CESifo *Working Paper Series*

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PROPONENTS OF GENERATIONAL ACCOUNTING OVERSTATE THEIR CASE

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Working Paper No. 282

April 2000

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Abstract

The fiscal deficit is "ill defined"; it is "without theoretical background"; it is "a number in search of a concept". Such judgements are characteristic of a prominent part of the literature on the new measurement concept of generational accounting. This paper argues that such criticism is excessive. Starting out by sketching the theoretical background from which these judgements are derived, the paper reviews various aspects of the issue, paying particular attention to the results of empirical studies. In a first stage it shows that, in the light of the evidence, not only the present values of lifetime income flows, but also period incomes, or more generally, time profiles of income flows "matter". In a second stage, the paper looks at the empirical relevance of deficits in particular. The evidence is less conclusive here, but studies which allow for cyclical changes, inflation and time lags between variables do show results which go in the direction one would expect on the basis of a period-oriented approach. A concluding section of the paper challenges the claim that the deficit is (entirely) a result of arbitrary fiscal language.

Keywords: Public deficits, generational accounting, intergenerational distribution, lifetime consumption

JEL Classification: H6, E6, E2, D1, D9

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Generational accounting is a major contribution to the field of fiscal analysis, and it has taken off impressively in this first decade of its existence. While not disputing the actual and potential merits of the new approach, this paper takes issue with one less convincing aspect of its presentation. It is concerned with the extremely critical way in which a prominent part of the generational accounting literature views the traditional summary measure of fiscal performance: the budget deficit. This applies, in particular, to the writings of the pioneers and protagonists of the generational concept, the well known *Auerbach/Gokhale/Kotlikoff* team (henceforth *AGK*), and to *Kotlikoff* in a whole series of single and joint (other than *AGK*) publications. These publications abound in judgements like the claim that the fiscal deficit is "ill defined", it is "without theoretical background", it is "a number in search of a concept". It will be argued in the following that – notwithstanding the limitations and shortcomings of the deficit concept – such criticism is excessive. Only when such total verdict of the deficit concept is out of the way will the stage be set for a more balanced evaluation of the deficit concept in contrast to that of generational accounting. This will be the task of a subsequent paper by this author.

1. Introduction

The following quotations, taken from an almost infinite variety of similar statements, may provide a further impression of the position under review.

"... there are no economic fundamentals underlying the deficit, and its use is an utter charade" (*Kotlikoff/Raffelhueschen* 1999, p. 163).

"It is impossible to measure the debt and the change in debt – the deficit - in a way which carries a useful underlying economic meaning" (*AGK* 1994, S. 74); "... from a theoretical perspective the measured deficit simply reflects economically arbitrary labeling of government receipts and payments" (*AGK* 1991, p. 56).

"... from a neoclassical perspective the deficit is an arbitrary accounting construct with no necessary relationship to the fundamental stance of fiscal policy" (*Kotlikoff* 1993, p.18); it is "a figment of language, not reality" (*Kotlikoff* 1992, p. XI); "on a conceptual level, the budget deficit is intellectually bankrupt" (*Kotlikoff* 1992, p. 217).

To sum up:

"Economic theory suggests that the deficit is not a well defined economic concept, but rather an arbitrary number whose value depends on how the government chooses to label its receipts and payments" (*AGK* 1994, p.74).

Given these judgements, it is no wonder that the authors´ own concept comes out on the winning side:

"To make an assessment of generational fiscal burdens that is independent of the words the government uses to label its receipts and payments, we have developed generational accounting" (*AGK* 1994, p. 75)."

"As an alternative to economically arbitrary budget deficits, this paper has provided a set of generational accounts indicating the net value of payments to the government" (*AGK* 1991, p. 92).

To summarize the position of these authors: generational accounting as a well-defined, albeit less than perfect, concept contrasts with deficit accounting which comes up with an arbitrary figure that has no theoretical foundation. Bluntly, the message is to throw away the deficit concept and replace it by generational accounting. Or, as *Haveman* has put it in his critique of this type of argument (1994, p.75): "... hence they recommend that the annual budget deficit (however defined) be stricken from the lexicon of economists and policy makers."

To be sure, nobody would claim, and indeed nobody did claim before the birth of the generational concept, that the deficit – however measured – is a perfect indicator of the intertemporal effects of current fiscal policy or of any of the other purposes to which this measure is applied. The debate over the definitional problems, the weaknesses and limitations of the deficit indicator as well as the possibilities for (partial) improvement, is the subject of an extensive literature.[1] At the same time, there have been many suggestions for developing more consistent accounting procedures, and a number of attempts have been made to adjust for various factors which make it difficult to interpret actual deficits, such as fluctuations of real output, employment and inflation[2], one-off transactions or increases or decreases of government assets (by introducing some form of capital accounting). A further developmnent to be mentioned in this context are the endeavors to link the deficit indicator with a dynamic balance constraint of government so as to derive measures for the sustainability of fiscal policy, in the way shown by *Blanchard* and collaborators (1990).

The criticism expressed in the above quotations goes deeper. It amounts to the judgement that the deficit measure is fundamentally misconceived and, therefore, as *Kotlikoff* explicitly says in his papers, its shortcomings cannot be cured by any corrections or

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[1] For surveys see for instance: Blejer/Cheasty 1991; Arlt 1994.
[2] For a survey of such "standardized employment deficit concepts" see Heller et al. 1986.

refinements whatsoever.[3] Hence the above verdict relates not only to the deficit itself but to the whole family of satellite concepts developed on the basis of the deficit measure, and also, of course, to the concept of public debt.

What complicates the picture is that the radical judgements just indicated often are illustrated by arguments of a less fundamental character, such as pointing to the susceptibility of deficits to political manipulation and to the exclusion of the future obligations resulting from unfunded social security systems[4]. In addition to their immediate import these points are taken to be symptomatic of the thoroughly misconceived character of the deficit measure (see for instance *Kotlikoff/Raffelhueschen* 1999, p.163).

In order to disentangle issues, it seems useful to separate the areas of discussion. As indicated at the outset, the present paper will only deal with the fundamental line of criticism as expressed in the given quotations and leave the further debate to a separate article.

The present paper is organized as follows. The next section will sketch the theoretical background from which the above verdict of the deficit concept is derived. The succeeding parts will address this critique with special attention to the results of empirical studies. In a first stage, the issue is placed in a broad perspective by discussing the general assertion that *only* the present value of fiscal flows "matters" and that the time profiles of such flows are irrelevant (sect. 3); in a second stage, the perspective is narrowed to a discussion of arguments and evidence concerning the deficit measure in particular (sect. 4); thereafter, the focus will be on one special way in which the position under review is formulated – the assertion that deficits are a reflex of "arbitrary fiscal language" (sect. 5). The last section will summarize the conclusions.

2. The dissent at its paradigmatic level: lifetime versus period-oriented perspective

The theoretical basis of the above verdict is easy enough to identify when it is placed in context. As is to be expected, it is derived from the background of the neoclassical life-cycle paradigm, the same fundament on which the generational concept is built. Individuals, when they make economic decisions such as determining their consumption/savings plans, act on the basis of their lifetime budget constraint with the present value of their expected lifetime

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[3] *Kotlikoff* 1986, p. 53: "The fact that the definition of deficits is so arbitrary means that even adjusting the official numbers for inflation, the increase in government assets, full employment etc. will still leave an arbitrarily defined number that has no necessary relationship to the fundamentals of government's fiscal behavior."

[4] For a discussion of the latter point, admittedly touching one of the most severe limitations of the deficit approach, see the forthcoming paper of the author mentioned above.

income as key variable. Hence, the impact of fiscal policy on private consumption and saving is determined by the changes in the discounted value of lifetime income produced by the fiscal variables. According to the presentation by *Kotlikoff et al.*, the implication for the deficit measure is clear. Its very character as a flow concept, reflecting the short-run balance constraint of government, makes it incapable of capturing such effects. Hence the conclusion is as stated in the previous quotations: the deficit concept has no sound theoretical basis.

What makes the position of these authors a radical one is *not* that it is based on the life cycle hypothesis as such. It is the "monistic" claim that life-time planning *alone* matters. It is the claim that period income, or an average of period incomes, or more generally, a shorter-than-lifetime approach, has no theoretical relevance, hence any shorter run concept, let alone a one-period indicator like the deficit, is misconceived.

Taken to a more general level, the central point of the position just described is the contention that the *time profiles* of income streams with given present value are empirically irrelevant. Seen from this perspective, the issue is of paradigmatic nature, and has implications which reach far beyond the measurement questions at hand. In fact, it goes to the basis of our understanding of the micro- and macro-functioning of the economic system.

The argument just presented here is of positive-theoretic character, notwithstanding its normative connotations and the important normative content of the generational accounting concept. It is about explaining and predicting the private market response to fiscal policy. At the same time it reflects a positive-theoretic interpretation of the generational accounting concept ("positive generational accounting" in the sense of Diamond 1996, p. 603). Hence, the issue is loaded with empirical content and a look at the evidence must play an important role in its discussion. As indicated above, this discussion will first take a broad perspective and deal with the irrelevance of the time profiles thesis in general; then it will narrow down its scope and look at the deficit concept in particular.

3. Do time profiles of income matter? Arguments and a first look at the evidence

To begin with, a crude listing of factors which figure in the counterargument against the above position may be in order. The keywords are well known from the relevant literature and are frequently mentioned in the course of the empirical studies: uncertainty about lifetime income, especially for the young generation, risk aversion (or "caution"), liquidity constraints

and – in a somewhat different vein – shortsightedness.[5] Considering such building blocks for a plausibility argument against the position just indicated, it is not surprising that empirical studies challenge the "monistic" view of the life-cycle hypothesis from various perspectives.

Campbell/Mankiw (1989) conclude that, roughly speaking, about one half of total private consumption is determined by individuals who plan on the basis of permanent income, and the other half by individuals who decide according to their period income.

Carroll/Summers (1991) show that even individuals with a prospect of rapid income growth do not adjust their intertemporal consumption in accordance with the lifetime income hypothesis but increase their spending in line with period income. The authors sum up their findings as follows (p. 305):

"This paper argues... that... life-cycle theories... are inconsistent with the grossest features of cross-country and cross-section data on consumption and income growth. There is clear evidence that consumption growth and income growth are much more closely linked than these theories predict. It appears that consumption smoothing takes place over periods of several years, not several decades"...."(Our results) .... call for increased emphasis on liquidity constraints and short-run precautionary saving as determinants of consumption behavior."

The *Congressional Budget Office of the United States* (1995, Appendix C) mentions a one-time observation concerning the USA. The consequence of the 1983 restructuring of the US Social Security System was an increase in the present value of the lifetime net tax load of individuals in the order of one trillion dollars (as estimated by *Kotlikoff* 1992, p. 182). The influence of this (one-time) change of expected lifetime income on private consumption, which would be predicted by the life-cycle hypothesis, could not be detected.

Further observations which are inconsistent with the life-cycle hypothesis are derived from individual data for people in occupational or educational groups with income peaks either late or early in life (see again *Carrroll/Summers* 1991, pp. 320-329, for nine occupational groups and five educational levels in the USA). The evidence is that people expecting income peaks relatively late in life (like medical students) do not borrow significantly against expected future earnings in order to finance higher consumption when they are young. Conversely, people with relatively early income peaks (like sports stars) do

[5] Haveman (1994, p. 108): "Indeed, the fact that most individuals do not substitute lifetime household accounts for annual budgets indicates that at least some of the presumptions of the life-cycle framework – like foresightedness and lack of liquidity constraints – are violated. And to the extent that they are violated, annual deficits will matter."

not appear to save as much in anticipation of lower future income as the life-cycle view would predict.

To sum up: the monistic claim for the life-cycle hypothesis is not supported by the evidence. Time profiles of lifetime income do matter. Hence the deficit concept cannot be rejected on the basis of its period character alone.

4. Do fiscal deficits matter? Arguments and a second look at the evidence

The general assertion that time patterns of income have relevant empirical consequences is not sufficient to support the more specific claim that fiscal deficits have an impact on the economy. It needs further discussion.

One point should be stressed at the outset. The deficit – although defined for a single fiscal year – conveys information which typically reaches far beyond one isolated budget period. The actual deficit is an indicator for future deficits. Such indicator quality of the period deficit may be obscured by "transitory" factors like fluctuations in real income and employment, changes in inflation rates or other influences of a temporary nature. This is one of the major motives which have driven the development of adjustment concepts directed towards identifying the "structural" component of actual deficits. A whole array of such concepts exists, but it is worth noting that results there are typically highly correlated (for a survey see Heller et al. 1986).

The empirical results regarding the relevance of the deficit variable are less conclusive than the findings reported in the preceding section. *Evans* (in a succession of publications: 1985, 1987, 1989) and *Plosser* (1982), both using unadjusted time series, find that none of the relevant macro variables is systematically linked to the actual deficit: not interest rates, or savings, or investments or economic growth.

The picture changes, however, if one considers research which allows for cyclical changes and inflation – in other words, which is based on structural deficits – and which considers adjustment lags, for instance in portfolio decisions. This is the case in the papers of *Barth et al.* (1984/95), *Hoelscher* (1986) and *Poterba/Summers* (1987). These studies do show significant effects on the relevant macro variables which go in the direction to be expected on the basis of a period-oriented approach.

More specifically, *Poterba/Summers* conclude that deficits have short-run negative effects on saving which correspond to changes in disposable income and they also find evidence for increased short-run consumption spending as a reaction to tax cuts. And *Hoelscher's* paper shows that although the relationship between deficits and *short-term*

interest rates (in the US) may be tenuous, there is strong evidence that increased deficits are associated with higher *long-term* interest rates. In the light of his findings, it appears that one of the reasons why a number of earlier studies (including *Plosser´s* study quoted above) did not come to similar results was that they relied on quarterly or monthly deficit figures rather than on annual ones.

The debate has gone on over a succession of decades and cannot be covered here with any claim to completeness. The least one can say, however, is that the radical verdict of the deficit concept does not have the reliable empirical support which the authors mentioned claim it has.

5. The deficit as result of "labeling"? The irrelevance-of-fiscal-language thesis

As is shown by the quotations in the introductory section of this paper, the verdict against the deficit concept often is based on the assertion that it is the result of arbitrary "labeling" of fiscal flows. This point has been repeatedly illustrated by numerical examples such as the following (*AGK* 1994, p. 74):[6]

"To understand the arbitrary nature of any particular deficit measure, consider how the U.S. government might characterize $ 1.00 that it 'borrows' from a citizen this year, through the sale of a one-year Treasury bill, and the $ 1.03 of 'principal plus interest' that it gives the citizen next year, through the payment of principal plus interest on the T-bill. One way to relabel these transactions is to say that the government is 'taxing' the citizen $ 1.00 this year and making a 'transfer payment' of $ 1.03 to the citizen next year.... There are countless ways of labeling the government's extraction of $ 1.00 from this citizen this year and its giving the citizen $ 1.03 next year. The reported deficit can be wildly different, although the citizen is in exactly the same economic position."

The case of borrowing versus taxation as presented in the text goes beyond the reach of the usual complaints about unsatisfactory definitions of fiscal transactions. The point of the authors – again – is a fundamental one. It hinges on the assertion that the individuals are "in exactly the same economic position" in the case of deficit finance by borrowing as in that of taxation.

Are they really? The argument is trivialized by the assumption that the amount borrowed or taxed will be repayed within one year. It would gain considerably in realism as well as in empirical content if we considered a time span of several decades between the

[6] Statements of identical nature but with different numbers are to be found for example in Kotlikoff/Raffelhueschen 1999, p. 162f., Kotlikoff 1986, p. 55-57, Kotlikoff 1984, p. 573.

financing and repayment transactions, or if repayment was not considered at all, either in the case of borrowing or in that of taxation. Placed in such an extended time perspective, the authors' assertion that borrowing on the one hand and taxation on the the other leave the individual in an identical economic position seems to amount to a *Ricardo/Barro*-type equivalence thesis.

Such a conclusion, however, would be out of line with the theoretical framwork within which the proponents of generational accounting typically argue. Consumers here are considered to be strict life-time planners without operative (or at least without quantitatively important) bequest motive, to say nothing of a dynastic motive such as in the *Barro* model. For this reason, rational individuals in this sense would have to take into account their probabilites of survival. People who did not expect to live until the repayment period of the relevant fiscal transactions would rationally consider the government bonds resulting from the borrowing transaction as part of their net wealth and hence would find themselves in a position which allowed them to realize a higher lifetime consumption than in the taxation case. Thus they would not consider themselves to be in "exactly the same position" in both types of fiscal transactions. They would feel better off in the case of deficits-and-borrowing. Clearly, with a short time horizon of one single year, the relevance of this point is assumed away. The case illustrated here degenerates into a comparison of borrowing and taxation plus repayment within a time span short enough to guarantee (almost) certainty of survival. This leads to the conclusion that even if taken within its own theoretical framework, the reach of the above example is limited to a special case and does not support the irrelevance of fiscal language thesis that it is supposed to illustrate.

If the argument and empirical evidence presented in favor of the relevance of period incomes are accepted, the case of borrowing versus taxation appears in a decidedly different and more conventional light. Borrowing and taxation in such a non-Ricardian world do have differential impact on the consumption/savings decisions for the well-known reason that borrowing represents a voluntary transaction which leaves the disposable period income of individuals untouched while tax payments amount to a forced transaction which directly or indirectly cuts into the consumption opportunities of individuals. The equivalence thesis does not hold.

6. Conclusion

While not denying the innovative thrust of generational accounting, the paper argues that the radical verdict of the fiscal deficit measure, as given in a prominent part of the generational accounting literature, is not justified.

Starting out by sketching the theoretical background from which this negative judgement was derived, the paper shows that the deficit concept cannot be dismissed simply because any influence on the *period* incomes of individuals it may have is irrelevant. The evidence is that period incomes do have an impact on the planning of consumption and savings. This result is not surprising, given that there are income uncertainty, risk aversion and liquidity constraints.

Turning from this more general perspective to the deficit concept in particular, the overall picture given by the empirical evidence is less conclusive. This applies at least to studies based on unadjusted historical time series of deficits. Different, however, are the results of studies which allow for cyclical changes and inflation, and which consider time lags between variables. They do show relevant effects of fiscal deficits which are in the direction to be expected on the basis of a period-oriented approach.

A concluding section of the paper takes issue with the contention that the deficit is (entirely) the result of arbitrary fiscal language. The argument goes beyond the reach of the usual complaints about unsatisfactory definition of fiscal transactions as is illustrated by the claim that borrowing and taxation leave the individual in "exactly the same economic position". The paper shows that this *Ricardo*-type equivalence thesis is not even consistent with the usual set of assumptions on the basis of which the proponents of generational accounting typically argue, and it collapses entirely in a non-Ricardian world where disposable period income matters as a determinant of individual consumption.

Once the fundamentalist criticism of the deficit concept is disposed of, the stage will be set for a more balanced comparative evaluation of the deficit versus the generational accounting concept. This will be the task of a subsequent paper by this author.

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