises difficult problems for the definition of Luxembourg’s GNP, with significant implications for the evaluation of . . . fiscal pressure, or the external position.”

The 1983 IMF country report contains in an annex the following statement:

“There is no doubt in the staff’s opinion that the point of STATEC is well taken, and that the international banking sector in Luxembourg should be treated as an export sector. However, by the same standard, the profits of that sector (whether actually remitted or not) which accrue to non-resident parent companies should not be classified as part of national income. Failure to adjust for profit remittances has led in recent years to a growing distortion in the measurement of GNP, as the excess of earnings of the banking sector over their operational expenditures rose rapidly. Accordingly, the staff has treated the banking sector in the present report as a domestic supplier of services to nonresidents, by including its local value added (measured as the sum of wages and taxes paid, and depreciation) in GDP and its operational costs (value added, as above, plus purchases from the economy) as exports. This approach was discussed with the authorities who agreed that neither the ESA nor the national definition of GDP were satisfactory. . . .

They noted in particular that, if the concept of foreign ownership were to be introduced, it should not be restricted to the banking sector. The staff agreed with this point but observed that the main distortions relate to that sector and that as a practical matter even a partial adjustment to the available data would facilitate the assessment of economic trends.”

This amounts to applying to the banks the method of “costs incurred” used for measuring the value added of the non-market sector, with the difference however that the banks pay taxes, though their full profits are here neglected.

The rationale of this solution is that it includes in GDP—(and in GNP!)—only that part of banking revenue which genuinely accrues to the national economy, namely wages, taxes paid and depreciation, and leaves out the remainder of profits. This seems a reasonable compromise in order to get out of the puzzle of problems discussed above and has been retained as the method for computing GDP and the banks’ contribution to GDP. The figures on Luxembourg

GDP published by international organisations continue however to be computed according to the rules of SNA.

2. STATISTICAL ASPECTS

Let us see the statistical consequences of the alternative solutions discussed and to which we shall refer as SNA (cf. supra 1.1), final demand (1.2), bad debt provisions (1.3), costs incurred (1.5) and full profit, i.e. the approach which would replace operating surplus by profits as measured by private bookkeeping. For the bad debt method alternative estimates are shown based on 50 or 100 per cent of the provisions, because it was not clear at first whether the tax authorities accepted all the provisions proposed by companies or only about half of them. It so happens that the 50 per cent solution which had been provisionally adopted gives results similar to the "costs incurred" method suggested by the IMF.

2.1. Value Added by Banks as a Percentage of GDP Computed by Different Methods

Method used for GDP		1974	1975	1980	1983	1985	
SNA (or ESA)	a	6.3	11.7	13.0	48.5	48.7	
	b	93.5	86.5	132.9	177.6	211.8	
	c	6.7	13.5	9.8	27.3	23.0	
Final demand	a	6.3	11.7	13.0	48.5	48.7	
	b	99.3	97.5	146.8	226.1	260.0	
	c	6.3	12.0	8.9	21.5	18.7	
Provisions	50%	a	5.9	10.8	11.2	29.3	28.5
		b	98.8	96.6	145.1	207.7	240.7
		c	6.0	11.2	7.7	14.1	11.8
	100%	a	5.4	9.9	9.4	10.1	8.3
		b	98.4	95.8	143.4	189.3	221.3
		c	5.5	10.4	6.6	5.3	3.8
Costs incurred (IMF)	a	6.0	8.6	15.6	21.9	28.9	
	b	99.0	94.6	149.3	200.6	241.1	
	c	6.1	9.1	10.4	10.9	12.0	
Full profit	a	n.a.	n.a.	25.0	29.1	41.6	
	b	n.a.	n.a.	147.5	207.5	253.1	
	c	n.a.	n.a.	16.9	14.0	16.4	

a = Value added by banks in billion Flux.

b = GDP in billion Flux.

c = Value added by banks as a percentage of GDP.

In these ratios not only the denominator (GDP) varies, but also the numerator: value added is highest in the full profit approach, it is the same in SNA and the final demand method, and lowest/smallest when provisions for bad debt are deducted.

The IMF approach shows a steady rise in the relative importance of the banking sector as revealed by its wage sum and taxes paid (+depreciation).

SNA clearly gives a distorted picture: whereas the numerator consists of total value added by banking, the denominator includes only value added of paid-for services, according to the conventions of the system. The percentage is inflated.

Final demand also exaggerates the importance of banking by including in its production the total of income earned abroad, which in fact is reduced by bad debt allowances and, in principle, belongs to foreign mother companies.

As to the time series: the sharp rise in 1975 (and again in 1983) is due to the steel crisis which abruptly reduced the relative importance of steel in GDP, thus increasing the weight of other sectors. Other ups and downs may be due to the movement of banking profits and provisions.

2.2. Total Exports of Goods and Services as a Percentage of GDP

Method used	1974	1975	1980	1983	1985
SNA	99.6	89.0	83.5	82.1	98.6
Final demand	99.6	90.2	85.1	85.9	98.9
Provisions 50%	99.6	90.1	84.9	84.7	98.8
100%	99.6	90.1	84.7	83.2	98.7
Costs incurred	99.6	90.0	85.3	84.1	98.7
Full profits	n.a.	n.a.	86.2	84.7	98.8

Results are similar, due to the high correlation between exports and GDP in all the methods used.

In small countries exports and imports amount to a larger proportion of GDP than in large economies. Luxembourg has always held a record in this respect. The peak in 1974 is caused by the steel boom (followed by the steel crisis in 1975), and the 1985 peak by a general boom of exports of material goods.

There is no relation, however, between total imports and the method used for computing GDP. In any one year, total imports remain the same whatever the method used. Expressed as a percentage of GDP they represent less if a new method yields a higher GDP. Departing from SNA thus also meant a larger excess on current account of the balance of payments. The difference between exports and imports of goods and services reaches 22 per cent of GDP in 1985, according to the costs incurred method, 11 per cent according to SNA.

2.3. Total Imports as a Percentage of GDP

Method used for GDP	1974	1975	1980	1983	1985
SNA (or ESA)	79.9	85.9	86.2	90.1	87.3
Final demand	75.2	76.2	78.0	70.8	71.2
Provision 50%	75.6	76.9	78.9	77.0	76.9
100%		77.6	79.8	84.5	83.6
Costs incurred	75.5	78.5	76.7	79.8	76.7
Full profit	n.a.	n.a.	77.6	77.1	73.1

2.4. Taxes as a Percentage of GDP

The ratios in table 2.4 include in the numerator only "pure" taxes, but no social security contributions. The SNA method puts Luxembourg in first place in 1985, about 10 per cent above Belgium, whereas other methods generally place it in third place, behind Belgium and the U.K.

2.4. Taxes as a Percentage of GDP

Method used	1974	1975	1980	1983	1985
SNA	26.3	30.3	32.7	36.9	33.6
Final demand	24.8	26.9	29.6	29.0	27.3
Provisions 50%	24.9	27.1	29.9	31.5	29.5
100%	25.0	27.3	30.3	34.6	32.1
Costs incurred	24.9	27.7	29.1	32.6	29.5
Full profit	n.a.	n.a.	29.4	31.6	28.1
<i>International comparison¹</i>					
Belgium	27.1	28.7	31.4	30.8	30.6
France	22.4	22.1	24.1	23.6	23.4
Germany	25.4	24.8	25.8	24.8	25.3
Netherlands	27.3	28.2	28.3	25.8	24.9
United Kingdom	29.6	30.1	30.4	30.9	30.1

¹ Eurostat figures based on SNA.

Even the method of costs incurred exaggerates fiscal pressure in Luxembourg, because GDP includes only wages and taxes paid by banks, but not the sum of their profits on which taxes are calculated.

International comparisons are difficult because the indicator used for measuring fiscal pressure is an average which depends not only on rates of taxation, but also on the relative importance of corporate and other income, as well as on the distribution of personal income. In the particular case of the U.K. one has to consider that a large proportion of social security is financed through taxes, thus distorting the comparison.

2.5. GDP per Capita and the International Comparison of Levels of Living

GDP is commonly used in international comparisons of the standard of living, though it would be more correct to use GNP.

The "50 per cent bad debt provisions" and the "costs incurred" methods give similar results, surpassing the SNA results by 14 per cent in the final year, whereas the final demand and the full profit methods yield much higher results.

2.5.1. Luxembourg GDP Per Capita According to Different Methods

Method used	1974	1975	1980	1983	1985
SNA	100	100	100	100	100
Final demand	106	113	111	127	123
Provisions 50%	106	112	109	117	114
100%	105	111	108	107	105
Costs incurred	106	109	112	113	114
Full profit	n.a.	n.a.	111	117	120

Let us now turn to an international comparison, retaining for Luxembourg GDP the costs incurred or IMF solution. Figures for other countries are taken from Eurostat national accounts, and expressed as a percentage of Luxembourg

per capita income. In Table 2.5.2 results are made comparable by using current exchange rates whereas Table 2.5.3 is based on purchasing power parities. PPPs still enhance the Luxembourg advantage due to a relatively low level of prices, as value added tax in Luxembourg is among the lowest.

2.5.2. Comparison of GDP *Per Capita*: Current Exchange Rates

	1974	1975	1980	1983	1985
Luxembourg	100	100	100	100	100
Belgium	75	88	85	76	72
France	71	90	87	88	83
Germany	86	94	94	99	92
Italy	43	48	50	58	56
Netherlands	77	89	85	86	78
U.K.	49	58	67	75	72

2.5.3. Comparison of GDP *Per Capita* (IMF): Purchasing Power Parities

	1974	1975	1980	1983	1985
Luxembourg	100	100	100	100	100
Belgium	74	76	76	73	69
France	77	80	80	79	73
Germany	78	80	83	81	78
Italy	65	65	67	64	61
Netherlands	83	86	82	77	73
U.K.	75	77	73	73	70

These figures are very revealing. They show the impact of the steel crisis in Luxembourg between 1974 and 1975, the relative amelioration in Italy and the U.K. and the effect of currency fluctuations, particularly for the U.K. Perhaps they also reflect the importance of the black economy in Italy and Belgium, as well as the inaccuracy of national accounts.

If Luxembourg GDP is computed along the SNA method, the difference becomes smaller, though remaining substantial. But the starting point of our reflections is that SNA yields too low a figure for GDP in Luxembourg.

2.5.4. Comparison of GDP *Per Capita* (SNA): Purchasing Power Parities

	1974	1975	1980	1983	1985
Luxembourg	100	100	100	100	100
Belgium	78	83	86	83	79
France	82	88	90	89	83
Germany	83	87	93	91	89
Italy	69	71	75	72	70
Netherlands	89	93	92	87	83
U.K.	79	85	82	82	80

Could the high GDP *per capita* in Luxembourg be due to the presence of highly-paid EEC officials? The total number of EEC officials is less than 5 per cent of the Luxembourg labor force, their average salary may amount to 2.5 times the Luxembourg average. Although belonging to the resident population, they are not part of the Luxembourg labor force and their salaries do not enter into Luxembourg GDP (as opposed to GNP!). Nevertheless their presence has an indirect effect on GDP through private consumption and construction and is one factor of economic development in Luxembourg.

It seems simply incredible that the Luxembourg standard of living should be one third or more above Belgium's, or 25 per cent above Germany's. One may wonder whether GDP figures are comparable, whether PPPs are correctly computed, and so forth.

3. CONCLUSION

National accounting is a very difficult subject indeed.

Bertrand Russell is credited with having said that mathematics is the science in which you do not know what you are talking about nor whether what you say is true. Does this not apply to national accounts too?

The present analysis shows that, besides errors in censuses, in sampling, in computation, in the use of nomenclatures and definitions, statistical results are significantly influenced by the theory underlying the methodology. This should be a matter of great concern for economic analysis as well as for economic policy.