Does Government Debt Increase Income Inequality? Historical Roots and Basic Criticisms of the 'Transfer Approach' of distributional effects

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Abstract

According to one widely held view about the distributional consequences of sovereign debt, public net borrowing leads to interpersonal (intragenerational) income redistribution from the bottom to the top. The reason often given is the observation that predominantly high-income households hold government debt securities. If these securities are spread more progressively across households than the tax burden, this results in a direct increase in personal income inequality through the tax-interest mechanism. Credit-financed employment programs that lead to an increase of sovereign debt would then exacerbate income and wealth inequality. The paper describes the history of the so-called transfer approach, on which numerous analyses of the intragenerational distributional effects of sovereign debt are based. Apart from considering several empirical analyses on the transfer approach which were carried out in recent years for the United States and Germany, the paper deals in particular with the criticism concerning this approach. It turns out that the partial analytical transfer approach is not able to capture the sovereign debt intragenerational distributional effects in their entirety.

Keywords

Income distribution, government debt, transfer approach.

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1. Introduction

Full employment and a fair (or more equal) distribution of income and wealth are two important objectives of economic policy which are related in various ways. On the one hand, they can reinforce each other positively. For example, a more equal distribution of income can increase the propensity to consume, so that capital accumulation and thus growth and employment are positively influenced. A reduction in unemployment may in turn lead to rising incomes, especially among the poorer households, thus contributing to a more equal distribution of income. On the other hand, the two goals can also collide. This phenomenon may occur when debt-financed government spending programs are implemented in a situation of underemployment in order to achieve full employment and the growing national debt results in a more unequal distribution of income and wealth. It is often argued that such a distribution effect of the sovereign debt could arise because the buyers of government bonds typically belong to the more affluent strata. These would then unilaterally benefit from interest payments, whereas the taxes from which the interest is financed would also be levied on the poorer classes.

The present paper deals with the question of whether and under which conditions government debt affects the distribution of income and wealth and if so, in which direction. It does not refer to the notion currently prevailing in politics and the public debate of the redistribution between generations (*inter*generational distribution effects), which national debt supposedly causes.[1] It rather aims at the interpersonal or *intra*generational distribution effects

[1] The assertion that future generations are negatively affected, because they ”inherit debt“ is based on a fallacy, as has been made clear at various points (cf. e.g. Vesper 2008, p. 384, John 2011 p. 372). Another argument is that there is a burden on future generations due to a rise in interest rates induced by increasing national debt, reducing investment and thereby future growth (cf. e.g. Buchanan 1958). Sound theoretical objections can be expressed (cf. e.g. Stützel and Krug 1981, p. 52) arguing against the existence of such a financial crowding-out effect. Even empirical studies based on the neoclassical model give no clear answer about the magnitude of the effect. But it

- i.e. the effects on personal income distribution *within* a generation that arise when the government takes out loans to finance its expenditure for which it must pay interest to the lenders.[2]

The question of whether a growing indebtedness of the state will inevitably lead to greater inequality in income and wealth is not as easy to answer as might appear at first glance. Usually the alleged negative distributional impact of sovereign debt is derived from the following relationship: As government securities are usually distributed more progressively than taxes, government debt results in a redistribution from the bottom to the top.

However, particularly in the German literature of the 1970s and 1980s this line of argument was challenged due to its logical flaws. The German economist Otto Gandenberger in the 1970s called the reasoning along these lines the *transfer approach*. Basically, it is assumed that income is transferred from taxpayers to interest recipients (cf. Gandenberger 1970, p. 6). Similarly, Norbert Andel, another influential German public finance economist of this time, refers to the "anti-social distributional effects of public debt" (Andel 1969). Both Gandenberger and Andel argued that the transfer approach is eventually misleading when analyzing the intragenerational distribution effects of government debt. Their objections against the validity of the transfer approach provoked a controversial debate in Germany at that time. While their reasoning was mostly accepted by the scientific community and became standard in their home country, their arguments have apparently never been recognized

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appears to be rather small, as the German Council of Economic Experts also had to state (cf. SVR 2007, pp. 39–41).

[2] To simplify the following discussion, it is assumed that government securities are owned entirely by domestic households (domestic debt).

outside of Germany.[3] At least in the US, many authors still use the basic arguments of the so-called transfer approach when analyzing the distributional consequences of government debt or the topic is not mentioned at all anymore (cf. for instance Rosen, Gayer and Civan 2014, Stiglitz and Rosengard 2015).[4]

A major aim of this paper is to present and discuss some critical reflections on this method that is still widely applied when the distributional impact of government debt is analyzed. The following section begins with a short discussion of the historical roots of the analysis of the distributional effects of government debt. It is followed by a brief overview of several empirical studies concerning the intragenerational distribution effects of public debt in the USA and Germany. Following this, in the third section the development as well as criticism of the transfer approach are covered. The paper concludes with a classification of the results and a short outlook towards the future.

2. The historical roots of the transfer approach

The intragenerational distributional effects of public debt were already examined in the public finance literature of the 18th and 19th centuries; almost without exception, the perspective taken there is the same as also expressed in later years in the transfer approach.[5] For example, Jean-François Melon de Pradou mentions (1734), that "[l]es Dettes d'un Etat sont des Dettes de la main droite à la main gauche […]" that is, according to him, the public debt is

[3] However, several decades before Andel's and Gandenberger's works Swanson/Schmidt (1946, pp. 113) had mentioned similar arguments as the two German economists.

[4] The topic seems to be out of sight anyway. No article in the altogether over 2,000 pages of the two volumes of the *Handbook of Income Distribution* deals with the question which impact public debt has on income distribution (cf. Atkinson and Bourguignon 2015).

[5] Gandenberger (1970, pp. 6) gives a comprehensive overview of the literature on this.

accompanied by a transfer process between different social groups of a generation (Melon 1734, p. 296). Say (1821) takes up Melon in his contribution and writes that government interest payments have to be financed "[…] with a portion of the revenue arising from some other source, which […] [the government] must transfer from the taxpayer to the public creditor for the purpose." Say continues: "[The revenue] must be taken in some form of taxation or other by the government, for the sake of providing the payment of interest to its creditors. The lender loses no part of revenue: the only loser is the payer of taxes." (Say 1821, p. 412). Similarly, the German economist Eduard Baumstark, who translated David Ricardo's works into German, mentioned in 1833 that in the course of accumulating public debt "[...] wealth passes from the hands of the middle and lower class more and more into the hands of the richest, and in the same, if not greater proportion poverty in those two increases, in which the wealth accumulates for [the richest]."[6] (Baumstark 1833, p. 385).

In the 20th century until about the late 1960s, mostly the view was still held that public debt triggers direct redistribution processes within a generation via government interest payments and tax revenues used to finance it. In the standard textbook *Economics* by Paul Samuelson (1967, 7th edition) this relationship is explicitly dealt with and called the "transfer effect" Samuelson describes it as follows: "To the degree that people involved are different and that the interest receivers are wealthier, more thrifty, or deemed less in need of income, there will be redistributional effects to reckon with" (ibid., p. 347).

In an expertise on issues of government debt in 1968 the Academic Advisory Board at the German Federal Ministry for Economic Affairs addresses possible distribution effects between different income groups through public debt. Accordingly, the distribution effects of public debt are "[…] socially disadvantageous [...] if the bonds are drawn and held by higher

[6] Own translation of the original German.

income strata, however, the taxes required for the debt service are borne by the whole population."[7] (Wissenschaftlicher Beirat beim Bundeswirtschaftsministerium [Academic Advisory Board at the German Federal Ministry for Economic Affairs] 1968, p. 11). At the same time, it is pointed out that an adequate empirical study requires corresponding statistical data regarding the distribution of government bonds, which, however, was not available at the end of the 1960s in Germany (cf. ibid.).

3. Distributional effects of sovereign debt: Results of some empirical studies

As more appropriate (yet still unsatisfactory) data became available in the 1970s and 1980s, several empirical studies analyzing the intragenerational distribution effects of sovereign debt on the basis of the functional relationships described by the transfer approach were carried out in Germany. One example which is based on the transfer approach will be presented in some detail in section 3.2. But first we will turn to some studies for the U.S.

3.1 Empirical studies for the USA

Concerning the intragenerational distributional effects of sovereign debt, Hager (2013) gives an overview for the United States of different studies carried out between 1887 and 1996. These studies, which all are all based on the transfer approach, empirically investigate the distribution of ownership of public debt securities. Across the analyses considered, a highly heterogeneous picture emerges, which is due not only to the use of various data sources and methods, but also to the fact that the analyses each refer to different years. The studies presented by Hager (2013) do not analyze any development over time, but provide empirical

[7] Own translation of the original German.

results in each case for a selected year and can therefore be regarded only as a snapshot of a particular point in time.

As early as the end of the 19th century, the question of the distributional effects of sovereign debt in the United States motivated an empirical investigation by Adams (1887). Based on US Census data for 1880, he comes to the result that about 1.4 percent of all private government bondholders had government securities worth more than 50,000 US-dollars each. This 1.4 percent of private population held around 47.8 percent of all privately held government debt securities. For the corporate sector, he analogously finds that about 34.8 percent of all corporate bondholders held government bonds worth more than 50,000 US-dollars. Together these 34.8 percent owned about 92.6 percent of all government debt securities held by enterprises (see. Adams, 1887, p. 46). Thus, Adams (1887) documented a very highly concentrated ownership distribution of government debt papers for 1880. However, he does not specify the corresponding distribution of the tax burden, so no conclusion can be drawn regarding the transfer approach.

According to a study by Miller (1950), in 1945 the taxpayers in the highest income group (approximately 5.3 percent of all taxpayers) received approximately 58.7 percent of the interest payments on government debt securities and at the same time paid 50 to 56 percent of taxes (cf. ibid., p. 26 and p. 134). Following the conceptual idea of the transfer approach, according to his analysis interpersonal distributional effects were thus minimal at that time at least at the upper end of the income hierarchy.

Cohen (1951) arrives at other findings. For the year 1946, he found that the highest income group (gross monthly income of at least 5,000 US-Dollar) paid about 47 to 55 percent of the taxes, but received only 39 percent of government interest payments (cf. Cohen 1951, p. 271). According to Cohen, government debt after World War II was accompanied by an

income distribution to the detriment of the upper income margin. Cavanaugh (1996) also reaches a similar conclusion on the basis of an unpublished study by the US Treasury Department from 1984 (cf. Cavanaugh 1996, pp. 63).

Still other results for the United States are provided by Michl (1991). He documented that the one percent of the population with the highest income in the early 1980s made tax payments of 11.2 to 14.6 percent of total tax revenues, but received government interest income of 22.5 to 33.3 percent of all government interest payments (cf. ibid., pp. 360). For the very top of the income distribution, Michl's study thus confirms a redistribution effect of government debt on the basis of the transfer approach. In summary, however, based on the selected studies for the years between 1880 and the early 1980s, a distribution of income from the bottom to the top cannot be established for the US.

3.2 Empirical studies for Germany

The few empirical studies on the intragenerational distributional effects of sovereign debt in Germany have been conducted several years ago. They are mainly the studies of Kurz and Rall (1983) and Zwiener (1989). Current analyses are however not available. On the one hand, this is likely to be a consequence of the criticism of the methodological approach formulated by Andel (1969) and Gandenberger (1970) in Germany (discussed in detail later in this paper). On the other hand, the available data is usually not satisfactory. For an adequate empirical analysis of the transfer approach, data on the distribution of government bonds as well as details of the distribution of tax payments are required. The fact that a large proportion of public debt is not held directly by households, but by financial intermediaries (mainly banks) is thereby proving to be particularly problematic.

Kurz and Rall (1983) conducted an empirical analysis based on the transfer approach for Germany on behalf of the Federal Ministry of Economics. The study mainly used data from the *sample survey of income and expenditure (EVS)* of the German Federal Statistical Office for 1978, but had to make many far-reaching assumptions due to a lack of adequate data.

In order to analyze the current economic situation, an empirical analysis of the transfer approach is presented below for Germany; we use the latest data available for the year 2008. The methodical procedure is almost identical to that of Kurz and Rall (1983) who back then analyzed data for 1978. The calculations are also based mainly on data from the *sample survey of income and expenditure (EVS).*

Analogous to Kurz and Rall (1983), first the distribution of government interest payments between different income groups is determined. In a first step, the value-based distribution of the government debt placed directly in private households is determined. Since the official statistics do not report this information, an approximate solution that takes into account the distribution of federal treasury bills as well as the distribution of the total securities portfolio is used.[8] It is assumed that this approximation depicts the distribution of government interest payments resulting from government bonds directly held by private households.

In a next step, the government debt placed with credit institutions needs to be determined, as part of the resulting interest income (indirectly) also flows to households. At the end of the 2000s, the government interest payments to banks accounted for approximately six percent of the total interest income of credit institutions. Based on this, it is assumed that

[8] The spread of sovereign debt only indicates *how many* of all government debt titles held directly by households an income group has. It provides no information on the *value* of government bonds held by one income group.

about six percent of revenues, expenses and profits of the banks could be allocated to the sovereign debt. From the perspective of the government, about ten percent of interest paid to the credit institutions is received by private households in the form of interest and profit shares. The use of the remaining 90 percent of public interest earned by the banks, can, however, not be adequately traced further.

It is assumed that those government interest payments, which flow to private households via credit institutions, are distributed the same way among the different income groups as the interest payments on government bonds held directly by private households. The remaining governmental interest payments which cannot be tracked any further are assumed to be distributed in the same way as gross income.

In addition to the distribution of sovereign interest payments to private households, information about the tax burden distribution is necessary. The distribution of direct tax payments across the different income groups is equated with the distribution of the income tax, the church tax, and the solidarity surcharge. The distribution of indirect tax payments is approximated by the distribution of consumption expenditures of the different household groups. To determine the total tax burden distribution, the direct tax payments are weighted with a value of 52 percent; the indirect tax payments with a value of 48 percent (see Federal Ministry of Finance 2011, p. 63).

The results of the calculations are given in Table 1. The lowest seven income groups with a monthly household income of less than 900 euros to 5,000 euros paid only minimally more taxes as compared to the government interest they received. Only the highest income group with a monthly household income of 5,000-18,000 euros received proportionately more government interest payments than it contributed to tax revenue. For the year 2008, based on these empirical calculations, a slight distribution of income from the bottom to the top can

thus be determined in accordance with the reasoning of the transfer approach. However, it must be clearly noted that the calculations are based on numerous controversial assumptions. Therefore, the results need to be interpreted with caution.

Table 1: Public interest payments and tax burden of private households in Germany, 2008

Monthly net household income (euros)	Share of households (%)	Interest income from government debt (%)	Tax payments (%)	Interest income ./. tax payments (percentage points)
< 900	8.7	2.0	2.8	-0.8
900 - 1,300	11.5	4.2	4.9	-0.7
1,300 - 1,500	5.8	2.9	3.1	-0.2
1,500 - 2,000	14.7	9.2	9.7	-0.5
2,000 - 2,600	14.4	11.6	12.0	-0.4
2,600 - 3,600	17.3	18.2	18.4	-0.2
3,600 - 5,000	14.6	20.5	20.7	-0.2
5,000 - 18,000	13.1	31.3	28.4	2.9
Sum (%) (deviations from 100% due to rounding)	100.1	99.9	100.0	

Source: Federal Statistical Office (2010a), pp. 41; Federal Statistical Office (2010b), pp. 34. Own calculations.

3.3 Tax-credit-differential effects of government debt (Andel 1969)

Norbert Andel's (1969) basic consideration is based on the fact that a comprehensive distribution analysis of sovereign debt must include both the date of borrowing as well as the period of debt. He criticizes that in the transfer approach only part of the public debt process is examined for its distributional effects, which are then simply referred to as *the* distribution effects (cf. Andel 1969, p. 72; Kurz and Rall 1983 p. 8). Andel does not doubt that distribution effects can be triggered by government debt at all stages, but he criticizes the exclusive limitation of the analysis to the phase when the government is already indebted.

Andel stresses that the date the government considers to borrow should be necessarily taken into account. To judge the actual distributional effects of government debt, an adequate basis for comparison must also be used. If, for simplicity's sake, it is assumed that the public budget in the initial state is balanced and public budgets are faced with the decision of whether or not to incur additional government spending, the government at the time of possible borrowing always has three available options: In order to finance additional government spending, either new net debts can be incurred or, second, taxes can be raised. A third possibility accordingly is not to increase government spending. According to Andel, a statement about the distributional effects of government debt can only be made if the distributional effects of the two alternatives *tax increase* or *not engaging in the corresponding government spending* are compared. What is needed is an incidence analysis, that is, the distributive impact of various government policy options have to be compared at the time of possible borrowing (cf. Andel 1969, p. 72).

Andel calls for the application of differential incidence analysis which assumes that the government increases its expenditures and that these expenditures must be financed either through net borrowing by the sovereign or an increase in taxes. The differential incidence analysis then compares the distribution effects of sovereign net borrowing with those of a tax increase. In other words: the tax-credit-differential effects on the income distribution need to be analyzed (cf. Dieckheuer 1979, p. 3). The proper question to ask regarding the distribution effects of sovereign debt then would have to be: How is the distribution of the so-called alternative tax (the tax which would have to be levied if the government were to not finance additional expenditures through borrowing) as compared to the so-called interest tax (the tax which, in the case of net borrowing, later has to be levied to finance the government interest payments)? (cf. Andel 1969, p. 72; Kurz and Rall 1983, p. 10).

Andel mentions that there can be no universally valid answer to this question, since there are a multitude of different combinations of alternative and interest taxes, whose distribution effects differ from case to case. If, for example, one assumes that the alternative tax is the income tax, and the interest tax on the other hand is the value-added tax, new net sovereign borrowing would, according to Andel, result in a more unequal income distribution. The difficulty of an empirical analysis based on this approach is due mostly to the fact that it is hardly possible to determine which taxes are not increased at the time of borrowing in the case of new sovereign debt (alternative tax) and which taxes are raised later when the situation of indebtedness occurs (interest tax) (see cf. Andel 1969, p. 72; Kurz and Rall 1983, p. 10).

3.4 Distribution versus redistribution effects of sovereign debt (Gandenberger 1970)

Similar to the reasoning of Andel (1969), Otto Gandenberger's (1970) criticism of the transfer approach is also based on the demand regarding the necessity of a differential analysis. In his criticism, however, Gandenberger aims mostly at the fact that the distribution effects of sovereign indebtedness are significantly determined by the influence that sovereign borrowing has on interest levels. What he especially criticizes regarding the transfer approach is the erroneous idea that government interest payments are the actual cause of interest incomes of the sovereign's creditors and that the sovereign's creditors therefore would have no interest income without government debt. According to Gandenberger, however, the sovereign's creditors receiving interest income must be seen as independent of the sovereign's borrowing, since the only reason the holders of government bonds receive interest incomes is because they have capital at their disposal at the time of purchasing government bonds. It does not matter that this capital was invested in sovereign securities, since the sovereign's creditors

would have also received interest incomes if the government had not borrowed. This statement can be made since there are interest-generating investment alternatives to sovereign securities. The distribution of government bonds within the population is therefore completely irrelevant (cf. ibid., p. 9). An empirical inquiry on their distribution therefore would not be able to contribute to the understanding of the distribution effects. Furthermore, the sovereign's creditors are only a relatively small group among the suppliers of capital within an economy. It is therefore presumed that an exclusive consideration of public interest payments would in all cases deliver results "[...] below the threshold of economic policy relevance [...]" when analyzing the distribution effects of the sovereign debt (ibid., p.15).[9] Focusing solely on the public debt and the sovereign interest payments is therefore not suitable for analyzing the distribution effects of sovereign debt.

Although Gandenberger concedes that the sovereign debt also has distributional effects, in his view these take place exclusively through changes in the general level of interest rates (assuming full employment and price stability). In this case, an increased demand for credit by the state leads to interest rate increases, which change the distribution of income in favor of *all* of an economy's rentiers. Relevant therefore is the (monetary) wealth distribution as a whole and not only the distribution of government bonds in the population (cf. Gandenberger 1970, p. 10; Kurz and Rall 1983, p. 17). The distributional effects of government debt concern, therefore, first of all the functional and not the personal income distribution (cf. Gandenberger 1970, p. 15; Zwiener 1989, p. 90). Only indirectly, namely by changing the functional distribution quotas, can government borrowing exacerbate income and wealth concentration compared to funding given government spending through taxes. Gandenberger therefore maintains that at most the end result postulated by the transfer approach, is right,

[9] Own translation of the original German.

namely that public net borrowing can lead to a more unequal distribution of income. However, the actual cause of the change in income distribution is another; it results, given full employment and price stability, only from the effects on interest rates (cf. Gandenberger 1970, p. 9). Accordingly, one is faced with the effects of the primary generation and distribution of income and not a redistribution of income, as is implicitly assumed in the transfer approach.

3.5 Does the transfer approach (at least) apply in a recession?

The criticisms by Andel and Gandenberger have strongly influenced the discussion concerning the intragenerational distribution effects of sovereign debt at least in the German-speaking countries. In English language literature, apparently no reference is made to the relevant contributions by the two German public finance experts. Nevertheless, there are also objections and additions of various authors to their considerations. Arguing from a Keynesian perspective, Henke (1978) maintains that the validity of the transfer approach can be shown by abolishing the premises of full employment and price stability. Henke agrees with Gandenberger's thoughts that, for this type of issue, it is necessary to perform a differential incidence analysis. Yet, he points out that in a situation of underemployment the alternative of funding additional government spending through an *increase in taxes* can hardly be considered. If additional government spending has to be funded in a recession, this may for cyclical reasons only be done through public net borrowing (countercyclical fiscal policy). A differential incidence analysis which compares the distributive impact of the government policy options *tax increase* and *public net borrowing*, is thus irrelevant in a recession according to Henke (cf. ibid., p. 441). He thus focuses exclusively on the distribution effects

of government net borrowing and concludes: If the state in a period of underemployment increases its demand for credit, then government net borrowing creates interest income for the corresponding sovereign's creditors that in the absence of additional public debt would not or only to a lesser extent have been accrued by them. If the government bonds are now held in particular by high-income earners and the tax revenues necessary for financing the public interest payments are relatively regressive, this leads to a distribution of income from the bottom to the top of the income hierarchy (cf. ibid.).

Kurz (1984), however, correctly notes that in Henke's reasoning an adequate basis for comparison as defined by Andel (1969) is missing. Analogous to Gandenberger (1970), Henke (1978) in his theoretical reflection initially relates to the differential incidence analysis. At the same time, he is aware that the alternative *tax increase* to fund given (additional) government spending is not a realistic option in a period of underemployment. The basis for comparison is thus eliminated in Henke's model. Kurz, however, notes that in a situation of underemployment a realistic alternative to credit financing additional government spending is *not increasing government spending*. However, this requires a budget incidence analysis, under which the distributional effects of a debt-financed increase in government spending are compared with the distributional effects of a non-increase in government spending (cf. Kurz 1984, p. 222). Kurz further criticizes that Henke in his deliberations did not consider employment and price effects. He finally comes to the conclusion that there has been "[...] no theoretically founded conclusions about the distributional effects of government debt for the [...] case of underemployment (with inflation)"[10] (ibid., p. 222). He is joined by other authors in this view. Andel (1976) assumes that out of government debt numerous intragenerational distributional effects arise, however, he notes at the same time that the state of knowledge on

[10] Own translation of the original German.

this subject is very limited (cf. Andel 1976, p. 19). Cassel (1979/1980, p. 275) also writes that there are no theoretically or empirically reliable findings on the effects of public debt on personal income distribution. An unambiguous, sufficiently substantiated conclusion on the intragenerational distributional effects of government debt can thus not be drawn (cf. Gandenberger 1981, p. 41).

Given the above criticism of the transfer approach, it is mainly proposed that not only the interest income of the sovereign's creditors are considered, but that the subject be analyzed with an appropriate econometric model, and especially within a macro-economic framework in which particular changes in interest rates, employment and price levels are taken into account (cf. Andel 1969, p. 77; Gandenberger 1970, p 15; Kurz 1984, p. 230; Kurz and Rall 1983, p. 22; Kurz and Rall 1984, pp. 331; Dieckheuer 1979, pp. 2; Zwiener 1989).

4. Conclusions

Which insights about the intragenerational distribution effects of public debt may be summarized? The transfer approach, which is commonly used as a theoretical framework for the analysis of possible distributional effects of public debt, was rightly criticized several decades ago by Norbert Andel and Otto Gandenberger. The general problem with the transfer approach is the fact that it is based on a partial-analytical consideration of the distributional effects of public debt. Therefore, it is simply not able to detect the intragenerational income distribution effects emanating from the sovereign debt in their entirety. In other words: The transfer approach cannot provide any general answer to the question of distributional effects of government debt because it leaves too many factors unconsidered. Oberhauser (2008, p. 372) puts it in a nutshell when he states: “The effective distribution effects do not arise (...)

from the payment flows, that is, from the formal incidence. Rather, one has to consider how taxpayers and recipients of the interest payments react in their consumption and savings behavior."[11] In addition, the various influences on the creation and distribution of wage and capital income have to be considered. On the other hand, this does not mean that the distributional changes derived from the transfer approach do not exist, or that they cannot exist. Tolkemitt (1975) rightly concluded that, although the reasoning of the transfer approach is not consistent, its results, however, could perfectly be true. They just must not be misinterpreted as *the* intragenerational distributional effects of government debt. To capture the intragenerational distribution effects of government net borrowing adequately, more complex and general models than the partial transfer approach are ultimately necessary. These should include financial markets as well as a household sector differentiated by income groups.

One reason for the frequent misinterpretation of intragenerational distribution effects of public debt may be found in the fact that the distinction between the primary and secondary distribution of income and between direct and indirect effects is often ambiguous. In the simple basic model of the transfer approach, only the factors *taxes* and *public interest income* is recognized, whereas numerous indirect effects on income distribution that emanate from government net borrowing remain excluded. This concerns, for example, employment effects or effects on prices and the levels of interest rates.[12]

It must be admitted that the question of whether increasing inequality is the price for a credit-financed, successful employment policy, cannot be answered in this context. Although this possibility cannot be ruled out absolutely, several factors indicate that the distributional

[11] Own translation of the original German.

[12] An example for a more general approach is provided by You/Dutt (1996).

effects of government debt ultimately depend especially on the success or failure of (credit-financed) employment policies. If it is possible to improve the employment situation, this should in particular benefit the lower-income groups of the population whose relative income position will be improved.

It is clear that this reasoning might seem very vague. However, although the science of economics has repeatedly dealt with the intragenerational distributional effects of government debt for over 200 years, the present state of research does not allow for an unambiguous statement. It is to be assumed that the government debt affects the distribution of income, but a concrete conclusion about the extent and direction can currently be drawn neither from a theoretical nor from an empirical perspective, as a suitably elaborated macroeconomic model framework is lacking

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