MICHAEL STIMMELMAYR

Fundamental Capital Income Tax Reforms

Beiträge zur Finanzwissenschaft
23

Mohr Siebeck

Beiträge zur Finanzwissenschaft

Edited by

Hans-Werner Sinn und Clemens Fuest

23

Michael Stimmelmayr

Fundamental Capital Income Tax Reforms

Discussion and Simulation using ifoMOD

Mohr Siebeck

Michael Stimmelmayr, born 1978; 2001 Diplom-Volkswirt (equiv. M.A. in Economics), LMU Munich; 2006 Dr. oec. publ.; assistant professor, Center for Economic Studies, LMU Munich, and Lecturer, Team Schell Seminar, Munich.

e-ISBN PDF 978-3-16-151073-1
ISBN 978-3-16-149261-7
ISSN 0340-675X (Beiträge zur Finanzwissenschaft)

Die Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliographie; detailed bibliographic data is available in the Internet at *http://dnb.d-nb.de*.

The book was printed by Gulde-Druck in Tübingen on non-aging paper and bound by Buchbinderei Josef Spinner in Ottersweier.

Printed in Germany.

To My Parents

Preface

The main contribution of this book[1] concerns the theoretical and quantitative evaluation of different fundamental tax reform proposals. Employing dynamic computable general equilibrium (CGE) model, it analyzes the short- and long-run efficiency gains – as well as shortcomings – of various tax reform proposals put forward by the government, political parties and expert councils.

My work owes a debt of gratitude to many people. Hans-Werner Sinn, my teacher and mentor, taught me how to think like an economist. It is he who encouraged me to pursue a Ph.D., and this book would not have been written were it not for his support and guidance.

Christian Keuschnigg patiently supervised my thesis. He introduced me step-by-step to the techniques of dynamic CGE modelling and was a gracious host on several productive research visits to St. Gallen. I have profited greatly from his technical experience and economic insights.

Special thanks also go to my colleagues at CES, and in particular to Marko Köthenbürger for his insightful comments, which lead to substantial improvements in my work. I further want to mention Raji Jayaraman, Christian Kelders, Silke Üblermesser, and Karin Thomsen for lengthy academic (and non-academic) discussions. In addition I want to say "thank you" to Ursula Baumann and Martina Grass for their moral and logistical support. Doina Radulescu was my academic partner in this undertaking. We have worked jointly on this project for the last several years, through ups and downs. I have profited greatly from this cooperative endeavour.

I owe my largest debt to my parents, to whom this book is dedicated. Without their support, I would be lost.

Munich, January 2007 Michael Stimmelmayr

[1] This book originates from my thesis, written as a doctoral student at the Center for Economic Studies (CES) in Ludwig-Maximilians-University (LMU), Munich.

Contents

List of Tables

List of Figures

Chapter 1

The German Malaise

"*During the last ten years, Germany has been the slowest growing country of the European Union...*" (DESTATIS 2005b).

Germany, once the leader of the European growth statistics has fallen behind all other European countries in terms of growth. How did this come to pass? Hans-Werner SINN (2003, 2005), has argued that during the last fifteen years, Germany was hit by several distinct shocks which caused a serious damage to the German economy. First, the expanding welfare system as well as the overregulated labor market left the German economy ill-equipped to deal with the challenges accompanying globalization. Second, the enlargement of the European Union to encompass southern as well as eastern European countries, as well as the appearance of China as a major player on the world market has brought about fierce competition, especially in the context of Germany's low wage industries. Third, the introduction of the Euro hastened the convergence of the long-term interest rates in Europe. While this stimulated investments within the whole Euro area, Germany lost its advantage as the sole low interest country within Europe. Lastly, the German re-unification constitutes an additional challenge for the German economy.

However, there is another important challenge Germany has to cope with – namely a fundamental reform of the German tax system. During the 1980s and 1990s most Western European and Nordic countries restructured their tax system, either in the spirit of the 1986 US Tax Reform of tax cut cum base broadening or by introducing a completely new tax systems like the dual income tax.[1] By contrast, Germany's tax reforms left its tax system ill-prepared to deal with the fierce tax competition prevailing in a globalized world. Instead of exerting a fundamental tax reform, Germany misused its tax system as a discretionary instrument for short run cyclical interventions. According to the German Council of Economic Advisors (GCEA) the tangled mass of partly proposed, partly enforced tax reliefs and modifications in the German tax system have not led to any improvements in Germany's economic situation, but induced a severe loss of credibility, resulting in lower levels of investments

[1] The dual income tax (DIT) was firstly implemented by the Scandinavian countries in the beginning of the nineteen eighties (CNOSSEN 2000).

(GCEA, 2003). Moreover, this multitude of fractional changes within the German tax law increased the complexity and non-transparency of the German tax system and additionally led to several severe distortions affecting, among other things, the investment and financial behavior of firms, the choice of legal form and the intertemporal allocation of capital. Furthermore, the 2000 German Tax Reform was only a mild tax cut cum base broadening reform; it was not nearly as innovative as the tax reforms carried out at the same time elsewhere in Europe (KEEN 2002). SØRENSEN (2002) maintains that the 2000 German Tax Reform has lead to significant efficiency gains due to the cut in corporate and personal tax rates. However, KEEN (2002) argues that the effect of the 2000 tax reform on the levels of real investment and labor supply have been negligible. Moreover, the multitude of tax exemptions and legal tax loopholes has induced a severe erosion of the German tax base with the prospect of declining tax revenues (JARASS/OBERMAIR, 2004a, b) despite of having the highest tax rates within Europe (EUROPEAN TAX HANDBOOK, 2005).

A fundamental reform of the German tax system is imperative in order to overcome the lack of structure, non neutralities, and inefficiencies[2] inherent in the present German tax system. However, the standards of such a tax system are demanding: While any new tax system should guarantee a sufficient amount of public funds a further reduction in the German tax rates is indispensable in the light of the fierce European tax competition geared towards luring domestic and international investment.[3]

In this thesis a comprehensive dynamic *Computable General Equilibrium* (CGE) model[4] is developed to quantify the impact of the 2000 German Tax Reform on the German economy. Moreover, two fundamental tax reform proposals, namely Kirchhof's flat tax, (KIRCHHOF 2003, 2004, 2005a -c), and Bradford's X-tax, (BRADFORD 1986, 1989, 1991, 2000, 2003a, b), are evaluated on the basis of this CGE model. The flat tax proposed by Kirchhof characterizes an attempt of a comprehensive income tax which indeed assures neutrality with regard to the legal choice of firms but is non-neutral with respect to all other important economic behavioral margins, including the investment and financial decision of firms as well as the intertemporal allocation of capital.[5] In contrast, the proposed X-tax by Bradford, which belongs to the group of consumption

[2] According to the WORLD ECONOMIC FORUM (2005), Germany ranks last in terms of "*Efficiency of the Tax System*" among 104 countries.

[3] For a more detailed discussion of the reasons why Germany needs a fundamental tax reform see RADULESCU (2005a, b) as well as RADULESCU and STIMMELMAYR (2005a).

[4] The dynamic CGE model *ifo*MOD is joint work together with Christian Keuschnigg and Doina Radulescu (KEUSCHNIGG et al. 2005c).

[5] The matter of fact that a fully elaborated tax code is already existent for Kirchhof's flat tax is also the major reason to quantify this reform proposal.

based tax system, assures neutrality with respect to all behavioral margins of firms and the intertemporal allocation of capital.

CGE models are the most straightforward method of comparing the relative efficiency of alternative tax instruments while providing quantitative estimates of the marginal excess burden and the marginal cost of public funds. The dynamic CGE model *ifo*MOD developed in this thesis is a dynamic growth model. *ifo*MOD provides a rich description of the firm sector, allowing to incorporate the impact of taxation on various behavioral margins of corporate and non-corporate firms as well as on household decisions. Therefore, *ifo*MOD ranks in the same class of CGE models like the well-established comprehensive CGE model *IFFmod*, developed by KEUSCHNIGG (2002, 2005b), which has proved important in evaluating the impact of different tax reform proposals for Switzerland.[6]

The main findings concerning the 2000 German Tax Reform are broadly consistent with the numerical results derived by SØRENSEN (2002) and other theoretical and econometric studies (KEEN 2002). Therefore, the model proofs to do a good job and to derive plausible quantitative results. The quantitative evaluation of the two fundamental tax proposals show that both reform proposals enhance economic growth. However, Bradford's X-tax is superior to Kirchhof's flat tax since the increase in GDP would be more than two times larger under the X-tax proposal compared to the flat tax proposal. In terms of consumer welfare, the flat tax proposal leads to a distinct reduction of about 0.2 per cent in terms of GDP while the X-tax proposal increases consumer welfare by nearly 0.3 per cent in terms of GDP. Moreover, as the simulation results show, implementing Kirchhof's flat tax is rather costly and demands approximately eight times the amount of resources which are necessary to implement Bradford's X-tax.

In order to familiarize the reader with the subject of capital income taxation and quantitative policy evaluation using a dynamic CGE model this thesis is structured as follows: Chapter 2 reviews the theoretical literature in capital income taxation. Section 2.1 presents the case for and against taxing capital income. In Section 2.2 the competing views of dividend taxation[7] as well as their empirical underpinning are described. The last Section of Chapter 2 refers to the inter-sectoral distortion in the allocation of capital due to capital income taxation.

Chapter 3 introduces a preliminary, quasi intertemporal 2-period model, which serves as an especially tractable framework facilitating to analyze the impact of taxation in a simple way. Even though this setting constitutes partial

[6] See KEUSCHNIGG (2003, 2004) or DIETZ and KEUSCHNIGG (2004).

[7] These different views of dividend taxation refer to the 'Old' and 'New' view of dividend taxation as well as the nucleus theory formalized by SINN (1991b).

equilibrium analysis it provides the basic intuition for the distorting power of taxation. In particular, the corporate tax, a tax on dividends and capital gains, a tax on interest income, as well as a tax on labor income are considered.

A detailed documentation of the applied CGE model can be found in Chapter 4. Starting with a non-technical summary of the model in Section 4.1, the business sector is presented in Section 4.2 while the documentation of the household sector as well the general macroeconomic equilibrium are presented in Section 4.3 and 4.4, respectively. The business sector contains a detailed description of the corporate and non-corporate sector as well as the intertemporal optimization of firms. Additionally, the impact of taxation on the investment dynamics, the cost of capital as well as the effective marginal tax rates is analyzed. The description of the business sector is completed by a comparative dynamic analysis. The documentation of the household sector comprises the optimal portfolio choice problem as well as the intertemporal optimization problem of the infinitively lived Ramsey agent. Afterwards the welfare analysis follows. The general macroeconomic equilibrium is completed by considering the public and the current account of the domestic economy as well as the rest of world. Section 4.5 contains a rough summary concerning the calibration of the model and some computational aspects.

Chapter 5 covers the quantitative policy evaluation regarding the 2000 German Tax Reform in Section 5.1, while Section 5.2 quantifies the outcome of the two fundamental tax reform proposals, including Kirchhof's flat tax as well as Bradford's X-tax.

Finally, Chapter 6 presents the main findings and conclusions.

Chapter 2

Capital Income Taxation

The following Chapter 2 familiarizes the reader with the theory of capital income taxation. To start with, Section 2.1 collects reasons for and against the taxation of capital income. Section 2.2 presents a detailed discussion on the different views of capital income taxation found in the literature. In particular, the traditional and the New view on dividend taxation as well as the neutrality view and the nucleus theory of the firm are considered. The theoretical foundation for each of these views is presented in Subsection 2.2.1 through 2.2.3. A comprehensive survey on the empirical literature estimating the validity of either view follows in Subsection 2.2.4. The discussion on the different views of capital income taxation is refined in Subsection 2.2.5 which also provides a short comment on the view implemented in *ifo*MOD. The last Section addresses the inter-sectoral distortion in the allocation of capital caused by the corporate income tax. Therefore, a stylized model in the spirit of HARBERGER'S 1962 general equilibrium model is set up which, in its extended version, is also an important building block of *ifo*MOD.

While Chapter 2 argues rather verbally, a detailed formal and graphical analysis of the distortions arising from capital income taxation are presented within the 2-period model of Chapter 3.

2.1 Reasons For and Against Taxing Capital

Taxing capital income is an integral part of nearly every tax system around the world (EUROPEAN TAX HANDBOOK, 2005) and thus it is not amazing that the topic of capital income taxation is of recurrent interest for both, theorists and policy makers. While theorists are particularly interested in the efficiency cost of capital income taxation, policy makers are rather interested in the usefulness of capital income taxes to collect revenue.[1] Traditionally, many countries followed the system of a global or comprehensive income tax which was firstly recommended by HAIG (1921), SCHANTZ (1896), and SIMONS (1938). Ac-

[1] For the U.S. economy GORDON et al. (2004) estimated a zero tax revenue collected form capital income taxation in year 1983. However, in year 1995 the tax revenue collected from capital income taxation increased dramatically to $ 108.1 billion.

cording to this comprehensive income tax, all types of income – including also capital income, are lumped together and then taxed at a progressive rate. Under such a system each marginal unit of income faces the same tax burden, independent of the source it comes from. This principle of horizontal equality assures that neither source of income is either discriminated or privileged by the tax system. However, during the mid 1980s, the Scandinavian countries were the first one who deviated from the comprehensive income tax and introduced a dual income tax. Following a schedular dual income tax structure, the Scandinavian countries implemented a progressive tax schedular on labor income but a flat tax on capital income (CNOSSEN 2000, SØRENSEN 1994b, 1998).

What is the rational for taxing capital income at a lower rate – or even exempting capital income from taxation?

According to the theoretical literature, there are two distinct reasons against taxing capital income: First, the taxation of capital income gives rise to multiple distortions concerning the overall investment decision, the intertemporal, inter-sectoral and international allocation of capital, the corporate debt-equity ratio, the overall savings incentives, the portfolio choice of investors, the realization patterns of capital gains, etc. and thus induces many severe types of efficiency cost (GORDON et al. 2004). Even if some of these distortions appear to create only minor efficiency losses, in combination, the sum of all these efficiency losses matters and has to be taken into account (SINN 1987). Second, the accelerated process of globalization and especially the advanced integration of financial markets have intensified the competition for the internationally mobile factor capital, putting a downward pressure on capital income taxes.

Table 2.1: *Systems of Capital Income Taxation*

Interest Taxation	Dividend Taxation	Capital Gains Taxation
• Final Withholding Tax	• Classical System	• Speculative Capital Gains Taxation
• Credit System	• Shareholder Relief System	• Retrospective Capital Gains Taxation
• Regular Income Taxation	• Full Imputation System	• General Liability for Taxation
• Tax Exemption		• Tax Exemption

Source: SCHRATZENSTALLER (2004)

To classify the distortions arising through capital income taxation, a closer look on the prevailing systems of capital income taxation is advisable. Following the structure presented in Table 2.1 capital income taxation comprises

the taxation of interest income, dividend income as well as capital gains. Even though each of these three kinds of taxation are part of the comprehensive income tax system, their form of appearance may differ depending on the principles underlying the tax system.

The subordinated items in Table 2.1 display the most common forms of appearance for each type of capital income tax. Referring to the first column, the tax on interest income could either appear through a withholding tax, a credit system, or could simply be part of the comprehensive income tax system.[2] In case savings originate from current net of tax income, the taxation of interest income constitutes a double taxation of income resulting in too little savings. The explanation for this result is obvious: The tax on interest income raises the price of future consumption relative to current consumption. Therefore, households will increase their level of current consumption in the expense of future consumption, implying a reduction in the level of savings. In terms of efficiency, the distortion in the intertemporal allocation of capital is more severe in a closed economy, where the saving-investment identity is binding, compared to an open economy. In a closed economy, too little savings result in insufficient investment funds and thus impede economic activity. Contrary to that, in a small open economy the saving-investment identity is relaxed and domestic savings have little repercussion on the production side of the economy. Even if the amount of required investment funds exceed the amount of domestic savings in an open economy, the difference may be raised at the world capital market. However, even in a small open economy the tax on interest income induces a welfare loss, since it drives a wedge between the interest rate and the marginal rate of time preference of households. As a consequence, households save too little, implying a sub-optimal intertemporal allocation of capital.

The next two columns in Table 2.1 concern the taxation of dividends and capital gains. The dividend tax is levied on distributed corporate profits, while retained corporate profits are later on subject to the capital gains tax. In the case corporate profits are already taxed by the corporate tax on firm level, the additional taxation of distributed or retained corporate profits on the personal level constitutes a double taxation of corporate profits. Such a system, where corporate profits are subject to double taxation is known as the *Classical System* of capital income taxation. Under the classical system capital gains are also subject to full taxation. The double taxation of corporate profits places an additional burden on the returns of corporate investments and therefore distorts in

[2] The form of appearance for each of these taxes on capital income within the dynamic CGE model ifoMOD is discussed in Chapter 4 when the comprehensive model is developed.

particular the investment and financial decisions of corporate firms.[3] Reversely, a tax system which allows for a full imputation of the corporate tax liability against the shareholder's individual tax liability arising from corporate income, avoids the double taxation of corporate profits completely. Accordingly, such a system is referred to as a *Full Imputation System*. Concerning the specific case, where the corporate tax liability could partially be deducted from the individual tax liability, a *Partial Imputation System* is in place.

Around the world, only a few countries like for example Finland, Latvia, Malta and Norway follow the full imputation system, while most countries, such as Austria, Belgium, Canada, Cyprus, Denmark, France, Germany, Greece, Japan, the Netherlands, Portugal, Spain, Sweden and the United Kingdom committed to some kind of partial imputation system. The classical system of capital income taxation still prevails in Australia, Ireland, Lithuania, New Zealand, Poland, Switzerland and the USA and was recently reintroduced in Italy (EUROPEAN TAX HANDBOOK, 2005).

One additional remark concerning the taxation of capital gains: Capital gains are fully subject to taxation under the classical system, as depicted in Table 2.1. Due to administrative reasons, however, capital gains are taxed on a realization basis instead of an accrual basis, allowing for a significant tax advantage during the holding period. Due to this retrospective taxation of capital gains, the resulting rule of thumb implies that the effective tax rate on capital gains is just about half of the statutory tax rate levied on capital gains[4] (OECD 1991). Therefore, even if the statutory tax rate levied on dividends and capital gains is the same, capital gains do face a favorable tax treatment. Moreover, several countries, including Germany for instance, do not tax capital gains at all, except for speculative capital gains, arising within a holding period of one year.

Beside the distortions on personal level resulting from capital income taxation, one has to bear in mind that the corporate tax causes some additional distortions on the firm level: First, the corporate tax drives a wedge between the marginal product of capital and the market rate of interest and therewith distorts the investment decision of corporations. In the specific case that the corporate tax burdens firms of different sectors unequally – like it is the case for corporate versus non-corporate firms, the corporate tax additionally distorts the allocation of capital across sectors. Hence, the marginal product of capital

[3] In the case the different sources of investment funds, including retained earnings, new share issues and debt finance, face a unequal effective tax burden, the financial decision of a corporation is distorted.

[4] Following OECD (1991), the effective tax rate levied on capital gains amount to a fraction of 0.598 of the statutory tax rate.

does not equate across sectors resulting in a sub-optimal low level of aggregate output.[5]

Second, beside the sub-optimal allocation of capital across sectors (and countries), the corporate tax additionally distorts the financial behavior of firms. In particular, this distortion arises from the possibility to deduct incurred interest on debt while the opportunity cost of equity capital are not tax deductible. Thus, the corporate tax induces a preference for debt finance and increases a firm's vulnerability to external shocks as well as its risk of bankruptcy.

In the light of this discussion it seems plausible not to levy any taxes on capital income, neither on the corporate nor on the personal level. Nevertheless, there are at least two distinct reasons which could justify the taxation of capital income: First, in case a firm earns positive pure profits, the corporate income tax is the only available instrument for the government to participate in these pure profits. Moreover, a corporate tax levied exclusively on pure profits is non-distorting and consequently does not affect the investment decision of corporations. This is true, since a tax on pure profits just claims a fixed fraction of the pure profit earned on each investment project, however, it does not change the profitability of any investment project. Consequently, the volume of investments arising under a tax on pure profits is the same as in a world without taxation.

The second important argument, why the taxation of capital income could be beneficial, concerns the marginal cost of public funds. In case, the efficiency cost resulting from one additional Euro of tax revenue collected by any tax on capital income is smaller compared to the efficiency cost resulting from one additional Euro of tax revenue collected by any other tax, the taxation of capital income diminishes the overall efficiency cost arising from taxation as such.[6] This matter of fact is theoretically well known as the *Ramsey Rule* of taxation (RAMSEY 1927). According to this rule, the marginal excess burden stemming from one additional Euro of tax revenue collected, has to be equal for each tax rate in order to minimize the efficiency cost of taxation. In reality, however, it is quite difficult for policy makers and even economists to quantify the arising efficiency cost of each single tax levied.

One possibility to approximate the efficiency cost – or the marginal excess

[5] Simultaneously, this argument also applies on an international level: If the corporate tax rates differ across countries, the marginal product of capital does not equate across countries resulting in a sub-optimal allocation of capital and therewith in a too low level of "world output".

[6] Stating it according to GORDON et al (2004): taxing capital income could still be advisable beside the resulting distortions, if the taxes on capital income "*generate sufficient off-setting distributional gains per …* [Euro] *of tax revenue raised. At the optimal policy, the efficiency cost net of distributional gains from taxes on capital income, per …* [Euro] *of resulting tax revenue, should equal the net costs/gains from other sources of revenue.*" (GORDON et al. 2004, p. 982).

burden, of taxation, refers to the utilization of CGE models like *ifo*MOD. In Chapter 5, when the distortions within the current German tax system are evaluated, the arising marginal and average excess burden of each single tax are computed.

2.2 Different Views on Dividend Taxation

To what extent does the taxation of capital income influence the investment activity of firms? Does the dividend tax tend to increase the cost of capital for corporate firms and therefore discriminate against investments of those firms? Is the double taxation of corporate profits harmful to economic growth?

To answer these questions, different theoretical approaches emerged during the last decades, including the traditional or Old View and the New View[7] of dividend taxation. These competing views split economists in two opponent parties and until now none of these two views is disproved so far – neither on a theoretical nor an empirical basis. The fact that the controversy on the Old and New View on dividend taxation has been lasting at least for thirty years by now, may also be the reason, why the topic of capital income taxation is still one of the most continuous and interesting topics in taxation. Following SØRENSEN (1995), there are four different competing views of capital income taxation which need to be distinguished. However, the traditional and the New View on dividend taxation are the main antagonists within this discussion. The neutrality view is based on the Modigliani-Miller theorem (MODIGLIANI/MILLER, 1958) and considers a quasi fully debt financed firm at the margin. Compared to the neutrality view the fourth view – namely the nucleus theory of a firm formally derived by SINN (1987, 1991a), is of special interest, since it serves as a copula connecting the old and the New View on dividend taxation.

Assigning names to the adherer of the two competing views, the most prominent originators of the traditional view are HARBERGER (1962, 1966), MCLURE (1979), MACDOUGALL (1960), as well as POTERBA and SUMMERS (1983, 1985) for sure, while the names of KING (1972, 1974a, b, 1977), AUERBACH (1979), BRADFORD (1981) and SINN (1987, 1991a, b) are irrevocably connected to the New View on dividend taxation.

In order to familiarize the reader with the comprehensive literature on capital income taxation the theoretical foundation for each of the four different views is

[7] The New View on dividend taxation is also known under the *Trapped Equity View* or the *Tax Capitalization View*.