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Why the GDP Shows No Bust, But GDR Does

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According to the Austrian Business Cycle theory, (i) an economic boom is caused by an expansion of money supply without backing, in turn leading to increased spending and (ii) the subsequent bust occurs as the expansion comes to a halt and the money without backing is wiped out, in turn leading to decreased spending. That the U.S. currently is experiencing a bust probably nobody denies by now. But why isn't the bust reflected in nominal GDP? After all, GDP is supposed to measure all expenditure and income in the economy. Among other things, should one then not question the correctness of the Austrian Business Cycle theory?

Economists generally sidestep this inconsistency by referring to other measures, like "real" GDP, industrial production and employment, to show that we are experiencing a bust.

Fortunately, some economists regard theoretical inconsistencies as something to solve rather than sidestepping, and one of these appears to be "Austrian" economist George Reisman. He has showed that it is the nominal GDP that is incorrect and he has instead derived an alternative measure, Gross Domestic Revenue (GDR). In the following discussion, I will (i) shortly show what is wrong with GDP, (ii) calculate GDR based on official national account statistics and (iii) show that the bust is present also in nominal terms, exactly as the Austrian Business Cycle theory predicts it to be. To prevent this from becoming an extensive exercise in national accounting, I will refer the reader to Reisman's 1996 book, Capitalism , for the full details of his GDRi.

Starting with the net domestic product, we have that

$$p + w = NDP = C + I + G + NX \qquad (1)$$

where the term "I" represents the net investment in inventories plus the net investment in fixed assets. To reach the gross domestic product, a term consisting of the depreciation of fixed assets is added. Thus, GDP is given by

$$p + w + \text{depreciation of fixed assets} = GDP = C + I + G + NX + \text{depreciation of fixed assets} \qquad (2)$$

This is where the problem lies, because in the "I" term there is still a net element, i.e. the netinvestment in inventories. There is a net element in the gross measure and it turns out that what is missed be this error is the larger part of all expenditure and incomes within a yearii.

Reisman's GDR is also based on NDP, but by noting that

$$\text{profit} = \text{sales revenue} - \text{costs} \qquad (3)$$

And that

$$\text{productive expenditure} - \text{business costs} = \text{net investment} \qquad (4)$$

where the productive expenditure is all expenditure made for the purpose of a subsequent sale, the gross product is defined as

$$\text{sales} + w = \text{GDR} = C + B + G + NX \tag{5}$$

where B is the productive expenditure. The perhaps most ingenious part is perhaps figuring out (4), and it could be understood by realizing that the money that is spent, thereby increasing the assets of the balance sheet, but not turning up as a cost in the income statement of the same year, form the net investment. Expenditure that increases the balance sheet involves expenditure on fixed assets but also expenditure on inventories and work-in-progress.

Expenditure that is accounted for as costs within the same year are included in both terms on the left hand side and, hence, doesn't affect the right hand side. Hence, we see that GDR also accounts for the investment in inventories and work-in-progress, something GDP fails to do.iii

From this, we can conclude that one way to calculate GDR would be to add the business costs to the NDP, or alternatively, to add the business costs minus depreciation of fixed assets to the GDP, so that

$$\text{GDR} = \text{GDP} + \text{costs other than depreciation of fixed assets} \tag{6}$$

Next, let us see how official BEA figures could be used to ca lculate GDR. The BEA nowadays publishes figures on Gross Output and from these we can, first of all, derive the expenditure on intermediate consumption of capital goods. The upper part of Table 1 shows how the gross output together with the imports form the total resources available for 1987 to 2001. Since these are used for exports and private, public and intermediate consumption, and the former three are provided with ordinary GDP figures, the remaining part must be expenditure on intermediate capital goods. From the figures, we can see that the intermediate consumption is larger than the private and public consumption taken together.

Table 1 – U.S. total resources and uses, 1987-2001, billion USD

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Gross Output	8 205	8 905	9 491	10 018	10 178	10 680	11 296	12 020	12 815	13 570	14 466	15 142	16 003	17 184	17 311
Imports	508	553	590	629	622	665	719	812	903	963	1 056	1 117	1 239	1 467	1 383
Total resources	8 713	9 458	10 081	10 646	10 801	11 344	12 015	12 832	13 718	14 534	15 521	16 256	17 243	18 650	18 694
Intermediate consuption	4 429	4 804	5 073	5 292	5213	5 451	5 830	6 289	6 797	7 250	7 802	8 176	8 670	9 434	9 151
Private consumption	3 105	3 357	3 597	3 832	3971	4 210	4 455	4 716	4 969	5 237	5 529	5 856	6 247	6 684	6 987
Public consumption	814	851	903	966	1015	1 047	1 072	1 102	1 134	1 172	1 223	1 261	1 338	1 431	1 522
Exports	366	447	509	557	602	637	658	725	819	874	966	965	989	1 101	1 034
Total uses	8 713	9 458	10 081	10 646	10 801	11 344	12 015	12 832	13 718	14 534	15 521	16 256	17 243	18 650	18 694

Source: BEA and own calculations. According to BEA, "Gross output represents the market value of an industry's production, including commodity taxes, and it differs from GDP by industry, which represents an industry's contribution to GDP. GDP by industry, often referred to as value added, is obtained as gross output less intermediate goods and services purchased."

From this we can continue by realizing that the total expenditure in the economy, as measured by the total uses in Table 1, corresponds to the total amount of sales revenue in the country for the given period. Thus, so far we have the aggregate sales revenue but since the BEA reports figures on both profit and depreciation, we will be able to derive the total costs backwards. This is shown in Table 2.

Table 2 – U.S. aggregate derived income statement, 1987-2001, billion USD

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Sales	8713	9458	10081	10646	10801	11344	12015	12832	13718	14534	15521	16258	17243	18650	18694
Intermediate consumption	4429	4804	5073	5292	5213	5451	5830	6289	6797	7250	7802	8176	8670	9434	9151
Private consumption	3105	3357	3597	3832	3971	4210	4455	4716	4969	5237	5529	5856	6247	6684	6987
Public consumption	814	851	903	966	1015	1047	1072	1102	1134	1172	1223	1261	1336	1431	1522
Exports	366	447	509	557	602	637	658	725	819	874	966	965	989	1101	1034
Costs other than depreciation	7091	7671	8181	8676	8773	9223	9783	10426	11141	11762	12525	13104	13929	15144	15098
Gross profit	1622	1787	1900	1971	2028	2121	2232	2407	2577	2772	2996	3154	3313	3507	3596
Depreciation	586	627	677	711	748	788	813	875	912	956	1013	1072	1145	1229	1329
Net profit	1036	1160	1223	1259	1280	1334	1419	1532	1665	1816	1983	2082	2168	2278	2267

Source: BEA and own calculations

Now we can calculate GDR by simply adding the costs other than depreciation of fixed assets to the GDP. This is made in Table 3, where the upper part displays GDP, costs other than depreciation and GDR. The lower part displays the components of GDR. They are the same as for GDP except that the gross investment now is considerably larger (by an amount of the costs minus the depreciation). The gross investment equals the total amount of productive expenditure in (4) and (5) above.

Table 3 – U.S. aggregate derived income statement, 1987-2001, billion USD

|	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
GDP	4742	5108	5489	5803	5986	6319	6642	7054	7401	7813	8318	8782	9274	9825	10082
Costs other than depreciation	7091	7671	8181	8676	8773	9223	9783	10426	11141	11762	12525	13104	13929	15144	15098
GDR	11833	12780	13671	14479	14759	15542	16425	17480	18542	19575	20844	21886	23204	24968	25180
Private consumption	3105	3357	3597	3832	3971	4210	4455	4716	4969	5237	5529	5856	6247	6684	6987
Public consumption	814	851	903	966	1015	1047	1072	1102	1134	1172	1223	1261	1336	1431	1522
Gross investment	8057	8679	9252	9753	9793	10313	10959	11748	12523	13254	14180	14920	15871	17219	17020
Net exports	-142	-106	-81	-71	-21	-28	-60	-87	-84	-89	-89	-152	-250	-365	-349

Source: BEA and own calculations

These figures can be used to show how aggregate spending has plummeted into a bust, just as the Austrian Business Cycle theory says it would. But first, let us first use the data to show another related prediction made by Ludwig von Mises in his The Theory of Money and Credit. There he explained the importance of the creation of fiduciary media for the economic boom and the subsequent bust. As the fiduciary media enters the economy, it sooner or later shows up as sales revenue. This boosts profits and businesses start investing, thus increasing the relative size of productive expenditure to the consumption expenditure. Mises writes that "[p]rojects which would not have been thought "profitable" if the rate of interest had not been influenced [i.e. lowered] by the manipulations of the banks, and which, therefore, would not have been undertaken, are never theless found "profitable" and can be initiated. The more active state of business leads to increased demand for production materials and for labor."iv Elsewhere he states that this would lead to "a reduction of the quantity of goods available for consumption", i.e. the investment would take place at the expense of consumption v.

Hence, taking the share of GDR expended productively and comparing it to the share of GDR expended on consumption would then show a pattern where, during the boom, the share of

productive expenditure would rise and the share of consumptive expenditure fall. To make this even clearer, Figure 1 shows the percentage point changes in the respective shares as part of GDR for the years 1988 to 2001. Starting in 1988, we see how the share of productive expenditure fell, causing a recession. It ended in 1991vi, and soon the productive expenditure share rose again. This process continued until 2000, where we see a dramatic fall in the share of productive expenditure. Hence, we see that the GDR data show something that is hard to show using other data sources.

Figure 1 - Year-to-year change in share of GDR
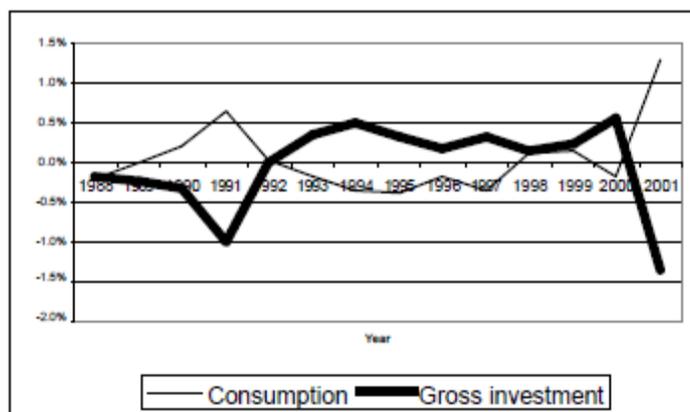
But let us continue by showing how the GDR data reflects that we have moved into the bust.

First of all, we can derive from Tables 1 and 3 that Gross Output, Total resources and GDR increased by 0.7, 0.2 and 0.8 percent in 2001, as compared to GDP that increased by 2.6 percent in 2001. Hence, we see that all gross measures based on measured output, as opposed to value-added or consumptive spending, show that the spending has come close to a stand still in 2001. Table 3 also shows that the gross investment fell by 1.2 percent in 2001. This perhaps sounds modest, but taking into consideration the large volume of the expenditure involved, it actually is a significant number (the "gross" investment included in GDP falls by a larger percentage but out of a smaller amount of expenditure). As a matter of fact, 2001 is the only year between 1987 and 2001 that the gross investment expenditure fell, as even the 1991 gross investment expenditure shows a slight increase. The fall in productive expenditure in 2001 occurred regardless of the fact that Greenspan did some serious monetary pumping after September 11. Thus, we see that the data suggests that the current bust is different compared to the 1991 bust.

To make this last point even clearer, let us have a look at Figure 2. It shows the additional amounts of consumptive and productive expenditure, respectively, for the years 1988 to 2001. First of all, we see that almost no additional funds where spent productively in 1991, the last year before the boom. The new consumptive spending only increased at a slightly slower rate that year. Second, by focusing on the subsequent boom of the 1990's, we see that much more funds were invested compared to consumed during the boom. The increase in productive expenditure from the bottom in 1991 to the top in 2000 is greater than the corresponding increase in consumptive spending. This is of course what we have already seen in Figure 1. Third, by focusing more on the investment, we see that the newly created funds productively

spent increased almost exponentially at the end of the 1990's. Reisman explains this pattern in his 1996 book, and thereby predicting it, as the consequence of the attempts by the Central Bank to keep down the interest rate. To do this "exponentially increasing amounts of credit expansion would be required." The key to understanding this is to look at the rate of interest, not as the price of money, as is the common view, but as "the difference between the money that is borrowed and the money that is repaid." An example might help to understand this point. It is hard to imagine a businesswoman considering taking a loan saying to herself: "if I take this loan at a rate of interest of 5 percent, I'll make a rate of profit of 7 percent." Instead, it is more likely that we should hear her saying: "if I borrow these 100 thousand dollars, that will cost me 5 thousand dollars in interest. Hence, to proceed with the loan, I have to make a profit exceeding the interest cost. And since I hope to make 7 thousand dollars on this venture, I'll proceed with the loan." You don't become wealthy by earning a high rate of profit per se, but rather by bringing in a large amount of profit and money, even at a low rate of profit. According to this reasoning, the main determinant of the rate of interest is the profits. It then follows naturally that more money in circulation raises profits and makes it possible to pay more interest, also at a higher rate. And in its efforts at trying to artificially keep down the short interest rates, the Central Bank then has to inject amounts of money of a continuously increasing size, i.e. exponentiallyvii. On this Mises wrote in 1936 that "if an attempt were made to prevent the sudden halt of the upward movement (and the collapse of prices which would result) by creating more and more credit, a continuous and even more rapid increase of prices would result. […]The value of the currency collapses, as was the case in Germany in 1923."viii

Figure 2 – Changes in expenditure, by purpose, million USD
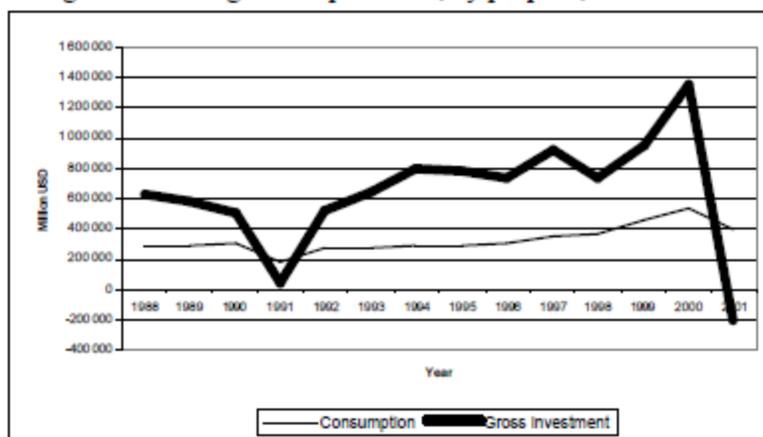
Forth, we see that the change in investment expenditure almost always stay in the positive range. The notable exception is 2001, when the change in investment fell by almost 200 billion USD. The year before, there was an addition to the productive expenditure by almost 1 350 billion USD, making it a change from 2000 to 2001 by almost 1 550 billion USD. This amount is larger than the 2001 public consumption. And taking into account the fact that the additional investment expenditure was rising exponentially in 2000, and that the projected additional investment expenditure would be close to 2 000 million USD, the fall could be regarded as even deeper. Fifth, since the upward movement in additional gross investment expenditure during the 1990's didn't come at the expense of lower consumptive spending, or had not been diverted

from the stock market, or perhaps elsewhere for that matter, they were to the largest extent evidence of newly created fiduciary media. And in 2001, since the fall in gross investment didn't lead to higher consumptive spending, or have been diverted to the stock market, etc, a major part of the volume of spending probably has gone the same way they came – into thin air. Hence, this clearly shows the inherently unstable role of fiduciary media and fractional banking.

From one single statistic, GDR, we can see that most of what has happened fit the predictions made by the Austrian Business Cycle theory. The current bust appears to be much more severe than the last recession. Figure 2 is the most clear single figure of the severity of the bust that I have found. Although I haven't been able to compute GDR from the statistics published for the part of 2002 that has passed so far, I believe the fall in overall productive expenditure and the fall in the productive expenditure as a share of GDR both has continued to fall further.

I hope the figures presented here can be used to when showing the correctness of the Austrian Business Cycle theory, to show the relevance and correctness of George Reisman's GDR and, as the title of this essay promised, to show the current bust in some new figures of aggregate expenditure.

And finally, please note that the figures presented here are money expenditures and the corresponding money incomes. They don't represent physical investment, consumption, etc (and neither do the corresponding "real" figures). David Ricardo's writes on this issue, i.e. the distinction between value and riches, "[m]any of the errors in political economy have arisen from errors on this subject, from considering an increase of riches, and an increase of value, as meaning the same thing."ix. Moreover, critique on national income statistics propounded by Ludwig von Mises also applies. He writes that "[i]t is possible to determine in terms of money prices the sum of the income or the wealth of a number of people. But it is nonsensical to reckon national income or national wealth. [...] If a whole entrepreneurial unit is estimated $1,000,000, it means that one expects to sell it for this amount. But what is the meaning of the items in a statement of a nation's total wealth? [...] The businessman can convert his property into money, but a nation cannot."x But as George Reisman writes: "the total amount of the money which is exchanged for goods and services in the economic system is not in any sense a measure of the total output of the economic system. The expenditure of money to buy any given god or service relative to the expenditure to buy any other given good or service can be taken as a measure of the relative amounts of wealth or production involved."xi And we see clearly from GDR that the relative expenditure has developed as the Austrian Business Cycle predicts it would.

Endnotes

i See his Capitalism, pp. 699. Actually, Reisman derives Gross National Revenue, GNR, for a closed economy. Any faults when calculating GDR for an open economy below are entirely mine.

ii This problem was present already in J.E. Meade and R. Stone's 1941 article on the subject, appearing in The Economic Journal, vol.51 (1941), pp. 216-233. In this article, Meade and Stone outlined what later became the UN standard on aggregate accounting. In that article they deal mostly with the net national product, but there is a short passage where they claim that "depreciation, renewals, repairs, etc" should be added to net investment to reach the gross investment. Thus, the problem has been there from the start. Richard Stone was later awarded the Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel for his his

"fundamental contributions to the development of national accounts." Also Meade was later awarded the Nobel Prize.

iii For more on this, see Capitalism, p. 702.

iv See von Mises essay The Austrian Theory of the Trade Cycle from 1936.

v See The Theory of Money and Credit, Ch.19:4.

vi According to NBER the recession ended in March 1991, fitting the GDR data well.

vii See Capitalism, p. 521 for more on this important point. And incidentally, every time the Central Bank injects new money the long rates increase. This is normally explained by a rise in the inflation component of the interest rate, but I believe Reisman's explanation is more fruitful.

viii See von Mises essay The Austrian Theory of the Trade Cycle.

ix See Ricardo's Principles of Political Economy and Taxation, ch.XX, Value and Riches, their Distinctive Properties.

x See Capitalism, p.673.

xi See Capitalism, p.673.