# Economic growth and changes in the investment-savings financial balance

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*I – together with Kurt Rothschild – had the privilege over twenty years to teach economics at the University of Linz. At our seminars we happened to have vivid discussions about theoretical issues and the students learned a lot not only from what we thaught them in the clases but even more from our disputes and differing opinions. One of the discussed topic was the relation between savings and investment where our views were not allways similar. This paper is dedicated to the memory of Kurt, a great economist, an excellent teacher and a reliable colleague.*

## 1. Investment, saving and growth

In an open economy with a government we have

$$\mathbf{YH + SP_B + TN + M = CP + IP + G + X} \qquad (1)$$

where on the left side we find disposable income of private households YH, non-distributed (gross) profits of firms $SP_B$, taxes and budgetary incomes, including social insurance contributions, net of all monetary transfers, TN i.e. all elements of (gross) value added; they are supplemented by imports M to make the l.s. equal to the value of final goods produced. On the right side we have consumption expenditures of private households CP, private investment expenditures IP, Government expenditures on goods and services G and expenditures of the rest of world (RoW) on goods and non-factor services exported by the country concerned X, respectively. By appropriate manipulations we get

$$\mathbf{(YH - CP) + SP_B = IP + (G - TN) + (X - M)}$$

$$\mathbf{SP_H + SP_B = IP + (G - TN) + (X - M)}$$

where $SP_H$ = [YH – CP) denotes the savings of private households.
Because $SP_H + SP_B$ = SP, private savings, we can write

$$\mathbf{SP = IP + D + E} \qquad (2)$$

where D = G – TN, denotes the Government budget deficit and E = X – M, denotes net export of the country concerned (or deficit of the RoW). According to the theory of effective demand private savings are determined by (but do not determine) private investment plus budget deficit plus export surplus.
Dividing both side of (2) by Y we get

$$\mathbf{SP/Y = (IP + D + E)/Y}$$

and

$$\mathbf{Y = (IP + D + E)/sp} \qquad (3)$$

where the private saving rate sp = SP/Y. Taking logarithmic derivatives with respect to time we get from (3)

$$\mathbf{g(Y) = g(IP + D + E) - g(sp)} \qquad (4)$$

where the operator g(i), i = Y, (IP + E + D), sp, present the growth rate of the variable

i. According to (4) the growth rate of GDP can be ex post ascribed to two factors: the growth rate of (IP + D + E) and the growth rate of sp. Hence the change of growth of GDP can be achieved either by a change of the growth rate of the factor (IP + D + E) and/or by a change of the growth rate of sp.

## 2. Debt-led growth

It is generally accepted that the development of the capitalist countries after the II World War can be divided into two stages. A number of specific historic conditions contributed to the rapid GDP growth in the first stage (the 1950s till the1970s). The »full employment ideology« and the responsibility of the state for the general conditions of the economy were universally acknowledged. The memories of the Great Depression of the 1930s were too fresh and compelling to be forgotten. Moreover, the rivalry with the communist system and the »Cold War« made it impossible to accept massive unemployment: capitalism was supposed to prove its ability to get high and even full employment. A welfare state with a considerable role of the public sector turned out to be a better alternative than the inflexible central planning system. The victory of the market economies over the central command economies was interpreted as a final triumph of liberal economics.

The second stage started during the 1970s and1980s. The stagflation provoked mostly by the oil crisis was used as a pretext to declare the Keynesian economics dead. The old paradigm of the benevolent role of completely free markets for the general prosperity reappeared. Capital controls have been abolished. Privatization of public services and deregulation of the economy followed. Globalization weakened the bargaining force of labour while unemployment was declared to be a result of labour market inflexibility instead of insufficient aggregate demand.

One of the results of the paradigm change was greater inequality in the distribution of income than in the first stage; it materialized in a declining share of wages in GDP and in increasing income polarization of private households. These two factors played an important macroeconomic role because they limited the consumer good demand. Also investment demand suffered because it is driven indirectly by consumer demand. The slowing down of GDP growth followed the path of aggregate demand.

The declining share of wages and growing polarization of incomes was observed everywhere but the reaction to these phenomena in different countries was not the same. We would analyse this reaction in Germany and US. The example of Germany is similar to Japan and can explain the role of growth driven by growing debt of the Rest of the World (RoW). The example of US, on the other hand, can be useful for looking at the UK and other countries where growth was driven by growing debt of private households.

In order to present our argument we will analyse the relation between financial balances of three sectors into which the whole economy can be divided. This approach was first introduced by Steindl (1990) and developed in a novel way by Wynie Godley (1999). From (2) we get

$$\mathbf{0 = (IP - SP) + D + E} \qquad \mathbf{(2')}$$

according to which financial balances (defined as expenditures minus incomes) of the private, Government and RoW sector have to add to zero. This is so because

expenditures for final goods and incomes derived from their production are *ex definitione* equal.

The balance 0 = (IP – SP) following from (2') can thus be seen as a special case for a closed economy without a government. Besides we may and should divide the private sector into two sub-sectors the business sector and the household sector:

$$\mathbf{0 = (IP_B - SP_B) + (IP_H - SP_B)} \qquad \mathbf{(5)}$$

where $IP_B$ and $IP_H$ denote business investment and household investment (residential building), respectively, and where $IP_B + IP_H = IP$. In addition $SP_B$ and $SP_H$ denote – let us remember – savings of private firms (gross retained profits) and savings of private households with $SP_B + SP_H = SP$. As a rule the financial balance of business sub-sector is positive because investment expenditures are here mostly higher than savings. The ensuing deficit of the business sub-sector means that its debt increases while its real assets increase as well. In the simplified model the deficit of the business sub-sector is possible if – and only if – the balance of the household sub-sector is negative, which means a surplus of saving over investment. Hence the deficit and surplus in both parts of the private sector taken alone must compensate each other. However, in the more general case of (2') this must not be the case.

As a rule – but not always – the private sector reports a savings surplus because very often firms borrow less than the private housholds save. This surplus has to be compensated at least by one deficit: of the RoW or of the Government sector. For the world as whole the export surplus must however be zero; hence the surplus of the private sector necessitates at least in this case a deficit of the Government sector. This means that the private sector needs Government deficits to find locations for its savings surplus. This is the basic reason why Government deficits are a rule rather than an exception (Laski, 2008). On the other hand a Government budget surplus needs – disregarding once more the RoW – a private sector deficit i.e. IP > SP and IP – SP > 0. This is why the improvement of the budgetary position takes place spontaneously when the economic activity is high and backfires when it is intended during a slump.

The financial balance (IP – SP) = IP – spY is directly related to the level of GDP. Indeed, it signals the size and the direction of changes of aggregate demand. Indeed there exists a direct link between IP and Y when the savings ratio sp is constant. And when sp changes – and it does change – the deficit of the private sector should be even better related to Y than IP alone. Indeed, with increasing sp the deficit of the private sector decreases, hence the demand stimulus accompanying a given level of IP becomes weaker; and vice versa in cases when sp declines.

The financial balance of the government sector D = G – tnY is at given G and tn a decreasing function of Y. Indeed when Y grows faster so do net tax receipts and the deficit D decreases. On the other hand when Y grows slower (or even decreases) also net tax receipts grows slower (or even decrease) and the deficit D increases. This is the mechanism behind the budget deficit as an automatic stabilizer of the business cycle.

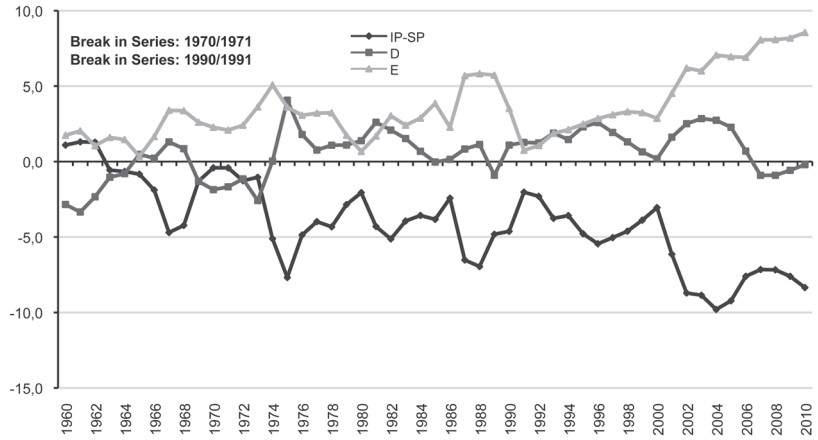
The financial balance of the RoW E = X – mY at given X and m (import intensity) is also a decreasing function of Y. This balance can be interpreted as difference between expenditure of the RoW for X and income of the RoW for M i.e. as a deficit of the RoW. Of course with E > 0 this means at the same time a surplus of the country concerned. This surplus decreases when Y grows faster because imports grow faster

as well. Hence when a singular country accelerates its growth its external position deteriorates if the demand of the RoW does not change.

In the Figure 1 we present the three balances in Germany. Let us start with the government sector. On the average the budget deficit in Germany was 0.6 percent of GDP. In the Stage I (1960 – 1980) Germany registered still a budgetary surplus of 0.2 percent of GDP and in Stage II (1991 – 2008) already a deficit of 1.4 percent of GDP. Hence the share of the budget deficit increased between Stage I and II by 1.7 pp.

The RoW sector in Germany was steady in deficit i.e. Germany registered a steady export surplus. It amounted to 2.4 percent of GDP in the Stage I and to 4.5 in the Stage II. Thus the export surplus (and the deficit of the RoW) increased from stage I to Stage II by 2.1 pp. Together the sum of financial balances D + E increased between Stage I and II by 3.8 pp.

**Figure 1: Three balances in Germany (IP – SP), E and D 1960 – 2008 */** (in percent of GDP)




Data Source: European Commission (2011): DG ECFIN – AMECO database, own calculations
*/ break of data between 1990 and 1992

Thus the balance of the private sector in Germany (IP – SP) must have decreased by the same amount. The average savings ratio sp increased in Stage II in relation to Stage I very slightly from 23.7 to 24.1 percent of GDP i.e. by 0.4 pp. Hence the major change took place in the share of private investment. IP constituted 21.6 percent of GDP in Stage I but only 18.2 percent of GDP in Stage II: its share in GDP decreased by 3.4 pp. These changes occurred mostly in the business subsector.

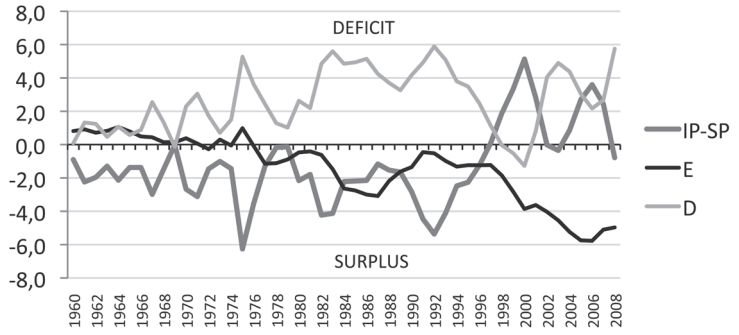
The average GDP growth in Germany slowed down markedly between Stage I and II from 3.6% p.a. to 1.5% p.a. It was carried in the Stage I by the growth of (IP + E + D) by .3% p.a. and supported by a decline of sp amounting to 0.3% p.a. In the stage II (IP + E + D) grew only 1.9% p.a. and was reduced by an increase of sp amounting 0.4% p.a.

In the Figure 2 we present the three financial balances in the US between 1960 and 2008. With very few exceptions the budget deficit occurred all the years although with different intensity. On the average it amounted to 3 percent of GDP and was larger in the stage II (3% of GDP) than in the stage I (1.9 percent of GDP). On

the other hand the import surplus (E < 0) was the rule with an average of 2.2 percent of GDP. The US had a large export surplus during and after the II World War but starting with the 1970s the foreign trade balance turned negative and the import surplus increased almost continuously. It was on the average much larger in the Stage II (4.2 percent of GDP) than in the Stage I (0.2 percent of GDP).

The most important changes can be observed in the balance of the private sector. In the Stage I the private sector exhibits a rather usual surplus of investment over savings in order of 1.7 percent of GDP. However, in the Stage II this deficit moves to an unusual deficit of private investment over private savings in the order of 1.3 percent of GDP.

**Figure 2:** **Financial balances of the private, government and RoW sector in the US between 1960 and 2008** (expenditure minus income in percent of Y)




Data Source: European Commission (2011): DG ECFIN – AMECO database, own calculations

Hence the balance of the private sector has been shifted upward by 3 pp. giving a strong booth to GDP growth. However, this increase was not due to the increase of private investment because IP even decreased slightly from 16.4 percent in the stage I to 15.8 percent of GDP in the stage II. The big change occurred in the share of SP in GDP: it declined from 18.1 percent to 14.5 percent i.e. by 3.6 pp. If we look at the subsectors it turns out that this great change originated in the private household sub-sector.

**Table 1:** **Financial balance of the private household sub-sector in the US 1970 – 2008** (average, in percent of GDP)

| | 1970 – 1980 | 1981 – 1990 | 1991 – 2000 | 2001 – 2008 |
|---|---|---|---|---|
| $IP_H$ | 5.0 | 4.4 | 4.2 | 5.0 |
| $SP_H$ | 10.2 | 9.7 | 7.0 | 5.5 |
| $IP_H - SP_H$ | -5.2 | -5.3 | -2.8 | -0.5 |

Data Source: European Commission (2011): DG ECFIN – AMECO database, own calculations

Starting from the 1980 the savings ratio of private households decreased continuously from 10.2 percent to 5.5 percent of GDP. Because the share of residential investment in GDP did not change very much, the surplus of saving over investment decreased

by 4.7 pp. and almost vanished in the 2000s.

The saving ratio for the whole economy sp has recorded – as already mentioned – a strong decrease from Stage I to Stage II by 3.6 pp. The role of the declining savings ratio for the GDP growth in the Stage 2 can hardly be overestimated. Indeed in Stage 1 GDP grew by 3.7% p.a. a little bit slower than IPED (by 4.4% p.a.) because the increase of sp (by 0.7% p.a.) reduced the growth rate of GDP. On the other hand in Stage 2 GDP grew with 2.8% p.a. much quicker than IPED (by only 1.5% p.a.) because sp decreased spectacularly (by 1.3% p.a.)

We can now compare the two cases represented by Figure 1 and 2. As was already said we want to find out the consequence upon the GDP growth of one and the same phenomenon namely the decrease of the wage share in GDP and the increasing polarisation in distribution of income of private household observed in Stage 2 in comparison with Stage 1. A direct consequence of such changes in income distribution is insufficient increase of private consumer expenditure as far as they are related to earned incomes. This argument is, however, not treated seriously in mainstream economics for which a separate question of inadequate aggregate demand does not exist. What really matters is the supply side and first of all the cost level. When the share of wages in GDP decreases the share of profit and profit per unit of output increase. In this sense production becomes more profitable and the mainstream expects that business would respond to this signal. This is the theoretical justification for a restrained wage policy. It may be unpleasant that workers do not participate on an equal basis with capital in the output gains but when the size of the cake increases everybody wins including the workers, the initial losers.

The business response to higher profitability in the sense of profit per unit of output should be visible in investment decisions. We find however that investment in the Stage II grew in both countries slower not quicker than in the Stage I when the share of wages was at least constant. IP grew in the US 2.2% p.a. against 4.2% p.a. and in Germany 0.4 p.a. against 2.3% p.a. In both countries the growth of private investment, the main growth factor, slowed down in the Stage II in relation to Stage I by about 2 pp. Thus the claim that the decrease of labour unit costs (this is indeed what happens when the wage share in GDP decreases) helps investment has to be discarded.

But it is true that such a policy improves the competitiveness of the country and help to win new foreign markets. If all countries participate in this policy, countries, which excel in restraining wage growth behind the labour productivity growth, would prevail while other countries less successful would suffer even more than they would without participating in the competition game. But also the winners are not really winners as the example of Germany proves. The share of the export surplus E in Germany was 4.5 percent in the Stage II and even 6.7 percent between 2001 and 2008. Nevertheless the GDP growth rate in Germany was one of the lowest in the EU and amounted in the 2000s to only 1.3% p.a. This is so because even a great export surplus constitutes a relatively small share in total GDP while even small cuts in consumption out of wages influence demand vigorously because its very share in GDP is large. In other words what Germany wins on external markets weights less than losses in internal market caused by wage restraint. So the mercantilist »beggar thy neighbour policy« makes other countries suffer but does not serve Germany itself either.

It should be stressed that there exists also a serious problem of financing the deficit of the RoW, which is the other side of the German surplus. It is partly financed by German banks themselves and when difficulties in servicing debt arise, German banks at the end are invited to participate in losses. Is it really a good idea to look for a solution of inadequate internal demand on external markets? Was Keynes not right when he proposed during the preparatory discussion on Bretton Woods System an arrangement which would prevent imbalances in foreign trade by making responsible for their appearance not only debtor countries but creditor countries as well? This proposal has not been accepted in the 1940s and is opposed also today when some countries inside the European Monetary Union are confronted with imbalances in their foreign trade. We do not continue this analysis because it leads us to far from our topic. In a demand determined system the real repayment of an export surplus requires an import surplus. A country, which accepts absorption lower than GDP because it wants to gain foreign markets and improve its employment position must sometimes in the future accept an opposite solution. This would mean an absorption level larger than GDP, the loss of a certain part of the internal market to the RoW and deterioration of its employment position. On the other hand debtor countries cannot under realistic assumptions continuously have a current account deficit. Let us conclude that inadequate internal demand and unemployment caused by wage restraint prevailing cannot be continuously compensated by expansion on foreign market and can be costly in that sense also that credit disbursed for its financing may become – and often becomes – a loss.

The reduction of unit labour cost linked with wage restraint took place in the US as well. But the dollar is a world reserve currency; hence its exchange rate is not strongly related to the trade balance and only weakly with their labour unit costs. As already mentioned since 1960 the US have registered an increasing import surplus. The import intensity measured by the import/GDP relation increased from 6.3 percent in the Stage I to 13.7 percent in the Stage II, i.e. more than doubled. This means that in the case of US losses caused by inadequate demand flowing from wages were still magnified by losses of parts of internal markets to the RoW, especially to China.

Nevertheless the slowing down of GDP growth in US was milder than in Germany and we have seen that the most important factor in this development was the unusual decline of the savings ratio, which activated strongly the financial deficit of the private sector. It has already been stressed that this decline occurred not in firms but in private households. A decline of sp accompanied by an increasing share of profits in GDP and by increasing polarisation in private household income requires some explanation because both factors should have rather increased the saving ratio of private households. It seems that two elements have provoked this result: first, capital gains, second, credits to private households, especially mortgage credits.

Savings of private households are calculated in the System of National Accounting (SNA) as difference between income and consumer expenditure. Thus, if households get some money inflows, which are not treated as income in the SNA and spend part of them on consumption, the calculated savings ratio decreases. When these inflows remain in a more or less constant proportion to incomes the savings ratio measured over time express still in a satisfactory way the thrift behaviour of private household. When, however, these inflows increase in proportion to normal income we face a problem.

The SNA does not treat capital gains as income. Thus if the share of capital gains in relation to income increases and part of them is being spent on consumption we are confronted with a declining savings ratio. It seems that the factor »capital gains« played an important role both in Germany and US. Most probably in Germany it is responsible for the constancy of the savings ratio although the share of private households with higher incomes increased. In the US the factor capital gains have played a more important role than in Germany. A special kind of change in notional wealth was a strong and long lasting increase of prices of housing. Besides the capital gains may influence spending behaviour also when they are only notional, because they ease the access to credits. The increase of notional wealth in the US has influenced consumer expenditure in the US (cf. Bhaduri, Laski and Riese, 2006).

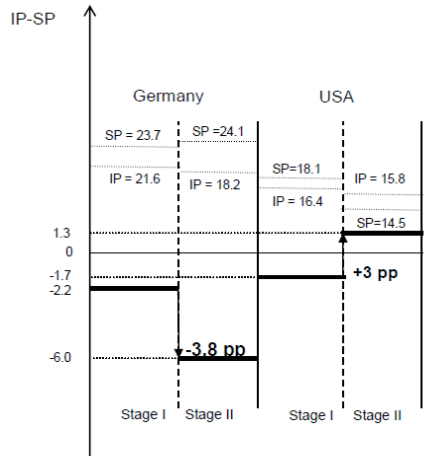
A factor, which has to be taken seriously into account in US, is the extraordinary expansion of credit, especially mortgage credits, to private households, partly to those who under normal circumstances would not qualify for credits at all. When part of these credits is used to support consumption the savings ratio would fall. The huge expansion of such credits was provoked by invention of new »products« by – and irresponsible activities of – the financial »industry«.

The changes in thrift attitude of private households in the Stage II deserve a separate analysis. But the fact is that disregarding the rich and very rich the majority of US families did lose in the last quarter century part of their share in national income and many middle income families registered even a decline in their earned income. (Kopczuk et al., 2007) These changes must have influenced their thrift behaviour. It is difficult not to agree with Stiglitz (2011): »America's inequality distorts our society in every conceivable way. There is, for one thing, a well-documented lifestyle effect – people outside the top 1 percent increasingly live beyond their means. Trickle-down economics may be a chimera, but trickle-down behaviorism is very real."

The fall of the savings ratio in the Stage II in US was thus directly linked to increasing debt of private household. Hence, also GDP growth related – as we have seen – to a decreasing sp was based on this shaky basis and came to an abrupt end with the subprime crisis in 2008. Neither external debt driven growth in German style nor internal private household debt driven growth in US style are substitute to growth driven by internal consumption of private households participating on a more or less equal basis with capital in results of increasing production. Productivity oriented wage policy is not only fair in social sense; it is also a solid base for a more stable economic growth.

In the scheme in Figure 3 we summarize the effect of our analysis. In the Stage II the financial balance of the private sector has been shifted down in Germany by 3.8 percent of GDP because private investment were flat and shifted up in the US by 3 percent of GDP because private households' savings decreased. These shifts have been possible mostly because in Germany the export surplus share increased and in the US the debt of private households exploded. Continuous and satisfactory growth cannot be assured by constantly growing indebtedness of the RoW and by exploding indebtedness of private households. The return to a pattern of growth characterized by an usual surplus of private savings over private investment compensated mostly by the government deficit at an zero (at least in middle term) finance balance of the RoW is unavoidable.

**Figure 3: Germany: »Rest of the Worlds Debt« driven growth. USA: »Private Households Debt« driven growth.**




Source: own estimation based on: European Commission (2010), Statistical Annex.

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