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Swedish Capital Income Taxation (1862–2013)

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Abstract: This paper describes the evolution of capital income taxation in Sweden between 1862 and 2013, including the taxation of corporate profits, dividends, capital gains, interest income, and wealth taxation. To illustrate this evolution, we present annual time-series data regarding the marginal effective tax rates on capital income (METR) for a marginal investment financed with new share issues, retained earnings or debt. The METR is low and stable and does not exceed five percent until World War I, when it begins to drift somewhat upward and vary depending on the source of finance. The outbreak of World War II begins a period during which the magnitude and variation of the METR sharply increase. The METR peaks during the 1970s and 1980s and often exceeds 100 percent. The 1990–1991 tax reform and lower rates of inflation reduce the magnitude and variation of the METR, which varies between 15 and 35 percent at the end of the period examined.

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1. Introduction

Taxation affects many economic decisions, including those related to labor supply, household savings, corporate investment and entrepreneurial activity. In this paper, we study the incentives to invest provided by capital income taxation. Capital income taxation affects the incentives to invest through its effect on the cost of capital, that is, the minimum rate of return that an investment must yield before taxes to provide the saver with the same net of tax return that (s)he would receive from lending at the market interest rate. Investment projects worth pursuing require that the profitability is higher than the cost of capital. The total effect of capital income taxation depends on the system of corporate taxation, personal income taxation and wealth taxation, in addition to the interaction between these taxes and inflation.

The purpose of this paper is twofold. First, we intend to describe the general evolution of Swedish capital income taxation, including corporate, capital gains, dividends, interest income and wealth taxation. The analysis begins in 1862 with the introduction of a major new state (central government) tax system. Second, we want to illustrate the evolution of capital income taxation by calculating the long-term evolution of the so-called marginal effective tax rate on capital income (METR), which is based on the method developed in King and Fullerton (1984). The METR focuses on the flow of private savings into real corporate investment and the flow of profits back to households. It is an established tax measure that is used to compare tax rates across countries and investment projects. Long-run analyses are rare, however. The METR is preferable to other measures—such as the average corporate tax rate—because it includes effects at both the personal and corporate levels and because it focuses on the marginal effect, which measures the incentives for additional investments.¹

Historical studies of the Swedish capital tax system include Genberg (1942), Jakobsson and Normann (1974), Rodriguez (1980, 1981), Gårestad (1987) and Mutén (2003). These studies incorporate extensive information about the Swedish tax system but do not include a formal calculation of the METR. Some of the results in this paper are derived from these sources. A calculation of the METR in a Swedish context can be found in Södersten and Lindberg (1983), Södersten (1984, 1993), Norrman and McLure (1997), Lindhe (2002), Öberg (2004) and Sørensen (2008), among others. Nevertheless, none of these studies have analyzed the METR over an extensive time period.² Previous country or cross-country studies analyzing the U.S. and the U.K., for example, are presented in Devereux, Griffith, and Klemm

¹ King and Fullerton (1984, 7–8).

² Most of these studies analyze the tax system during the 1980s or 1990s. Södersten (1984) analyzes the years 1980, 1970 and 1960. No study goes further back in time.

(2002) and cover mainly the 1980s and 1990s. Hence, this article complements previous studies by computing the METR as far back as 1862 and up to 2013. No previous study has generated a dataset of this magnitude for Sweden, and we are not aware of any international studies covering a period of similar duration.

The paper is organized as follows. The next section describes the evolution of different components of capital taxation. Section 3 defines the METR and presents its evolution. Section 4 concludes. In the appendices, we discuss the METR and the corporate tax system more formally and present complete tables covering statutory corporate taxes and wealth taxes.³

2. The development of capital income taxation

This section describes the general evolution of different parts of Swedish capital income taxation, that is, taxation of corporate profits, dividends, capital gains, interest income and wealth. This description is used to calculate the METR in the next section. We present figures in the text to illustrate the development of capital income taxation in Sweden. Complete tables with all tax rates and tax brackets for the entire period examined are presented in the appendices to avoid cluttering and fragmenting the main text of this paper. In Sweden, capital income taxes have historically been paid to counties (*landsting*) and to municipalities (*kommuner*; we will denote counties and municipalities local government) and to the state (central government). Because the METR also depends on inflation, we also present the evolution of the inflation rate.

2.1 Corporate taxation

The business form “corporation with limited liability” was legally introduced as a new organizational form by a law passed by Sweden’s Parliament in 1848.⁴ In 1862, a new state appropriation tax law (*bevillning*) was implemented, and a new local tax system was introduced in the following year. Profits from corporations were taxed at the corporate level in the same way and at the same rates as earned income for individual taxpayers. Initially, approximately one percent of taxable profit was paid to the state, and approximately two percent was paid to local governments.⁵ The tax system can be considered proportional.⁶ The

³ Wealth tax tables are presented in Du Rietz and Henrekson (2015).

⁴ Schön (2000).

⁵ See Du Rietz, Johansson, and Stenkula (2015).

⁶ The possibilities to reduce corporate taxes through different forms of allowances were limited. There were no formal rules, and the estimation of taxable profit was rudimentary, although some companies were required to

state income tax rate was stable, but the local tax rate increased slowly to approximately five percent during the second half of the nineteenth century.

In 1903, a progressive state income tax was implemented that applied to corporations as well as individuals. The new state tax was supposed to replace the system of appropriation, which was gradually phased out and finally abolished in 1928. Thus, there were two parallel state tax systems at the beginning of the twentieth century. The state corporate marginal tax rate varied between one and five percent.⁷ In 1903, dividends to individuals were also taxed. To avoid double taxation, corporations were allowed to deduct dividends paid, but only up to six percent of the book value of equity. Thus, there was no double taxation of profits as long as dividends did not exceed six percent. The ordinary local tax system remained proportional and continued as such for the remainder of the period under study. The local tax continued to gradually increase until it had reached approximately ten percent during World War II.

In 1911, the state income tax was reformed, and personal and corporate income taxes were separated. Firms were no longer allowed to make any deductions for dividends; hence, full double taxation was introduced. The state corporate tax remained progressive but was now based on profitability (as a percentage of equity) rather than on profits (in SEK), as it had been in 1903.⁸ The state corporate tax rate varied between 2.5 and 5.2 percent depending on the rate of return on equity. In addition, corporations had to pay temporary defense taxes to the state in 1918 and 1919 (at most, five and ten percent on the margin, respectively).⁹

In 1920, following World War I, a new state income tax system was implemented that was supposed to replace the ordinary income tax and the temporary defense taxes. This tax system was intended to be more flexible and stable than previous systems. Technically, the structure of the tax system—tax income brackets and progressivity—was fixed, but the specific tax rates were flexible and were determined on an annual basis. As with

send account statements with information about profits to the tax authorities. For a further discussion, see, e.g., Malmer (2003), who calls the 1862–1902 period, “*den fria uppskattningens tid*” (the period of unrestricted assessment).

⁷ There was also an average tax cap of four percent.

⁸ SEK = Swedish kronor. There were roughly five Swedish kronor to the US\$ during the Bretton Woods era. In recent decades the exchange rate has, with few exceptions, oscillated between six and nine kronor to the dollar.

⁹ In addition, there was a so-called War Business Cycle Tax between 1915 and 1920, but this tax is excluded from the calculation of the METR because it was a firm, industry- and region-specific tax that was not generally implemented. Instead, it was used to tax supernormal profits that had arisen in certain industries—such as the steel, shipping and military industries—because of the war. Part of the tax was later remitted (Rodriguez 1980, 46).

earlier systems, the tax rate was based on companies' profitability.¹⁰ The state corporate tax rate could vary between approximately two and 20 percent depending on the year and profitability. Local corporate taxes were now also deductible from income.¹¹

In 1920, a progressive local corporate tax was introduced with a marginal tax rate that varied from one to eight percent depending on profitability.¹² In 1928, this tax was reformed, and part of the progressive local tax was transformed into a separate, additional state income tax, called the equalization tax (*utjämningskatt*). The progressive local corporate tax had a top tax rate of 3.75 percent, whereas the equalization tax had a top tax rate of 1.25 percent initially and 2.5 percent after 1934. As a result, the total corporate tax rate could already be relatively high for highly profitable companies during World War I and during the interwar years; by the end of the 1930s, the tax rate could be well above 30 percent (see Figure 1). However, the option to defer tax payments by free inventory write-downs, which was introduced in 1928, reduced the effective corporate tax rate.¹³

In 1939, a new proportional state corporate income tax was implemented when the temporary taxes that were introduced in the 1920s were abolished. The tax rate was set to ten percent. In practice, the tax rate immediately increased to 13 percent.¹⁴ New temporary defense taxes were also introduced levying marginal tax rates of three percent initially and ten and 12 percent, subsequently. The regular proportional state corporate tax rate was further increased to 20 percent in 1940. As a result, the total statutory corporate tax rate could increase substantially, reaching approximately 40 percent (see Figure 1). In 1939, the scope for reducing corporate taxes was also expanded. By introducing free write-downs for machinery and equipment and deductible allocations for pension and investment funds (the IF system), the increase in the effective corporate tax rate could be lower than the increase in the statutory tax rate.

¹⁰ Between 1919 and 1926, there was also a so-called B-tax. This tax was based on profits that were retained in the company. This tax can be considered a temporary tax payment in advance because it was refunded after profits were distributed as dividends. The basic tax rate was two percent, but, as with the ordinary tax system, the actual tax rate was flexible and was determined on an annual basis (SOU 1931:40, 77f). The revenue from this tax was small compared with the regular corporate tax and accounted for less than five percent of total corporate tax revenue (see, e.g., Statistics Sweden 1928, 283). This tax is not included in our calculations of the METR. At most, including this tax would increase the METR by less than two percentage points, given that profits will never be distributed.

¹¹ Hence, the total statutory tax rate was equal to $\tau^{\text{total}} = \tau^{\text{local}} + (1 - \tau^{\text{local}}) \cdot \tau^{\text{state}}$, where τ^{local} and τ^{state} refer to the local and the state corporate tax, respectively, and include all relevant temporary taxes described in the next section.

¹² This tax initially had an average tax cap of five percent.

¹³ It is difficult to give a general estimate of the extent to which different allowances and grants reduced the statutory corporate tax rate since it is contingent on firm-specific characteristics, such as types of assets invested in and profitability. Corporate tax, depreciation allowances and other grants will be discussed in more detail in Section 3 and in Appendix B. See SOU 1927:23 or SOU 1937:42 for a further discussion of these issues.

¹⁴ As with the previous tax system, the tax rate was flexible, determined by Parliament on an annual basis.

In 1947, the corporate tax was once again reformed, and a proportional state income tax rate corresponding to 40 percent of taxable profits was introduced. All temporary taxes were abolished. The tax rate was temporarily increased to 45 percent in 1955 and to 50 percent between 1956 and 1959. There were also temporary investment taxes on investments in 1951–1953 and in 1955–1957. These tax increases and additional taxes were instituted to contract the overheated economy that resulted from the Korea crisis.¹⁵ However, in 1955, the investment funds system became more generous, and between 1961 and 1993, a certain mitigation of the double taxation of dividends was available at the firm level through the so-called Annell deduction. In 1960, the possibility to carry forward losses and deduct them against profits in later years was also implemented.

Although the state income tax rate was stable, local taxes increased during the postwar period. Between the end of World War II and 1970, the local tax rate doubled from approximately ten to 20 percent. When local taxes are taken into account, the total statutory corporate tax rate increased to 45 percent after World War II and (temporarily) to 55 percent at the end of the 1950s. The local tax continued to increase to almost 30 percent in the mid-1980s, and the total corporate tax rate followed suit.

The local corporate tax was abolished in 1985. In its place, the state corporate tax rate was increased to 52 percent, and the total statutory tax rate thus remained practically unchanged. Between 1984 and 1990, an additional, specific “profit sharing tax” (PST) on corporations was levied to finance the so-called wage-earner funds (*löntagarfonder*).¹⁶ The highly complex tax base of the PST was real profits (above an exempted amount of one-half to one million SEK or six percent of the payroll), and it thus cannot be easily expressed as a

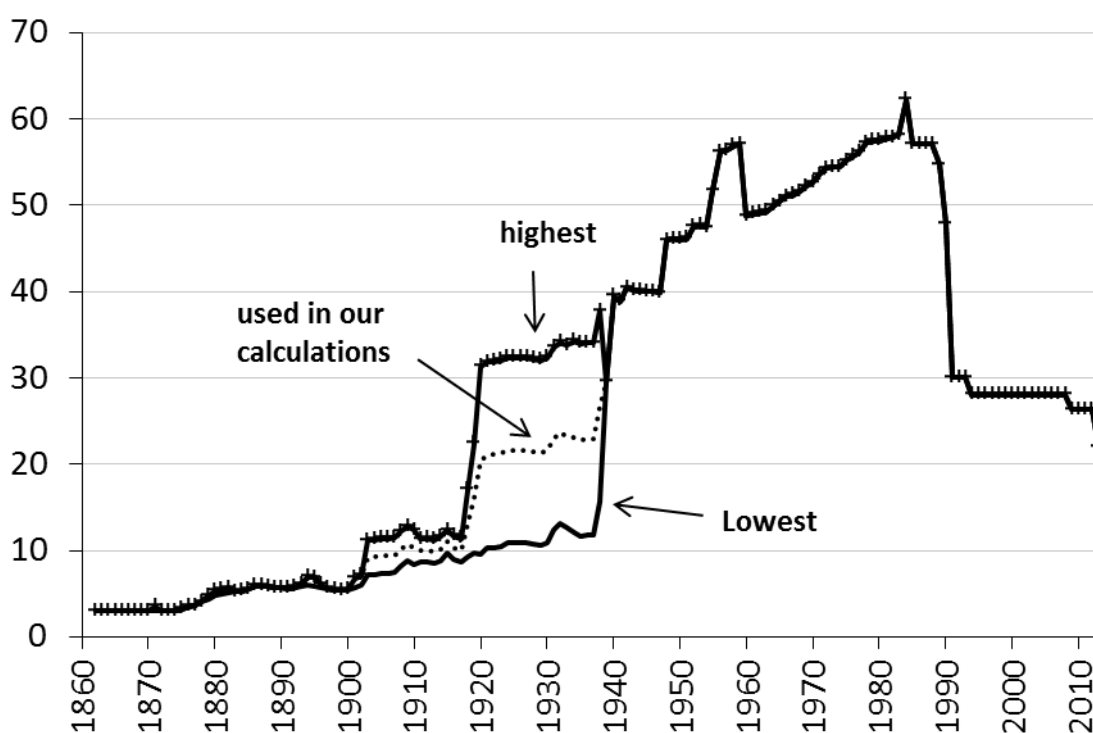
¹⁵ In 1951, the tax rate was ten percent on machinery and equipment. The tax base was the deduction applied (as defined by tax law) minus ten percent of the investment (estimated as true economic depreciation). Hence, if immediate write-offs were used, almost the entire value of the investment was taxed by ten percent. Only companies with a turnover above SEK 300,000 (corresponding to approximately SEK 4.5 million in 2013) had to pay this tax. In 1952, the tax rate was changed to 12 percent of the investment value, and the tax was called an investment fee. Investments below SEK 20,000 (corresponding to approximately SEK 300,000 in 2013) and investments in most publicly owned companies were tax exempt. The investment fee was temporarily abolished in 1954 but was reintroduced between 1955 and 1957. The fee was deductible. The possibility to use immediate write-offs was also limited, reducing the possible deduction on machinery and equipment to 20 percent between 1952 and 1954. See, e.g., Arvidsson (1956), Eliasson (1967), Statistisk Sentralbyrå (1958) or SOU 1954:19 for further discussion. We will include investment taxes/fees in our calculation of the METR. Hence, the METR will be somewhat lower for small firms during the 1950s because these taxes did not affect small firms or small investments.

¹⁶ The enacted wage-earner funds were a considerably watered-down version of the original proposal, which can be regarded as an instrument to fulfill the vision of leading Social Democrats to convert large corporations into “social enterprises without owners” (Henrekson and Jacobson 2001, 352–354, and Lindbeck 2012).

single statutory tax rate.¹⁷ It has been estimated that this tax increased the statutory corporate tax rate by five percentage points.¹⁸

After the far-reaching tax reform in 1990–1991, options to reduce the effective corporate tax rate were limited (Lodin 2011, Chapter 7). The reform was designed to be revenue neutral, and it involved substantial cuts in statutory tax rates and a broadening of the tax base by removing many tax deferrals, for example, the earlier investment funds system, the possibility to undervalue inventories and the profit equalization fund. The statutory tax rate was cut to 40 percent in 1990 and to 30 percent in 1991. It was further reduced to 28 percent in 1994, to 26.3 percent in 2009 and to 22 percent in 2013.

Figure 1. The highest and lowest statutory marginal corporate tax rate and the statutory marginal corporate tax rate used in our calculations of the METR, 1862–2013 (%).



Note: The statutory marginal corporate tax rate refers to the total effect of local and state corporate taxes. *Source:* Genberg (1942); Rodriguez (1981); Gårestad (1987); Nordling (1989, 61–67); Agell, Englund, and Södersten (1995); Ministry of Finance (2008, 2013); Du Rietz, Johansson, and Stenkula (2015); own calculations.

2.2 Taxation of interest income and dividends

Figures 2 and 3 depict the marginal tax rate on interest income and dividends for a top income earner paying the highest marginal tax rate, an income earner with an annual wage of a

¹⁷ The base of the PST was obtained by reducing taxable corporate income by corporate tax payments with several adjustments for inflation (see Södersten 1993, 275–276).

¹⁸ Agell, Englund, and Södersten (1995) and Henrekson (1996). We will use this estimate in our calculations of the METR.

production worker (henceforth denoted APW), and an income earner earning 0.67 or 1.67 APW.¹⁹ Few income earners paid the top marginal tax when progressivity was introduced.²⁰

In the state appropriation tax law of 1862 and in the local tax implemented in 1863, interest income was taxed the same as other personal income (labor and business income). Initially, one percent of interest income was paid to the state, and approximately two percent was paid to the local governments. Dividends were tax exempt until the state tax reform implemented in 1903, but shareholders initially only paid state income tax on dividends. Between 1903 and 1919, the state income tax was slightly progressive with state tax rates up to six percent.²¹ The local tax was proportional at roughly five to six percent during this period. Beginning in 1920, local taxes were also levied on dividends. Interest income and dividends were now taxed in the same way as and jointly with other personal income until the 1990–1991 tax reform.

During the interwar years, the marginal tax rate (including both local and state taxes) could vary between 12 and 15 percent for regular income.²² The 1948 income tax reform was highly progressive, and inflation resulted in bracket creep, causing a steady increase in the marginal tax rate until a new tax reform was implemented in 1971.²³ This reform increased the progressivity of the income tax even further.²⁴ For high-income earners, the marginal tax rate could be as high as 85 percent in 1980. A minor tax reform implemented in 1983–1985 reduced the marginal tax rates by approximately five to 15 percentage points.²⁵

In 1991, a separate personal capital income tax was introduced, and the tax on dividends and interest income was cut to 30 percent for natural persons. Politicians debated the taxation of capital income, including the “double taxation” of dividends. When a center-right government was elected in 1991, the dividend tax, but not the tax on interest income, was temporarily reduced to 25 percent in 1992–1993; in 1994, the tax on dividends was

¹⁹ These income levels correspond to those reported in OECD (2011), and are used in other articles analyzing the evolution of the Swedish tax system, see, e.g., Stenkula, Johansson, and Du Rietz (2014). The tax rate for the average production worker will be used to calculate the METR in Section 3 (see Du Rietz, Johansson, and Stenkula 2015 for the wages of an average production worker).

²⁰ For instance, 400 APWs was required to pay the top marginal tax rate in 1938, 36 in 1950, 13 in 1960, seven in 1970 and a mere 2.5 APWs in 1980.

²¹ However, during World War I, additional temporary taxes were introduced that could be up to 17 percent on the margin in 1919.

²² The state tax was progressive, but the first tax bracket was very wide (the upper limit corresponded to more than three APWs in 1920), and it included the majority of all taxpayers (see Du Rietz, Johansson, and Stenkula 2015). By regular income, we refer to an income between 0.67 and 1.67 APW.

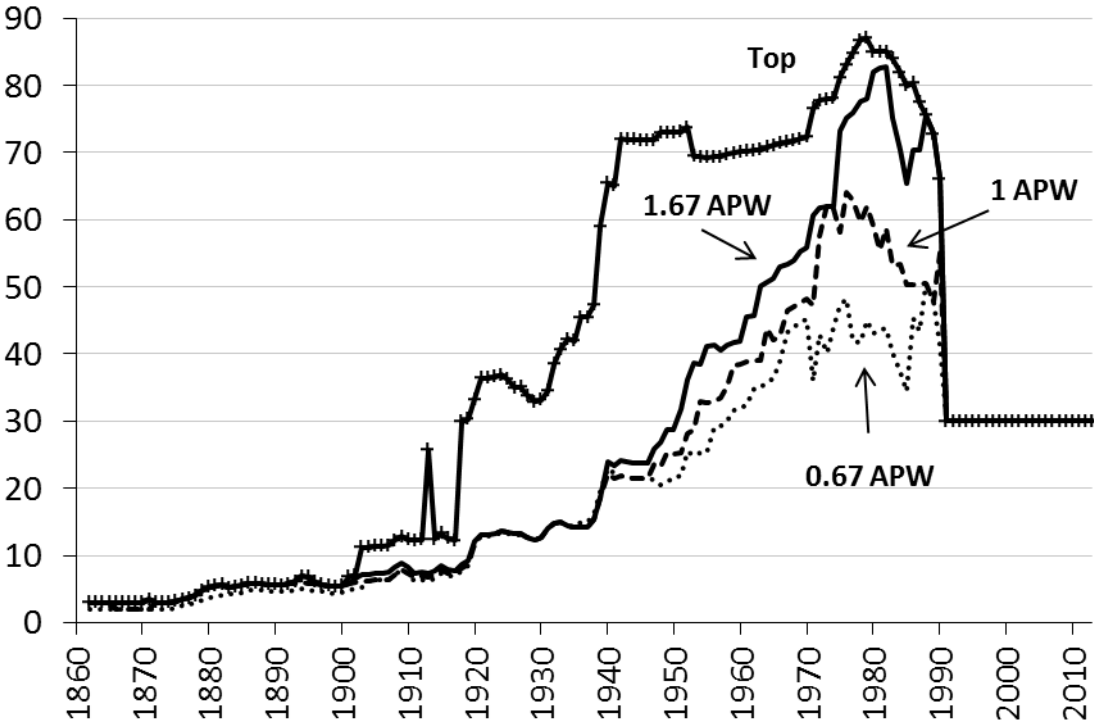
²³ The marginal income tax rate for an average production worker increased, for instance, from just below 25 percent in 1947 to almost 50 percent in 1970.

²⁴ An interesting measure of progressivity is the elasticity of income after tax. Curves for this in 1953, 1960, 1970 and 1971 are presented in Jakobsson and Normann (1974, 54).

²⁵ A comprehensive description of the evolution of marginal income taxation is provided in Du Rietz, Johansson, and Stenkula (2015).

abolished altogether. It was reintroduced in the next year at a rate of 30 percent when the Social Democrats regained power. It has remained at that level for dividends paid by public companies.²⁶

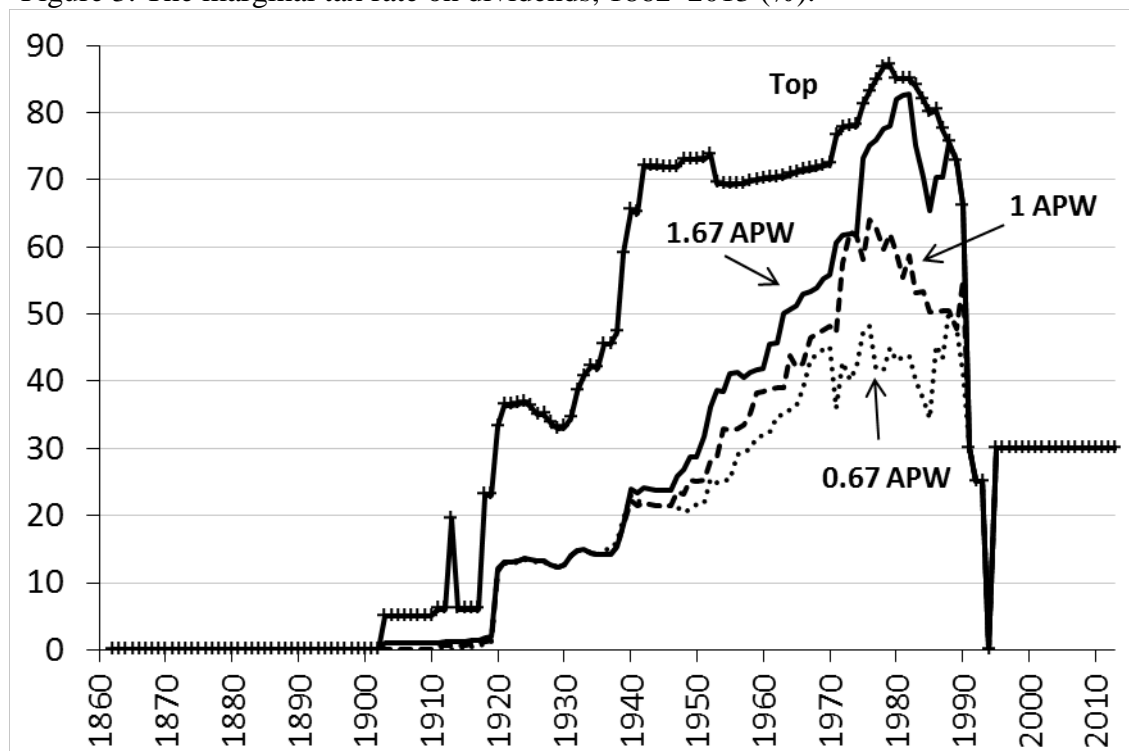
Figure 2. The marginal tax rate on interest income, 1862–2013 (%).



Source: Du Rietz, Johansson, and Stenkula (2015); own calculations.

²⁶ In 2006, the tax on dividends from nonpublic companies was reduced to 25 percent. For an entrepreneur in a closely held, limited liability company, the marginal tax on dividends depends on several parameters after the tax reform in 1990–1991. We do not focus on the taxation of entrepreneurs and closely held, limited liability companies in this paper.

Figure 3. The marginal tax rate on dividends, 1862–2013 (%).



Note: Before 1903, dividends were tax exempt. From 1903 until 1919, dividends were taxed at the state level only.

Source: Du Rietz, Johansson, and Stenkula (2015); own calculations.

2.3 Capital gains taxation

Before 1911, only so-called “speculative” capital gains were taxable. However, there was no formal tax rule that defined when capital gains were speculative. Taxation was based on the tax authority’s discretionary decisions. Formal capital gains taxation was introduced in 1911. It was launched after a long boom period in the stock market. The intention was still to tax only “speculative” capital gains—but more transparently. Because of the difficulty of defining “speculative” gains, a more precise, though in itself arbitrary, rule was introduced, which meant that the tax on capital gains depended on the holding period. A longer holding period meant that the taxable part of the gain was smaller (and, implicitly, that the estimated “speculative” share was lower). In 1911, capital gains on stocks that were held more than five years were tax exempt, whereas short-term capital gains were fully taxed. As with dividends, the taxable part of capital gains was taxed jointly with other personal income until the 1990–1991 tax reform.²⁷

²⁷ In addition, between 1984 and the end of 1991, there was a turnover tax on shares that required both buyers and sellers to pay a tax of (initially) 0.5 percent of the value of the shares. We have not included this tax in the METR calculation below.

The rules that determine the tax exempt share have been modified several times (see Table 1). The sharp time limit of five years has frequently been debated among politicians and experts.²⁸ The rules were not changed until 1951, however, when a stepwise system was introduced. Part of the capital gains was taxed for shares that were owned between two and five years whereas gains on shares that were owned for more than five years remained tax exempt. In 1966, long-term capital gains were taxed for the first time. Ten percent of the proceeds of the sale of shares were included in the income tax base of the seller of shares that were owned for five years or more.²⁹ In 1976, the rules were changed to stipulate that all gains on shares that were held for under two years were taxed, whereas only 40 percent of the gains were taxed for shares that were held for two years or more.

Table 1. Taxable share of capital gains.

| Time period | Speculative gains | | Nonspeculative gains | | |
|-------------|------------------------|-----|----------------------|-----|--------|
| 1862–1910 | 100 | | 0 | | |
| | Holding period (years) | | | | |
| | < 2 | 2–3 | 3–4 | 4–5 | ≥ 5 |
| 1911–1950 | 100 | 100 | 100 | 100 | 0 |
| 1951–1965 | 100 | 75 | 50 | 25 | 0 |
| 1966–1975 | 100 | 75 | 50 | 25 | 10/25* |
| 1976–1990 | 100 | 40 | 40 | 40 | 40 |
| 1991– | 100 | 100 | 100 | 100 | 100 |

Note: * Formally, ten percent of the proceeds of the sale of the shares in these long-term gains were included in the personal income tax base of the seller. The rate of 25 percent is an estimate of the taxable share based on assumptions made by Södersten (1984), including a holding period of ten years and a nominal growth rate of five percent per year (five percent corresponds to the average increase in the stock market index during this period). This tax had to be paid only if the capital gains were five percent or more of the proceeds of the sale of the shares. If the gains were less than five percent, there was no tax (Bratt and Fernström 1975; Rundfelt 1982). *Source:* Eberstein (1929, 154–155); Bratt and Fernström (1975); SOU 1977:91, 242–243; Rundfelt (1982); Södersten (1984, 106–107).

This implies that the marginal tax rate on capital gains on long-term holdings was zero until 1965 (see Figure 4). From 1966 through 1975, the marginal tax rate varied between approximately ten percent (for a taxpayer earning 0.67 APW) and 20 percent (for a top income earner paying the highest marginal tax rate). The tax changes that were implemented in 1976 increased the top marginal tax rate sharply to more than 30 percent, and this rate peaked in 1979 at almost 35 percent. Thereafter, it fell to 25–30 percent before the 1990–1991 tax reform.

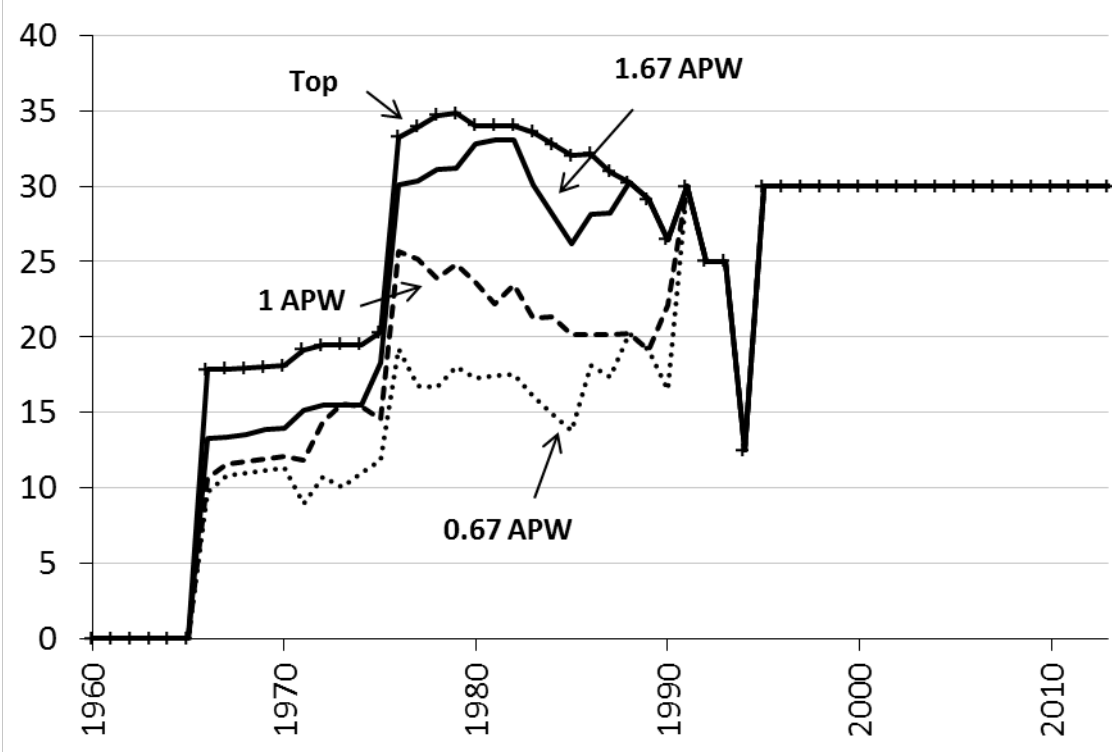
The 1990–1991 tax reform made all capital gains fully taxable regardless of holding period. However, capital gains were no longer taxed jointly with personal income but

²⁸ See, e.g., the discussion in SOU 1965:72.

²⁹ Between 1966 and 1990, there was also a small tax-free amount on long-term gains.

were taxed by a separate capital income tax at a flat rate of 30 percent. In 1992–1993, this separate capital income tax rate was temporarily cut to 25 percent; in 1994, this rate was temporarily lowered to 12.5 percent.³⁰

Figure 4. The marginal tax rate on long-term capital gains, 1960–2013 (%).



Note: Before 1966, long-term capital gains (≥ 5 years) were tax exempt. From 1966 until 1990, only a proportion of capital gains was taxable; see Table 1. Between 1910 and 2013, the marginal tax rate on short-term capital gains (< 2 years) mimics the tax rate on interest income with the exception of 1992–1994, when the tax rate on short-term capital gains was somewhat lower (see the main text). If capital gains are considered “speculative,” the capital gains tax also mimics the tax rate on interest income between 1862 and 1909, as only speculative capital gains were taxable during this period.
 Source: Du Rietz, Johansson, and Stenkula (2015); own calculations.

2.4 Wealth taxes

The Swedish wealth tax applied only to individuals and was in force from 1911 to 2006. Between 1911 and 1947, the personal income tax was a combined income and wealth tax, where part of taxpayer’s net wealth was included in the tax base. The share of wealth that was added to the tax base varied over time. It was one-sixtieth between 1911 and 1938 and one percent between 1939 and 1947. There were also temporary taxes during and between the World Wars, which included part of a taxpayer’s net wealth in the tax base. This portion of

³⁰ Since 2006, capital gains on nonpublic companies have been taxed at 25 percent.

net wealth was as high as ten percent in 1913, but the temporary war taxes affected only persons with very high income and high wealth.³¹

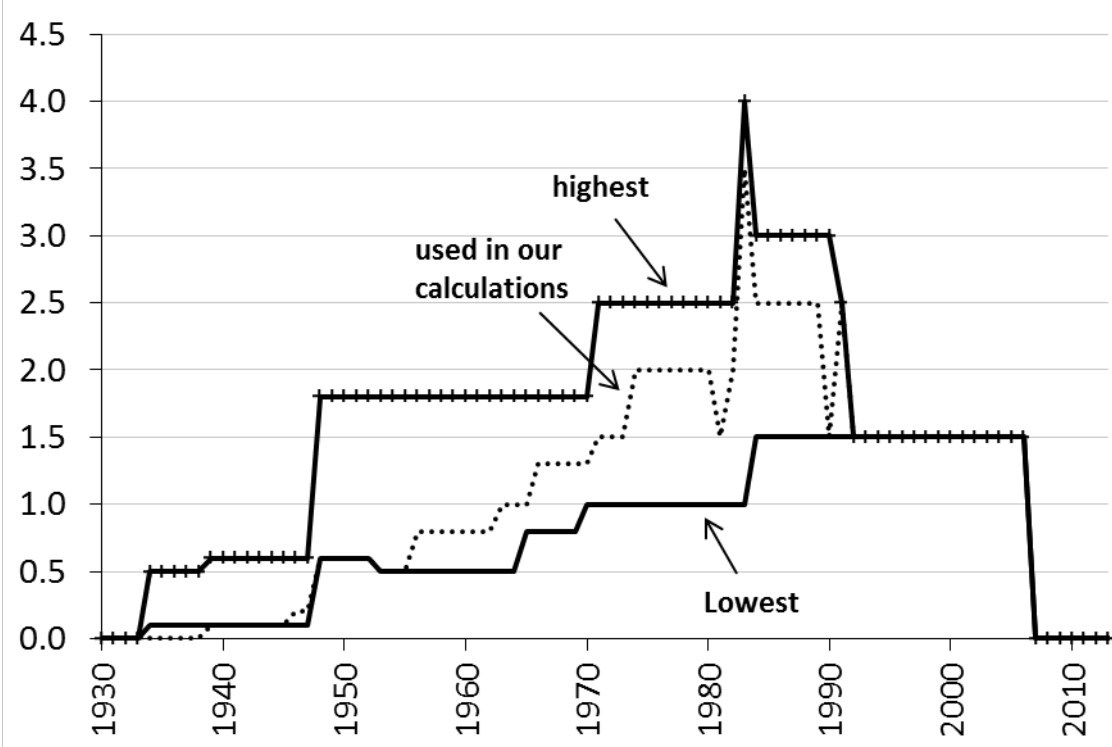
Between 1934 and 2006, there was also a separate wealth tax that levied specific tax rates on assessed net wealth (see Figure 5). The marginal tax rate initially ranged from 0.1 to 0.5 percent, and the tax exempt allowance was high.³² The marginal tax rate was increased slightly (to a maximum of 0.6 percent) and the allowance was diminished in 1939. In 1948, the tax rates were substantially increased, ranging from 0.6 to 1.8 percent. The changes in 1939 and 1948 were combined with a reduction, in 1939, and the abolition, in 1948, of the part of wealth that was included in the ordinary income tax on labor.

This system was only slightly revised until 1970. After 1970, the formal tax rates were increased to between one and 2.5 percent. In 1983, the tax rates were increased again, ranging from one to four percent. The 1983 schedule was the most progressive wealth schedule during the entire period. The wealth tax rates were reduced in 1984 and continued to be diminished during the 1990s and 2000s. In 1991, the tax was discontinued on unlisted firm equity, and in 2007, the wealth tax was eliminated altogether. To diminish the effect of the wealth tax, valuation reliefs and average tax caps have occasionally been used to limit the total tax on income and wealth (see Du Rietz and Henrekson 2015 for further details).

³¹ See Söderberg (1996, 11), SOU 1969:54, 77–79. See Du Rietz and Henrekson (2015) for an extensive description and analysis of Swedish wealth taxation.

³² The tax exempt allowance amounted to SEK 50,000, corresponding to slightly more than 20 APWs in 1934.

Figure 5. Highest and lowest marginal wealth tax rate and the marginal wealth tax rate used in our calculations, 1930–2013 (%).



Note: The figure refers to the specific wealth tax in place between 1934 and 2006.
 Source: Du Rietz and Henrekson (2015); own calculations.

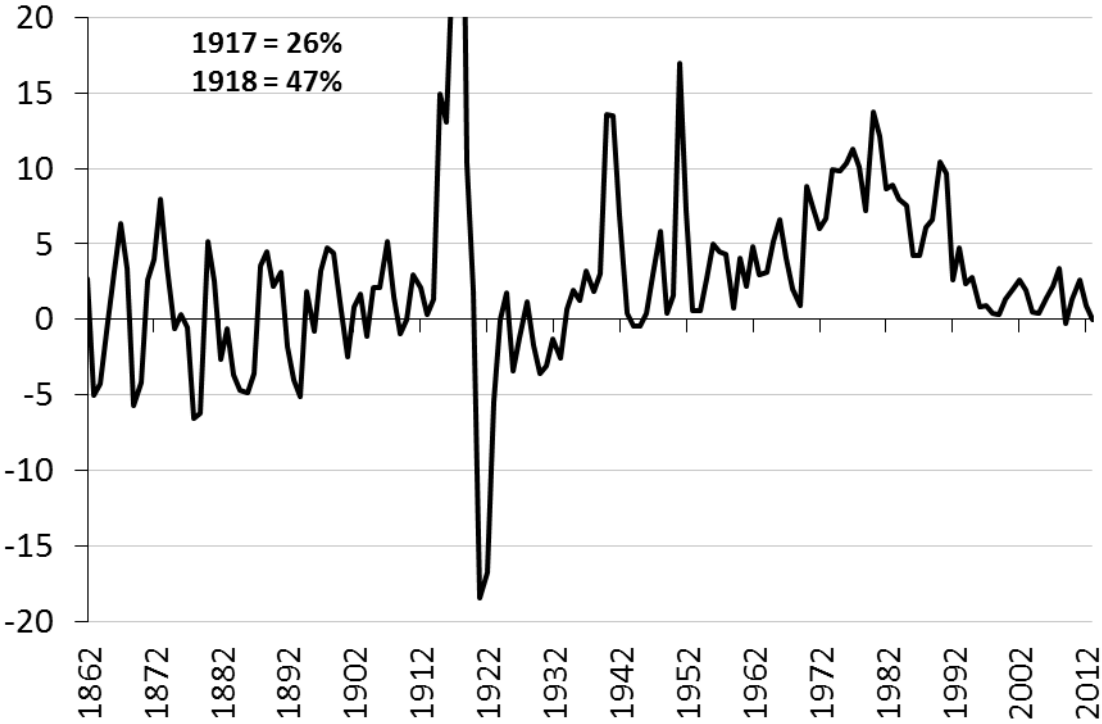
2.5 Inflation

During the nineteenth century, the price level was roughly stable over time, and inflation was, on average, zero (see Figure 6). Sweden used a silver standard as the basis for its monetary system at the beginning of our period. A gold standard was used from 1873 until the outbreak of World War I. Inflation peaked during World War I (at almost 50 percent in 1918), and a period of extensive deflation followed during the early 1920s (reaching almost 20 percent in 1921). Sweden returned to the gold standard in 1924, and deflation resulted from a policy to restore the price level to prewar levels. Deflation also occurred in the late 1920s and early 1930s, but Sweden has not experienced deflation since then. Sweden followed the UK—Sweden’s most important trading partner at that time—and abandoned the gold standard in 1931. After a short period of a floating exchange rate, Sweden fixed its currency, first, to the pound (1933) and, subsequently, to the dollar (1939). On average, the inflation rate was almost zero between 1862 and 1939; thus, the price level was stable for approximately 80 years despite the inflationary peaks during and after World War I.

Inflation peaked again during World War II. The Swedish currency became tied to the Bretton Woods system beginning in 1951. Except for the period during the Korean

boom in the early 1950s, inflation was moderate during the 1950s and 1960s, rarely exceeding five percent. The Bretton Wood system was formally abolished in 1973. During the 1970s and 1980s, inflation was higher than during the 1950s and 1960s. Occasionally, it exceeded ten percent. To accommodate the high inflation rate, the currency was devalued five times. In the 1990s, Sweden introduced an explicit inflation target of two percent, and the central bank was granted independence. Since that time, the average inflation rate has been below two percent per annum.

Figure 6. The inflation rate, 1862–2013 (%).



Source: http://www.scb.se/Statistik/PR/PR0101/2011M12/PR0101_2011M12_DI_06-07_SV.xls.

3. Estimates of the marginal effective tax rate on capital income (METR)

This section will illustrate the evolution of capital income taxation over time by calculating the METR based on the method originally presented in King and Fullerton (1984). We follow the framework developed by King and Fullerton (1984) because it is a generally accepted method for evaluating capital tax systems and because the use of this method facilitates comparisons with previous studies. First, the tax wedge is defined (Section 3.1), and the general framework is described (Section 3.2). Finally, the evolution of the METR is presented (Section 3.3).

3.1 Definition

The aim of King and Fullerton (1984) is to investigate the METR on investment projects in the nonfinancial corporate sector using a framework that takes all personal capital income taxes, corporate taxes and wealth taxes that concern the investment decision of the saver into account. The method should also be sufficiently generalizable to allow for the analysis and comparison of investment projects as well as tax systems across countries. King and Fullerton (1984) cover Sweden, the U.S., the U.K. and West Germany. Södersten (1984) provides an analysis of Sweden, and since then, studies on the METR in Sweden have been based on his work.

As a starting point for the analysis, a saver can either lend her/his capital to the capital market at the market interest rate or invest in a business project. To induce the saver to choose to invest in the project, the project must generate a real rate of return after tax that at least equals the real interest rate after tax. The minimum rate of return that an investment must yield before taxes to provide the saver with the same net of tax return that (s)he would receive from lending at the market interest rate is called the cost of capital, which is denoted by p . A necessary, but not sufficient, condition to pursue investment projects is that their profitability is at least as high as the cost of capital. The METR is calculated by using an equilibrium model, and the fact that the saver likely requires a risk premium to invest in a business project is not taken into account. Furthermore, the calculated values are the theoretical values in equilibrium. However, the real economy may well be in disequilibrium. For instance, because of capital income taxation, the return on savings after tax does not sufficiently compensate for postponing consumption. Further, risk and uncertainty are not considered in the model, and the results are based on the assumption that no further tax changes will occur.

Taxes drive a wedge between the pretax rate of return on investments by firms and the net return received by savers. As taxation is normally based on nominal income, both the real rate of return and the inflation compensation are taxed. The inflation rate thus influences the amount of tax paid, and to capture this effect, the tax wedge is normally calculated in real terms where the real tax wedge increases with inflation. The tax wedge influences the incentive to supply and demand capital.

The marginal tax wedge, w , can formally be defined as:

$$w = p - s \tag{1}$$

where p is the pretax real rate of return on a marginal investment and s the post-tax real rate of return to the saver (King and Fullerton 1984; Södersten 1993; Sørensen 2004). The marginal tax wedge, w , includes the relevant capital taxes that influence the investment choice.

The METR, t , is defined as:

$$t = \frac{w}{p} \quad (2)$$

where w and p are defined as above. The METR, t , is, hence, the ratio of the marginal tax wedge, w , to the pretax real rate of return, p . The marginal tax wedge and the marginal effective tax rate can be used as two measures of the distortion caused by the tax system.

3.2 General framework

The calculation of the METR depends on the marginal tax rate on interest income, dividends, capital gains and wealth for households. The calculation further depends on the marginal statutory corporate tax rate and the present discounted value of tax savings from depreciation allowances and other grants associated with a unit investment, the rules for the valuation of inventories and allocations to different untaxed reserves, such as the investment funds (*investeringsfonder*) or profit equalization fund (*resultatutjämningsfond*).³³ Finally, the particular assets purchased, the source of finance, the category of ownership and the industry in question also affect the METR. King and Fullerton (1984) estimate METRs for three types of assets (buildings, machinery and inventory), three sources of finance (new share issues, retained earnings and debt), three ownership categories (households, tax exempt institutions³⁴ and insurance companies) and three industries (manufacturing, commerce and other industry). Hence, King and Fullerton calculate 81 different tax wedges, based on different assumptions concerning the investment. The effective tax rates also depend on the level of profitability.³⁵ King and Fullerton base their calculations on the pretax real rate of return, p , which is assumed to be ten percent.

To illustrate the evolution of capital taxation, we will—in line with, for example, Devereux, Griffith, and Klemm (2002) and the Organisation for Economic Co-

³³ See Appendix A for a more formal treatment of the King and Fullerton (1984) framework.

³⁴ Tax exempt institutions by definition pay no tax on dividends, capital gains or interest income. This category includes charities, scientific and cultural foundations, foundations for employee recreation set up by companies, pension funds for supplementary occupational pension schemes and national pension funds.

³⁵ Or, more correctly, the METR can be calculated either given a fixed p (pretax real rate of return) or given a fixed r (real interest rate); see Appendix A for a further description.

operation and Development (OECD 2007)—compute the METR for a marginal investment in machinery based on an increase of household savings in the economy. The calculations are made for each year during the 1862–2013 period. Because the general tax system in Sweden is independent of industry and has seldom had industry-specific tax subsidies, we disregard industry in the calculations.

To calculate the METR, we first must determine the corporate tax rate over time. Before 1903 and after 1938, the corporate tax system was, in principle, proportional. However, between 1903 and 1938, the corporate tax system was progressive. For this period, we will use the average marginal statutory tax rate. Until 1917, the progressivity of the tax system was low, but it was more pronounced between 1918 and 1938. Using either the highest or lowest tax rate implied by the tax system during the 1903–1938 period does not affect our general conclusions. The METR will be much lower than later levels even if the top marginal corporate income tax is used. The evolution of the corporate tax rate that is used in our calculations is shown in Figure 1. Between 1939 and 1990, the IF system was in place.³⁶ Agell, Englund, and Södersten (1995, 116) claim that the IF system can be characterized as a general profit subsidy that implies a reduction of the total statutory corporate tax rate by approximately 15 percentage points, which may reduce the METR by approximately ten percentage points and will not affect our general conclusions (see discussion and Figure 11 in Appendix B).

Our calculations must also include the marginal personal tax rate on capital income. As the marginal personal tax rate on capital income was progressive between 1903 and 1990, we must determine the tax rate on which to base our analysis. Södersten (1984) based his analysis on the average marginal capital income tax rate of all households using HINK data. These data provide extensive information on individual households but do not exist before 1975.³⁷ We will instead draw on Du Rietz, Johansson, and Stenkula (2015) and base our analysis on the marginal income tax rate faced by an average production worker. This marginal tax rate closely corresponds to the average marginal tax rate for all

³⁶ Normally, between 15 and 28 percent of investments in buildings were financed with IF. The share of IF-financed investments in machinery and equipment was lower (Agell, Englund, and Södersten 1995, 115).

³⁷ HINK is an abbreviation for *Hushållens inkomster*, which is a Swedish income distribution survey conducted by Statistics Sweden in 1975, 1978, and annually since 1980. After 1970, joint taxation of households was abolished in Sweden. Hence, the household cannot be associated with one unique marginal tax rate; rather, the marginal tax rate differs among the individuals in the household.

households.³⁸ The evolution of the tax rate on dividends and interest income for our assumed income earner is shown in Figure 2 and Figure 3, respectively.

The statutory capital gains tax must be converted to an effective tax rate on accrued capital gains because capital gains are only taxed on realization. In line with King and Fullerton (1984, 23–24), we base our analysis on corporate shares with a mean holding period of ten years. Because the statutory tax rate on capital gains depends on the length of the holding period between 1911 and 1990, we base our calculation of the accrued effective tax rate on long-term possessions for these years.³⁹ We consider capital gains to be nonspeculative in our calculations before 1911. Thus, the capital gains tax is zero in our calculations until 1965 because nonspeculative capital gains/capital gains on long-term possessions were tax exempt during this period. The evolution of the tax rate on capital gains for our assumed income earner is shown in Figure 4.

The assumed income and corresponding marginal tax rate on capital income is less important before World War II because of the low tax rates and is not important after the 1990–1991 tax reform because capital income is taxed separately from labor income at a flat tax rate. For the period beginning with World War II and ending with the 1990–1991 tax reform, the assumed income and corresponding marginal tax rate on capital income may influence the general evolution of the METR (see the next section). For capital gains, the assumed income will not affect the results at all until 1965 because we examine only long-term possessions (and nonspeculative gains before 1911) and capital gains on long-term possessions were tax exempt through 1965. From 1966 until 1990, the assumed income had an effect. We therefore provide an extended discussion of the impact of household income and the associated marginal personal tax rate on capital income on the METR in Section 3.3.

The calculation of the METR also includes the wealth tax. Södersten (1984) bases his analysis on the average marginal wealth tax rate of all households using the detailed description of the distribution of household wealth in Sweden in 1975 presented in Spånt (1979). We draw on Du Rietz and Henrekson (2015) and base our analysis on wealth equal to ten APWs.⁴⁰ Using the highest wealth tax rate may increase the METR by approximately 15 percentage points, at most (1990). If no wealth tax is used, the METR may decrease by approximately 35 percentage points, at most (1983). The evolution of the wealth tax rate that is used in our calculations is shown in Figure 5.

³⁸ E.g., Södersten (1984) reports a marginal tax rate of 64 percent for equity financing and 49 percent for debt financing in 1980; we use 59 percent.

³⁹ This is in line with Södersten (1984) and Öberg (2004).

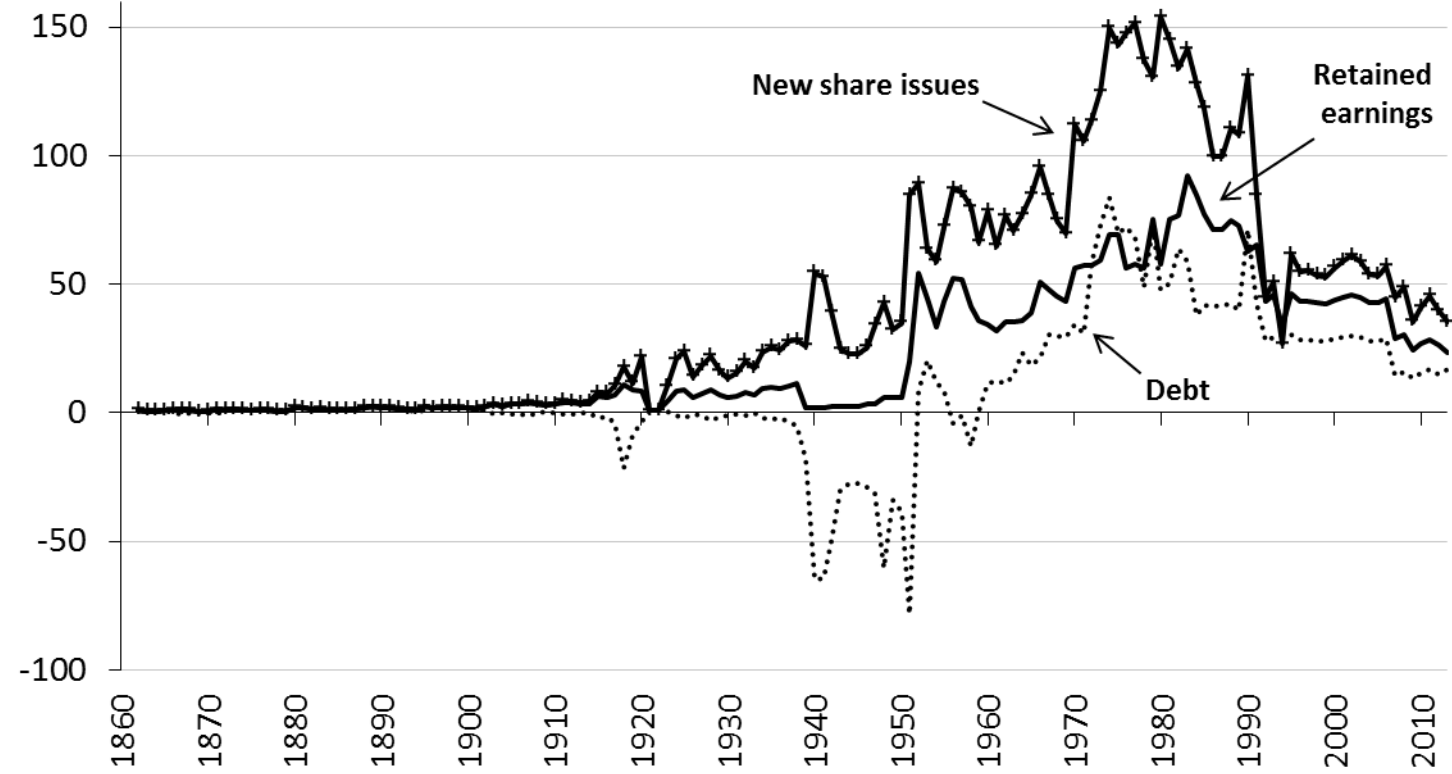
⁴⁰ This level roughly corresponds to the average taxable wealth among households with taxable wealth in 1968.

Finally, the calculation must also incorporate the present discounted value of tax savings from depreciation allowances and other grants associated with a unit investment (*A*). These adjustments are calculated separately in Appendix B and are included in the estimations. The King and Fullerton method assumes that a company can make full use of the provisions that the tax legislation offers to reduce the METR (Öberg 2004; Södersten 1984, 147–148).⁴¹ To analyze the impact of these provisions, we conduct a robustness test by calculating the METR with the assumption that no provisions to reduce the tax were used and that the company pays the statutory corporate tax.⁴² In this case, METR may increase by as much as 100 percentage points between 1939 and 1991, depending on the source of finance. These results thus reinforce our general conclusions about the distortionary character of the tax system during this period.

⁴¹ Forsling (1996) finds that the average rate of utilization of tax allowances was 72 percent during the 1980s. Bergström and Södersten (1984) and Kanninen and Södersten (1994) discuss why firms do not fully utilize all available provisions to reduce the effective tax rate and how it would affect the corporate tax paid on a marginal investment.

⁴² I.e., given that $A = 0$; see Appendix A and B for further details.

Figure 7. The METR for an investment financed by new share issues, retained earnings and debt for an average production worker, 1862–2013 (%).



Note: Based on assumptions given in the text.
Source: Own calculations.

3.3 Results

Figure 7 shows the evolution of the METR between 1862 and 2013 for an investment financed by retained earnings, new share issues and debt based on the assumptions given in Section 3.2. In the case of retained earnings, the METR was approximately one percent at the beginning of the period and hovered around approximately three percent until World War I. It peaked at approximately 11 percent during World War I. During the interwar years, the METR hovered at roughly ten percent. Between 1939 and 1951, immediate write-offs (free depreciation) were allowed, and the METR was reduced to nearly zero despite strong increases in the statutory corporate tax rates. During the 1950s, the METR increased sharply and could occasionally be above 50 percent because of the abolition of immediate write-offs and the implementation of temporary investment taxes. The METR was somewhat lower during the early 1960s when the temporary increase in the corporate tax ended and after the investment tax had been abolished. Between 1960 and the 1980s, the METR increased because of increased corporate, personal and wealth taxes. Long-term capital gains were taxable after 1966. At the beginning of the 1980s, the METR was almost 100 percent. In the second half of the 1980s, the METR began to decrease. The 1990–1991 tax reform lowered the METR substantially because of a combination of lower tax rates on capital income, wealth and profits and a low inflation rate. In 2007, the wealth tax was abolished, which further accentuated the fall. At the end of the period examined, the METR was approximately 25 percent.

In the case of new share issues, the METR did not exceed five percent before World War I. During the war, the METR peaked at almost 20 percent and oscillated around this level in the interwar period. Until the early 1950s, the tax rate increased, with temporary spikes in 1940–1941 and in 1948 because of extra defense taxes during World War II and inflation spikes. The effect of free depreciation was counteracted by increased income taxes and higher inflation rates. The METR increased sharply to almost 90 percent in the early 1950s with the abolition of free depreciation, the implementation of temporary investment taxes and because of high inflation. During the 1950s and 1960s, the METR fluctuated between 65 and nearly 100 percent. The 1971 tax reform increased the progressivity of the income tax system. In combination with high inflation, the METR rose above 100 percent in 1970 and did not fall below this level until the 1990–1991 tax reform. The highest level—approximately 150 percent—was reached in 1980. At the end of the period examined, the METR was approximately 35 percent.

In the case of debt, the METR was close to zero until 1939 when immediate write-offs were introduced. Between 1939 and 1951, the METR was markedly negative. The largest negative values for the METR are associated with inflation peaks. Debt-financed investment under a system of immediate write-offs implied a subsidy.⁴³ When immediate write-offs were abolished, the METR increased and became positive, and it continued to increase during the 1960s and 1970s to a peak of approximately 80 percent.⁴⁴ During the 1980s, it began to decline, particularly after the tax reform in 1990–1991. At the end of the period examined, the METR was approximately 15 percent.

Overall, it is clear that the changing tax rules have had substantial effects on the evolution of the METR. Before World War II, the effects on the METR were more modest. The rules permitting immediate write-offs (free depreciation) had a large impact on its evolution between 1939 and 1951. The tax reform in 1948, which made “temporary” tax increases implemented during World War II permanent, did not initially have a substantial effect on the METR, but the increasing marginal tax rate on income during the postwar period due to bracket creep and temporary investment taxes pushed the METR higher. However, generous accounting provisions mitigated this effect. With the 1971 tax reform, the evolution continued, although investment grants occasionally alleviated the effect on the METR. The 1983–1985 and (particularly) the 1990–1991 tax reforms substantially reduced the METR and the difference between sources of finance. It is clear from the calculations that financing from new share issues was the most heavily taxed form of financing, notwithstanding the Annell deduction.

Our results are similar to Södersten’s calculations for occasional years after 1960, as reported in Henrekson (1996) and Henrekson and Johansson (1999). However, our results differ from Södersten and Lindberg’s (1983) results because their results include three different ownership categories (households, insurance companies and tax exempt institutions).

The above results are based on the marginal tax rate on personal income (dividends, interest income and capital gains) for an average production worker. As discussed briefly in Section 3.2 above, this assumed tax rate may occasionally substantially influence

⁴³ This will always be the case when the statutory corporate tax rate is higher than the ordinary income tax rate (Södersten and Lindberg 1983, 19), which was the case in Sweden from 1939 to 1951 for an average production worker.

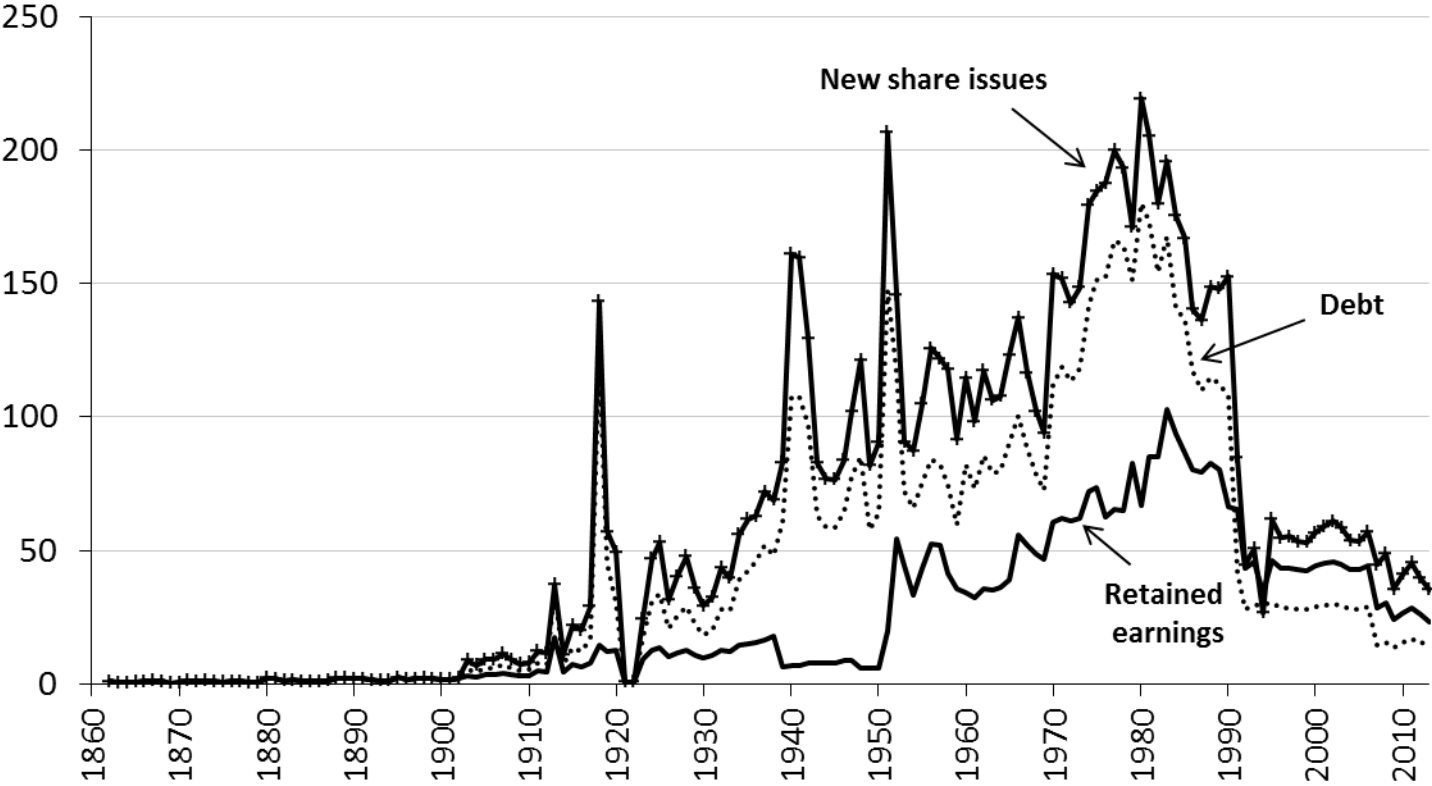
⁴⁴ The METR in the case of debt is actually higher than in the case of retained earnings for some years around 1980. Debt financing is typically more tax favored than retained earnings, as interest payments are deductible for firms. However, this effect is counteracted by the fact that the saver’s capital gains tax may be lower than the tax rate on interest income. Depending on the size of these offsetting effects, either debt or retained earnings may be the most favorable source of finance.

the METR. The results can be recalculated with a taxpayer instead facing the top marginal tax rate or the marginal tax rate for a taxpayer earning 0.67 APW (see Figures 8 and 9).

If the top marginal tax rate is used, the METR is fairly similar until World War I and is not affected after the 1990–1991 tax reform. In the case of new share issues, the METR is much higher. It would exceed 100 percent almost every year from 1951 until the 1990–1991 tax reform. It also peaks above 100 percent in 1918, 1940–1941 and 1951 when inflation was high. During the 1970s and 1980s, it exceeds 150 percent every year and peaks above 200 percent. The METR also increases dramatically in the case of debt when the top marginal tax rate is considered. It becomes positive in every year, even when immediate write-offs were allowed and exceeds 100 percent from 1970 until the 1990–1991 tax reform. The METR is not substantially affected in the case of retained earnings when the top marginal tax rate is considered, except during the 1970s and 1980s when it peaks at 100 percent.

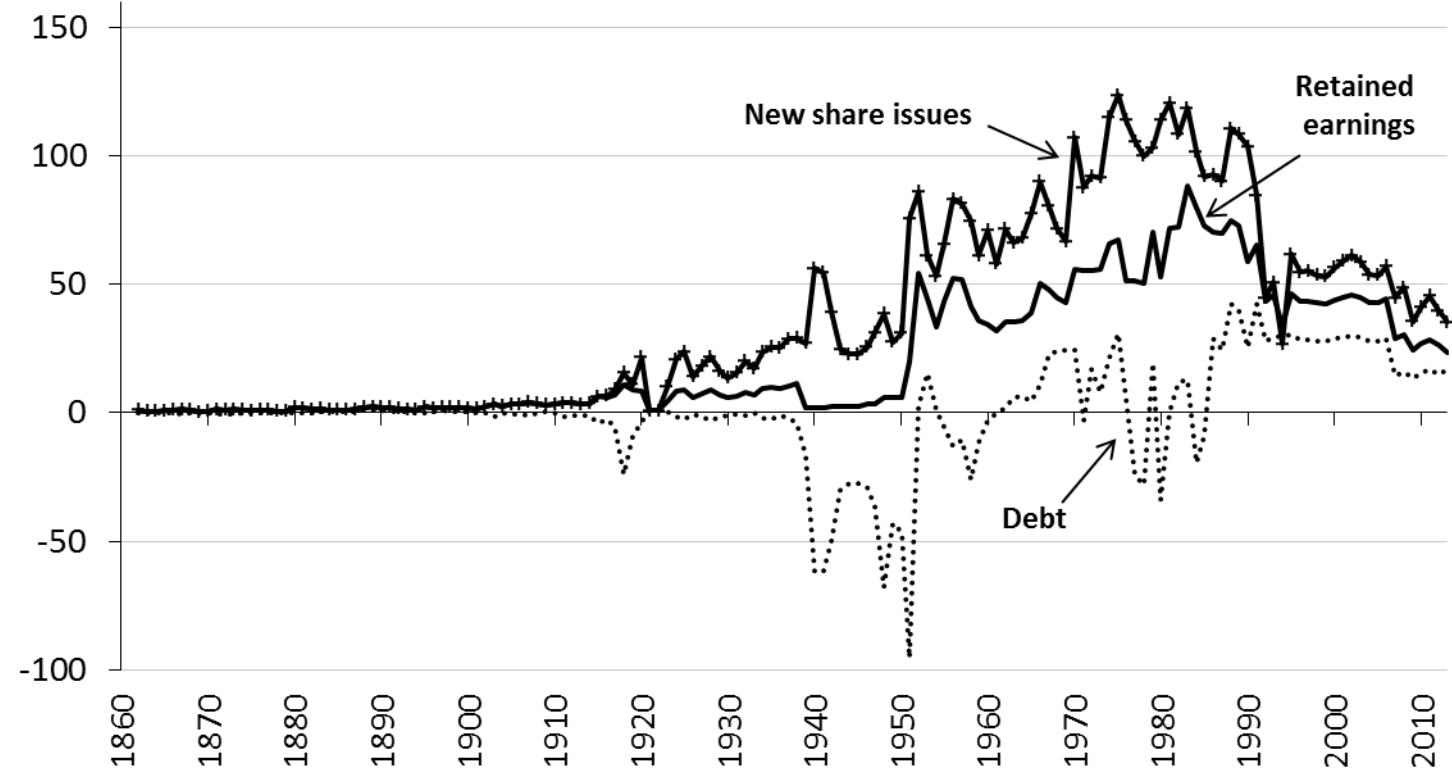
If the marginal tax rate for a taxpayer earning 0.67 APW is used, the effect on the METR is negligible until World War II and after the 1990–1991 tax reform. In the case of new share issues, the METR is lower, but not much lower before the 1970s. It is significantly lower during the 1970s and 1980s, although it still often exceeds 100 percent. In the case of debt, the METR is even more negative between 1939 and 1951 when immediate write-offs were allowed. It is slightly negative for some years around 1980, even when immediate write-offs were not allowed (mainly during years when investment grants were given). The largest discrepancy is once again observed for the 1970s and 1980s. In the case of retained earnings, the METR is largely unaffected.

Figure 8. The METR for an investment financed by new share issues, retained earnings and debt for an individual facing the top marginal income



tax rate, 1862–2013 (%).
 Note: Based on assumptions given in the text.
 Source: Own calculations.

Figure 9. The METR for an investment financed by new share issues, retained earnings and debt for an individual earning 0.67 APW, 1862–2013 (%).



Note: Based on assumptions given in the text.
Source: Own calculations.

4. Conclusions

This paper analyzes the evolution of capital income taxation, including corporate income, dividends, interest income, capital gains and wealth taxation, in Sweden. The evolution has been captured by calculating the so-called METR (i.e., the marginal effective tax rate on capital income) for an investment by a natural person financed by new share issues, retained earnings or debt. The METR is defined as the ratio of the marginal tax wedge to the pretax real rate of return on a marginal investment. The marginal tax wedge is defined as the difference between the pretax real rate of return on a marginal investment and the post-tax real rate of return to the saver.

Capital income taxes on firms and individuals were low or non-existent (dividends were tax exempt) until 1903, when a progressive income tax was implemented (long-term capital gains were tax exempt through 1965). Most savers did not face markedly increased marginal tax rates before World War II, and increased accounting provisions could offset increased corporate tax rates. The statutory corporate tax rate remained high until 1991, when it was halved at the same time that the tax base was broadened and tax-reducing provisions were reduced or repealed. The personal tax rate on capital income was substantially decreased in the same year when a dual income tax system was introduced, in which labor income and capital income were taxed separately. Wealth taxation was introduced in 1911, but initially at low rates. Wealth tax rates grew continually, reaching high levels in the 1970s and 1980s. The wealth tax was abolished on unlisted firms in 1991 and then on all assets in 2007.

The METR was low until World War I at below five percent, and the impact of the source of finance on the METR was negligible. At the outbreak of World War I, the METR began to fluctuate somewhat upward and began to differ depending on the source of finance. Beginning in World War II, the evolution diverged profoundly between the sources of finance. The METR increased sharply in the mid-1950s for investments financed by debt and retained earnings. Many taxes had already been raised during World War II, but these tax increases did not substantially affect the METR because of generous provisions for reducing corporate taxes. In the case of new share issues, the METR increased during World War II, as the effect from free depreciation was counteracted by increased income tax rates and higher inflation. The METR continued to increase and peaked during the 1970s and 1980s. After the 1990–1991 tax reform, the METR fell sharply because of a combination of decreased tax rates (including the abolition of the wealth tax) and lower inflation. At the end of the period

examined, the METR varied between approximately 25 and 35 percent for investments financed by retained earnings and new share issues, and it was approximately 15 percent for debt-financed investments.

Appendix A: Calculation of the METR

This appendix gives a brief and more formal description of how the METR is calculated.⁴⁵ In King and Fullerton (1984), the rate of return net of depreciation for a project is assumed to be

$$p = MRR - \delta \quad (A1)$$

where p is the pretax real rate of return on the project (the cost of capital), MRR is the gross marginal rate of return and δ is the depreciation rate. The assumed depreciation rate will be set to seven percent, which conforms to Södersten's estimation.⁴⁶ The discounted present value of profits for the project, V , net of taxes, is:

$$V = \frac{(1-\tau)MRR}{(\rho + \delta - \pi)} \quad (A2)$$

where τ is the corporate tax rate, ρ is the firm's discount rate and π is the inflation rate. The investment project is assumed to have an infinite lifetime with an initial cost of one unit.

The cost of the investment project is unity minus the present discounted value of tax savings from depreciation allowances and other grants associated with a unit investment, which we denote by A .⁴⁷ The cost of the project (C) is therefore:

$$C = 1 - A \quad (A3)$$

The firm carries out the project under the condition that the discounted present value of profits of the project net of taxes, V , at least equals the cost of the project, C . Hence, using A1, we derive:

$$p = \frac{(1-A)}{(1-\tau)}(\rho + \delta - \pi) - \delta \quad (A4)$$

Given A4, ρ must be solved. The values of p , τ , δ and π are given, whereas A must be calculated (see the next section). A also depends on ρ in a nonlinear fashion, requiring a numerical solution.

Ignoring wealth tax on corporations (which is not used in Sweden) and investments in inventory (we focus on investments in machinery and equipment), the final step is to derive the relationship between the market interest rate, i , and the discount rate, ρ . The discount rate will differ from the market interest rate depending on the source of finance as follows:

$$a) \quad \rho = i(1-\tau) \quad \text{for the use of debt;} \quad (A5a)$$

$$b) \quad \rho = i \frac{(1-m)}{(1-z)} \quad \text{for the use of retained earnings,} \quad (A5b)$$

where m is the personal tax rate and z is the effective capital gains tax and is defined as

⁴⁵ See King and Fullerton (1984, Chapter 2) for a more thorough description.

⁴⁶ The choice of δ is less important for our results. Using, e.g., $\delta = 12$ as in Öberg (2004), the METR would increase by at most less than 15 percentage points.

⁴⁷ A is discussed in Appendix B.

$$z = \frac{\lambda z_s}{\lambda + \rho_p}$$

where z_s is the statutory capital gains tax, λ is the proportion of accrued gains realized by investors in each period and ρ_p is the marginal investors nominal discount rate (in general, this is equal to $s + \pi$, where s is the post-tax real rate of return to the saver and is defined below).

$$\text{c) } \rho = i \frac{(1-m)}{(1-m_d)} \text{ for the use of new share issues,} \quad (\text{A5c})$$

where m_d is the tax rate on dividends.

To compute the effective tax rate given a fixed p value, we first solve for ρ (using equation A4); given the source of finance, we then solve for i (using equation A5a–c). In the case of retained earnings, λ is assumed to be 0.1, implying that corporate shares have a mean holding period of ten years, which is in line with Södersten (1984). To compute the post-tax real rate of return to the saver, s , we use the following equation:

$$s = (1 - m) (r + \pi) - \pi - w_p \quad (\text{A6})$$

where $i = r + \pi$ and w_p is the rate of personal wealth tax. Given the value of p and the computed value of s , the tax wedge, w , is $p - s$, and the effective tax rate, t , is w/p .

The effective tax rate can also be calculated given a fixed r (which is assumed to be five percent in King and Fullerton 1984). Given r , a discount rate, ρ , can be calculated depending on the source of finance (using equations A5a–c), and p can then be calculated (using equation A4). s can be calculated separately using equation A6 and the given r value. The tax wedge and effective tax rate can then be calculated as in the case with a fixed p . Typically, the tax wedge is computed by assuming a fixed p , and we conform to this practice.

As discussed briefly in the main text, the effective marginal tax on capital income can be calculated for three ownership categories (households, tax exempt institutions and insurance companies), three types of assets (machinery, buildings and inventory), and three sources of finance (debt, retained earnings and new share issues). Average marginal effective tax rates can then be calculated by using the true division between type of owner, type of investment and source of finance.

Appendix B. Allowances and grants

The effective tax rate on corporate profits depends on the present discounted value of tax savings from depreciation allowances and other grants, the rules for the valuation of inventories and allocations to different untaxed reserves, such as the investment funds (*investeringsfonder*) or profit equalization fund (*resultatutjämningsfond*).⁴⁸ As a result, the corporate tax rate was—particularly between the interwar years and 1990—substantially lower than the statutory tax rate.⁴⁹ This appendix discusses how we have included the opportunities to reduce the tax rate, in line with King and Fullerton (1984) and Södersten (1984), by estimating the present discounted value of tax savings from depreciation allowances and other grants associated with a unit investment (called *A* in the King and Fullerton 1984 terminology).⁵⁰

The general structure

Until 1928, the options to defer corporate taxes were limited, but the acquisition cost of machinery and equipment could be written off for tax purposes. Formal depreciation rules were first introduced in 1910.⁵¹ Between the interwar years and 1990, Sweden had a high statutory corporate tax rate, but the corporate tax base was narrow because corporations had many opportunities to reduce their taxable income through accelerated depreciation allowances and allocations to untaxed reserves.

In 1928, the rules for the valuation of inventory stocks were relaxed (free inventory write-down), which decreased the effective tax rate. In 1939, immediate write-offs (free depreciation) of machinery and equipment and the investment funds system (IF system) were introduced. However, the IF system was not favorable, and it held little importance at

⁴⁸ Occasionally, there have also been temporary taxes or subsidies on specific types of investment to stimulate or discourage investments. We have ignored these taxes and subsidies in our calculations.

⁴⁹ It might also be argued that the effective tax rate increases and approaches the statutory tax rate as the profit rate increases, see, e.g., Södersten (2004, 195) or Devereux and Griffith (1998). In addition, the scope for using these allowances and grants depends on the industry and firm size, which introduced large distortions in the economy and affected the evolution of the industry and size distribution of firms (Davis and Henrekson 1999; Henrekson and Johansson 1999; Heshmati, Johansson, and Bjuggren 2010).

⁵⁰ As described at the end of Section 3.2, these kinds of calculations assume that corporations take full advantage of depreciation allowances and other allowances to defer corporate taxation. However, empirical studies indicate that most firms are not able to take full advantage of these allowances (Södersten 1984, 147–148; Forsling 1996; Heshmati, Johansson, and Bjuggren 2010).

⁵¹ See Norrman and Virin (2007). However, the tax law was rather rudimentary and unclear at this time. Specific rules were missing, and there were often disputes between the tax authority and companies. Depreciation that was accepted by the tax authority was frequently considered insufficient from companies' point of view (Artsberg 1996). Before 1910, no formal allowances were allowed, but costs for investment regarded as replacements for deteriorated assets were deductible (see SOU 1954:19).

this time. In 1955, the IF system became more generous, particularly for investments in buildings (see further discussion below).

In 1955, immediate write-offs of machinery and equipment were also permanently abolished and replaced by less favorable rules.⁵² The rules (which remained in use in 2013) allow depreciation for tax purposes at a rate of 30 percent per annum on a declining balance basis (the 30 percent rule), implying that firms are free to use accelerated depreciation (instead of immediate write-offs). Firms also have an option to choose—for all machinery and equipment—the book value that results from five years of straight-line depreciation (the 20 percent rule).

Between 1955 and 1984, inventory write-downs were limited to a maximum of 60 percent of the acquisition cost. Between 1961 and 1993, the so-called Annell deduction was also in place, which reduced effective corporate taxation on new share issues. Under these rules, firms were allowed to deduct dividends on newly issued shares against profits for six years initially, that is, corporations were entitled to mitigate the double taxation of dividends to a limited extent. The maximum rate of deduction allowed was initially four percent per year but was increased to five percent in 1967 and to ten percent in 1980; concurrently, the time period was extended first to ten and then to 20 years.⁵³ The IF system was used extensively during the 1970s and the first half of the 1980s, but it was favorable mainly for investments in buildings.

Between 1976 and 1978, firms were offered an extra investment allowance of 25 percent for machinery and equipment for state income tax purposes.⁵⁴ This allowance did not reduce the base of depreciation allowances, and it greatly reduced the effective tax rate until 1979, when the rules were repealed. The allowance was reintroduced in 1980 at a rate of 20 percent for both local and state income assessments and was discontinued again in 1981.

In 1980, a provision to reduce taxation through allocations to a profit equalization fund (*resultatutjämningsfond* or RUF; a maximum of 20 percent of wage costs) was introduced.⁵⁵

⁵² As described earlier, the rules were temporarily abolished in 1952 to restrain investments.

⁵³ SOU 1993:29. The average dividend for firms issuing new shares was less than ten percent. Södersten (1984, 324) reports that the average dividend was six percent on new shares in the late 1970s.

⁵⁴ Södersten (1984, 100–103).

⁵⁵ The allocations to RUF typically entailed a one-year tax credit. The deduction was included in the taxable base for the following year. In 1980, the introduction of the RUF option could have diminished corporate taxes by several percentage points, but it had no impact on the effective marginal corporate tax rate thereafter unless the company increased its wage expenses.

As described in the text, the scope for deferring corporate taxes was further diminished by the 1990–1991 tax reform when the statutory tax rate was reduced to 30 percent and the profit-sharing tax was discontinued. To avoid reducing corporate tax revenue, the corporate tax base was substantially broadened. The IF system was discontinued, inventory write-downs were no longer allowed, and allocations to RUF were abolished. The reform also included a new option that enabled companies to reduce taxation through tax-free allocations to a tax equalization fund (*skatteutjämningsreserv* or SURV, in force between 1991 and 1993) and periodization funds (*periodiseringsfonder*, in force after 1994). The Annell deduction was abolished in 1994 when the tax on dividends was abolished, but it was not reintroduced when the tax exemption of dividends was retracted in the following year. Table 2 summarizes the most important tax allowances during the period examined.

Table 2. Tax allowances in different time periods.

| Year | Tax allowances |
|------|---|
| 1928 | Free inventory write-down |
| 1939 | Immediate write-off (free depreciation) of machinery and equipment IF system introduced |
| 1955 | Maximum inventory write-down lowered to 60% Maximum of 30% for depreciation of machinery and equipment Allocations of IF up to 40% of profits, 50% interest-free deposition |
| 1961 | Annell deduction, maximum 4% of dividends on new shares for six years |
| 1967 | Annell deduction extended, maximum of 5% for 10 years |
| 1976 | 25% extra investment allowance for machinery and equipment from national tax income |
| 1979 | Extra investment allowance discontinued Annell deduction extended, maximum of 10% for 20 years 50% maximum allocations to IF |
| 1980 | 20% extra investment allowance for machinery and equipment from both national and local tax income Allocations to a profit equalization fund (RUF), maximum of 20% of wage costs |
| 1981 | Extra investment allowance discontinued |
| 1984 | Maximum inventory write-down diminished to 50% |
| 1985 | Interest-free Central Bank deposit raised to 75% of IF allocations |
| 1987 | Interest-free Central Bank deposit raised to 100% of IF allocations Tax-free allocation to a tax equalization fund (SURV) |
| 1991 | Inventory write-down (up to 50%), IF system and profit equalization fund (RUF) abolished |
| 1994 | Annell deduction abolished, SURV replaced by periodization funds |

Source: SOU 1989:34, 15–21; Södersten (1993, 285–294). There were also temporary investment taxes on machinery, equipment and inventory that can be regarded as negative investment subsidies in 1951–1953 and 1955–1957. Immediate write-offs were also abolished and reduced to a maximum of 20 percent on machinery and equipment between 1952 and 1954.

Estimation of the present discounted value of tax savings from depreciation allowances and other grants associated with a unit investment (A)

Our calculations are focused on a marginal investment in *machinery and equipment*. In line with King and Fullerton (1984) and as described in Appendix A, we consider an investment project with an initial cost of one unit. The cost of the investment project—the initial payment for the asset—is unity minus the present discounted value of tax savings from depreciation allowances and other grants associated with a unit investment, which we denote by A .

Therefore, the cost of the project (C) is:

$$C = 1 - A$$

To derive an expression for A in the case of retained earnings and debt during the 1862–2013 period, we follow King and Fullerton (1984, 19) and consider allowances for investments in machinery and equipment of three types: (1) standard depreciation allowances (accelerated write-offs), (2) immediate expensing or free depreciation (immediate write-offs), and (3) cash grants (equivalent to tax credits).⁵⁶ Denote f_i as the proportion of the acquisition cost that can be used for the different allowance possibilities ($i = 1, 2, 3$). The tax savings from immediate write-offs will then be $f_2\tau$. If we further denote A_d as the tax savings from accelerated depreciation allowances on a unit of investment and denote g as the rate of grant, then:

$$A = f_1 A_d + f_2 \tau + f_3 g$$

Because immediate write-offs reduce the basis for accelerated depreciation allowances, the sum of $f_1 + f_2$ is restricted to one. The sum of f_1, f_2 and f_3 does not need to be restricted to unity because depreciation does not reduce the basis for investment grants. A_d can be calculated as:

$$A_d = \frac{\tau a}{a + \rho},$$

where τ is the statutory corporate tax rate, a is an exponential depreciation rate (corresponding to a declining-balance depreciation of a) and ρ is the discount rate.

In the case of new share issues, A is calculated as (King and Fullerton 1984, 322):

$$A = f_1 A_d + f_2 \tau + f_3 g + A_A$$

where A_A refers to the present value of tax savings from the Ansell deduction with a unit investment. A_A is calculated as (King and Fullerton 1984, 322–323):

⁵⁶ In 1951–1953 and 1955–1957, there were also temporary investment taxes that can be regarded as negative investment subsidies. We have not included RUF, SURV or periodization funds in our calculations. As described earlier, RUF will not have any impact on the effective marginal corporate tax rate unless it increases the company's wage bill. We have assumed that the change in tax-free allocations (from RUF to SURV and from SURV to periodization funds) would not significantly change the effective marginal corporate tax rate.

$$A_A = \frac{\tau h [1 - e^{-\rho\omega}]}{\rho - \pi + \delta} \left[1 - \left(\frac{\rho - \pi + \delta}{\rho} \right) \left(f_1 A_d + f_2 \tau - \frac{\tau(\delta - \pi)}{\rho - \pi + \delta} \right) \right]$$

where h refers to the rate of the Annell deduction per dollar of new share issues and ω is the number of years that the deduction is permitted after the new share issues. As discussed above, h increased from four percent in 1961 to five percent in 1967 and then to ten percent in 1979. Similarly, ω increased from six years to ten years (1967) and then to 20 years (1979). There was also an upper limit to the deduction (from 1979) that required that the total deduction did not exceed the amount raised by the issue, that is, $h\omega = 1$. As explained above, the average dividend was approximately six percent on new share issues at the end of the 1970s. Hence, we will use $h = 0.06$ and $\omega = 16.7$ for the 1980–1993 period.⁵⁷ When the Annell deduction was not in effect, A is calculated as in the case of retained earnings and debt.

The higher the statutory tax rate, the more important it is to find a reasonable estimate of A . Because the statutory corporate tax rate was low (below 25 percent in our calculation) before the 1930s, the accuracy of the estimate only slightly affects the effective tax rate for this period.

Immediate write-offs were allowed between 1939 and 1954. From 1955 onward, accelerated write-offs (the 30 and 20 percent rules) were in force.⁵⁸ We base our estimations on the 30 percent rule during this time, that is, $a = 0.3$. As the first allowance may be taken in the first year of acquisition, $f_1 = 0.7$, and $f_2 = 0.3$.⁵⁹ When cash grants in the form of extra investment allowances were in effect from 1976 to 1978 and in 1980, the calculations are adjusted accordingly. Before 1939, the extent of accelerated write-offs is difficult to estimate because of a lack of studies. Because it was possible to use limited depreciation before 1939, we have assumed that the acquisition cost could be depreciated for tax purposes by using the 30 percent rule.⁶⁰ The estimations should also include the effects from the IF system, which was introduced in 1939 and abolished in 1991. However, the IF system was most favorable for investments in buildings and was less favorable for investments in machinery and equipment (see the next section).

⁵⁷ If the maximum provisions between 1979 and 1993 are used instead, i.e., $h = 10$ and $\omega = 10$, the METR decreases further by approximately four to eight percentage points.

⁵⁸ Between 1952 and 1954, there were also temporary restrictions in the use of immediate write-offs, reducing the maximum deduction on machinery and equipment to 20 percent.

⁵⁹ This corresponds to how Södersten analyzes investments in machinery and equipment (Södersten 1984, 96). This method ignores the 20 percent rule, but Södersten notes that this assumption is nevertheless reasonable and that it corresponds well to the conditions facing growing firms with young vintages of capital.

⁶⁰ This method will probably overestimate the allowances and hence somewhat underestimate the effective tax rate. Because the corporate tax rate is rather low during this period, it will only slightly influence the results.

The evolution of A is depicted in Figure 10. The present discounted value of tax savings from depreciation allowances and other grants associated with a unit investment is initially small but increases sharply in 1939 with the introduction of immediate write-offs and increase of the statutory corporate tax rate. A remains relatively high until the 1990–1991 tax reform when the statutory corporate tax rate was almost cut in half and when the value of tax savings thus decreased. However, the value of A after the 1990–1991 tax reform is higher than the estimated value of A before World War II, that is, during the first half of the period examined. In the figure, we have also included the effect of the Annell deduction, which increases the value of A somewhat between 1961 and 1993 (this example only applies in the case of new share issues).

*The investment fund system*⁶¹

As described above, the IF system was introduced in 1939, but it did not have an important effect until 1955. The system's purpose was to stabilize the economy and change the timing of investments from booms to busts through the tax system. The rules behind the system were complicated and changed over time. In general, the system allowed firms to reduce their taxable profit by transferring part of the profit, normally 40–50 percent, to an investment fund. Part of this allocation, which was normally 40–50 percent (but at the end of the 1980s, it could be much higher), had to be deposited in a zero-interest account in the central bank. The deposits could be withdrawn and used for new investments after discretionary decisions by the government.⁶² The rules also stipulated that regular depreciation allowances did not apply to investments financed by IF funds. Thus, the IF system was most favorable for investments in buildings because the net present value of depreciation allowances was lower for buildings than for machinery and equipment.

Our previous calculations do not include any effect from the IF system. The precise effect of the IF system cannot be determined without making additional assumptions. Södersten (1993, 281) claims that the conventional way to calculate the effect of using IF funds is based on special circumstances and that the effects of the IF system are substantially reduced when these assumptions are not fulfilled.⁶³ When funds are released, the IF system can be characterized as a general profit subsidy, which can be interpreted as a general

⁶¹ See Bergström and Södersten (1984) or Södersten (1989) for a more thorough discussion of the IF system.

⁶² Occasionally, there were also extra investment allowances—amounting to ten percent—when the IF funds were used.

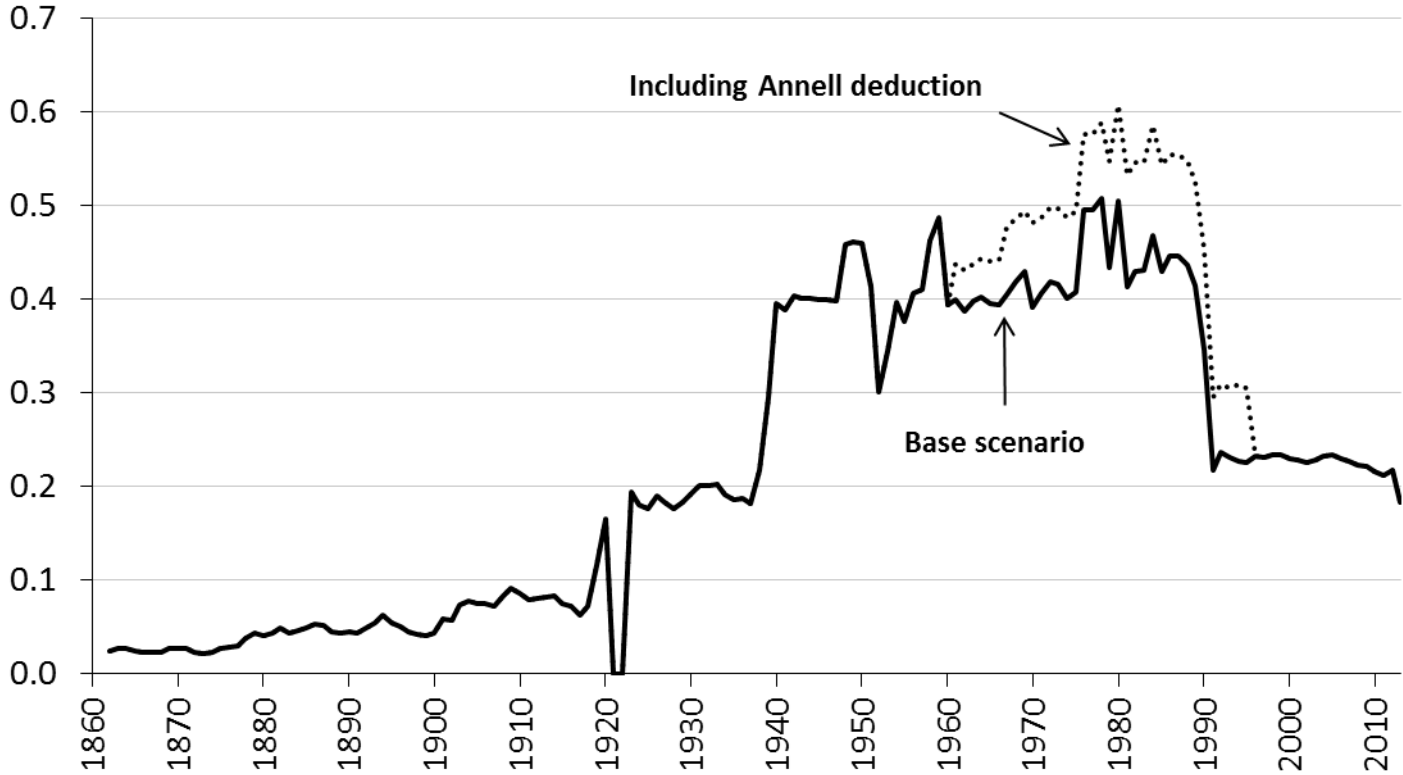
⁶³ Most importantly, it requires that a firm finance all its current investment from its IF and that it will never exhaust its own fund (see Södersten 1989 for an in-depth discussion).

reduction in the statutory tax rate.⁶⁴ According to Agell, Englund, and Södersten (1995, 116), a reasonable assumption about the IF system is that it might reduce the corporate tax rate by approximately 15 percentage points. Such a reduction may reduce the METR by approximately ten percentage points; see Figure 11.⁶⁵ It is clear from the figure that the general pattern will remain the same.

⁶⁴ The adjusted corporate tax can include three terms: (1) the proportion of profits that may not be allocated to the funds, (2) the present value of interest forgone on the central bank deposits and (3) the present value of increased taxes because of forgone depreciation allowances (Södersten 1984, 101–102). If the company were allowed to use the funds continuously, as was mostly the case during the 1970s and 1980s, the second term could be dropped.

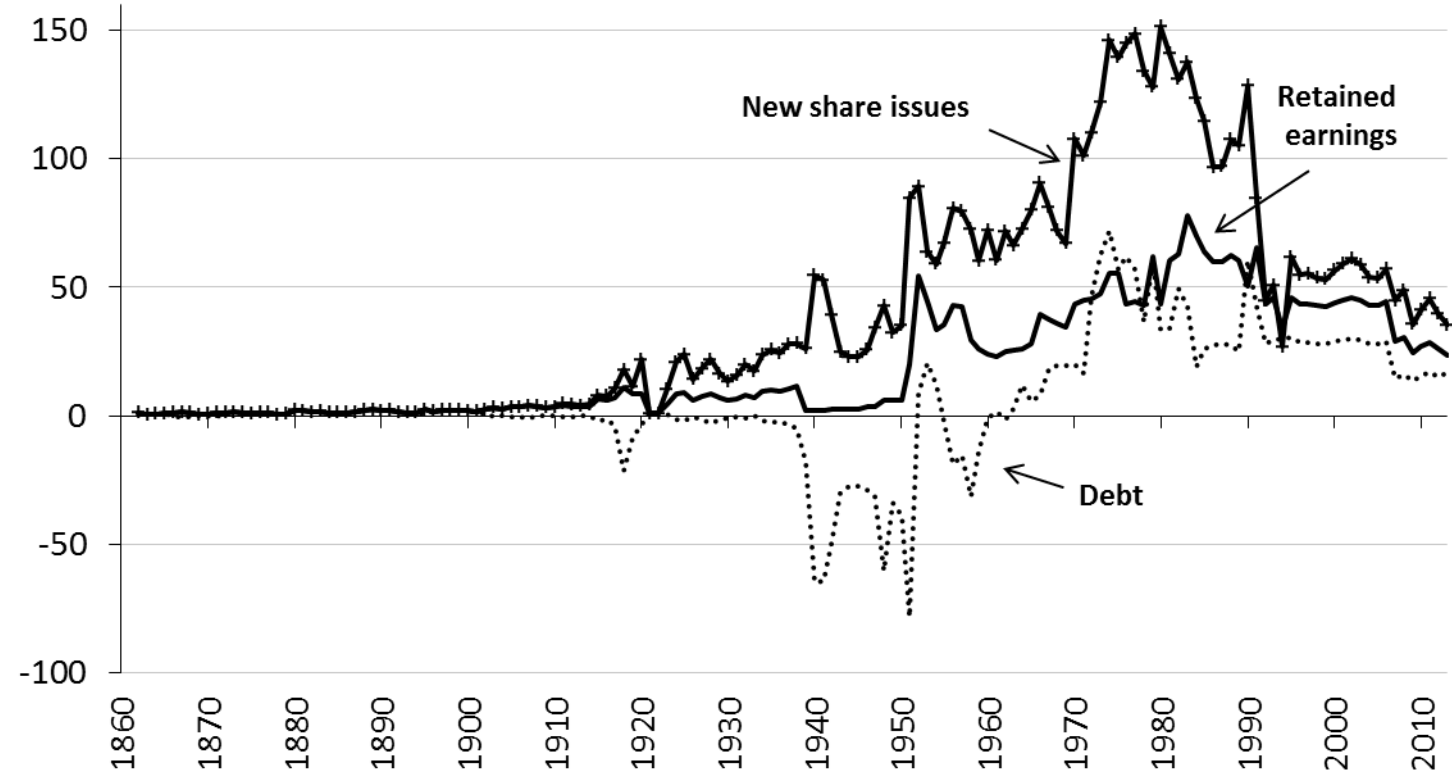
⁶⁵ The proportion of profits that could be allocated to the funds was 40 percent in 1955–1979 and 50 percent in 1980–1990 (see Table 2). Ignoring the implicit costs associated with the IF system, a rough robustness test could also be done, in which the corporate tax rate is reduced by this percentage. With these lower corporate tax rates, the METR could be reduced by up to 25 percentage points. There will be a more pronounced decrease during the late 1950s and early 1960s, but the same pattern with a relatively high level of the METR during the 1970s and 1980s would persist.

Figure 10. The present discounted value of tax savings from depreciation allowances and other grants (A) given an initial cost of one unit.



Note: Based on assumptions given in the text.
Source: Own calculations.

Figure 11. The METR for an investment financed by new share issues, retained earnings and debt for an average production worker, including effects from the IF system, 1862–2013 (%).

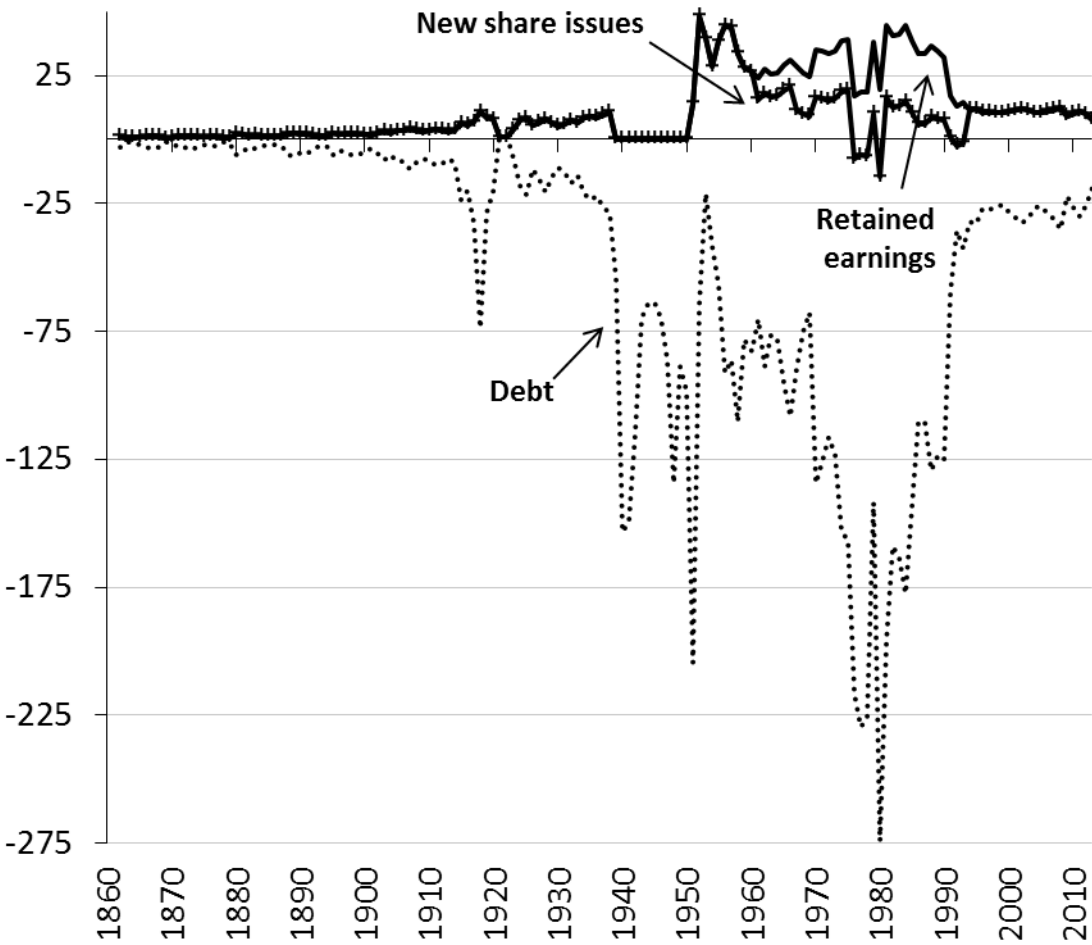


Note: Based on assumptions given in the text.
Source: Own calculations.

The corporate METR

One can also recalculate the METR and exclude personal taxes (income and wealth taxes), that is, only include and analyze the effect of the corporate tax. With this measure, one can see the proportion of the METR that results from taxation at the corporate level. Figure 12 shows the result of this calculation.

Figure 12. The METR, corporate taxes only (corporate METR) (%).



Note: Based on assumptions given in the text.
 Source: Own calculations.

For equity financing, including new share issues and retained earnings, the corporate METR was low during the nineteenth century and began to increase between World War I and World War II (excluding the spike during World War I). It seldom exceeded ten percent. When immediate write-offs were allowed and when no investment tax was in force, that is, between 1939 and 1950, the corporate METR was 0. When immediate write-offs were discontinued and when temporary investment taxes were introduced, the corporate METR

increased sharply. When the temporary investment taxes were abolished, the corporate METR initially decreased but soon began to gradually increase again until the 1980s, with the exception of some temporary dips due to investment grants in 1976–1978 and in 1980. It peaked at above 40 percent in the 1980s, but the highest level was reached in the 1950s. The corporate METR in the case of new share issues was lower than retained earnings between 1961 and 1993 because of the Ansell deduction; otherwise, it follows the same pattern. After the 1990–1991 tax reform, the corporate METR remained between ten and 15 percent. No corporate tax is paid on the marginal return in the case of debt financing because interest is deductible. Hence, the corporate METR is negative. It is occasionally very low: it is below minus 200 percent in 1980 when investment grants were used and when inflation was high.

Appendix C. Tax tables

C1. Statutory corporate tax

This appendix presents statutory corporate tax schedules for each year between 1862 and 2013. The row in each table refers to a tax income bracket, beginning at indicated profit. Corporations and individual taxpayers were taxed identical with the same tax schedules until 1910. Corporate taxation includes both a state tax and a local tax (until 1984), as well as several temporary taxes, such as defense taxes during World War I and World War II.

Table 3. The state marginal tax rate (appropriation tax), 1862–1910.

| State taxable profit, SEK | Marginal tax rate, % 1862–1883 | State taxable profit, SEK | Marginal tax rate, % 1884–1910 |
|---------------------------|-----------------------------------|---------------------------|-----------------------------------|
| 0 | 0.0 | 0 | 0.0 |
| 400 | 1.0 | 500 | 1.0 |

Note: 1862–1883: If the state taxable profit did not exceed SEK 1,800, SEK 300 was exempted from taxation. 1884–1910: If the state taxable profit did not exceed SEK 1,200, SEK 450 was exempted from taxation. If the state taxable profit amounted to SEK 1,200 but did not exceed SEK 1,800, SEK 300 was exempted from taxation.

Extra appropriations are not included in the numbers. After 1911, the tax still existed as a local tax with the tax rate 0.1 percent above SEK 500.

Source: Du Rietz, Johansson, and Stenkula (2015).

Table 4. Temporary appropriation tax.

| State taxable profit, SEK | Marginal tax rate, % | | | | | | | |
|---------------------------|----------------------|---------------|------|------|------|------|------|------|
| | 1871 | 1879– 1882 | 1893 | 1894 | 1895 | 1896 | 1901 | 1902 |
| 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 400 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 800 | 0.5 | 0.5 | 0.3 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 |
| 1,200 | 0.5 | 0.5 | 0.3 | 1.0 | 1.0 | 0.15 | 0.5 | 0.5 |
| 1,800 | 0.5 | 0.5 | 0.3 | 1.0 | 1.0 | 0.3 | 1.0 | 1.0 |

Source: Du Rietz, Johansson, and Stenkula (2015).

Table 5. The state marginal tax rate, 1903–1910.

| State taxable profit, SEK | Marginal tax rate, % |
|---------------------------|----------------------|
| 0 | 0 |
| 1,000 | 1.0 |
| 6,000 | 1.5 |
| 10,000 | 2.0 |
| 15,000 | 2.5 |
| 20,000 | 3.0 |
| 30,000 | 3.5 |
| 50,000 | 4.0 |
| 80,000 | 5.0 |
| 145,500 | 4.0 |

Note: State taxable profit = profit – dividends paid (maximum six percent of equity).

Source: Genberg (1942, 26); SFS 1902:84; own calculations.

Table 6. The state income tax rate, 1911–1919.

| Profitability, % | Tax rate, % | Profitability, % | Tax rate, % |
|------------------|-------------|------------------|-------------|
| 0 | 2.5 | 18.5 | 3.90 |
| 5.0 | 2.55 | 19.0 | 3.95 |
| 5.5 | 2.60 | 19.5 | 4.00 |
| 6.0 | 2.65 | 20.0 | 4.05 |
| 6.5 | 2.70 | 21.0 | 4.10 |
| 7.0 | 2.75 | 22.0 | 4.15 |
| 7.5 | 2.80 | 23.0 | 4.20 |
| 8.0 | 2.85 | 24.0 | 4.25 |
| 8.5 | 2.90 | 25.0 | 4.30 |
| 9.0 | 2.95 | 26.0 | 4.35 |
| 9.5 | 3.00 | 27.0 | 4.40 |
| 10.0 | 3.05 | 28.0 | 4.45 |
| 10.5 | 3.10 | 29.0 | 4.50 |
| 11.0 | 3.15 | 30.0 | 4.55 |
| 11.5 | 3.20 | 32.0 | 4.60 |
| 12.0 | 3.25 | 34.0 | 4.65 |
| 12.5 | 3.30 | 36.0 | 4.70 |
| 13.0 | 3.35 | 38.0 | 4.75 |
| 13.5 | 3.40 | 40.0 | 4.80 |
| 14.0 | 3.45 | 45.0 | 4.85 |
| 14.5 | 3.50 | 50.0 | 4.90 |
| 15.0 | 3.55 | 55.0 | 4.95 |
| 15.5 | 3.60 | 60.0 | 5.00 |
| 16.0 | 3.65 | 70.0 | 5.05 |
| 16.5 | 3.70 | 80.0 | 5.10 |
| 17.0 | 3.75 | 90.0 | 5.15 |
| 17.5 | 3.80 | 100.0 | 5.20 |
| 18.0 | 3.85 | | |

Note: Profitability = profit/equity.

All profit is taxed according to the tax rates above, that is, if profitability is between 9.5 and ten percent, the company has to pay three percent of *all* profit in corporate tax.

Source: Genberg (1942, 26); SFS 1910:115.

Table 7. The state income tax rate, 1920–1938.

| Profitability, % | Basic rate | Profitability, % | Basic rate | Withdrawal percentage, % | Income year |
|------------------|------------|------------------|------------|--------------------------|-------------|
| 0 | 1.5 | 22.0 | 7.60 | 1920 | 155 |
| 4.0 | 1.6 | 23.0 | 7.75 | 1921 | 175 |
| 4.25 | 1.7 | 24.0 | 7.90 | 1922 | 175 |
| 4.5 | 1.8 | 25.5 | 8.05 | 1923 | 175 |
| 4.75 | 1.9 | 27.0 | 8.20 | 1924 | 175 |
| 5.0 | 2.0 | 28.5 | 8.35 | 1925 | 170 |
| 5.33 | 2.2 | 30.0 | 8.50 | 1926 | 160 |
| 5.67 | 2.4 | 32.0 | 8.65 | 1927 | 160 |
| 6.0 | 2.6 | 34.0 | 8.80 | 1928 | 150 |
| 6.33 | 2.8 | 36.0 | 8.95 | 1929 | 145 |
| 6.67 | 3.0 | 39.0 | 9.10 | 1930 | 145 |
| 7.0 | 3.2 | 42.0 | 9.25 | 1931 | 145 |
| 7.33 | 3.4 | 46.0 | 9.40 | 1932 | 145 |
| 7.67 | 3.6 | 50.0 | 9.55 | 1933 | 165 |
| 8.0 | 3.8 | 55.0 | 9.70 | 1934 | 170 |
| 8.5 | 4.0 | 60.0 | 9.85 | 1935 | 170 |
| 9.0 | 4.2 | 65.0 | 10.00 | 1936 | 170 |
| 9.5 | 4.4 | 70.0 | 10.15 | 1937 | 170 |
| 10.0 | 4.6 | 75.0 | 10.30 | 1938 | 180 |
| 10.5 | 4.8 | 80.0 | 10.45 | | |
| 11.0 | 5.0 | 85.0 | 10.60 | | |
| 11.5 | 5.2 | 90.0 | 10.75 | | |
| 12.0 | 5.4 | 95.0 | 10.90 | | |
| 12.5 | 5.6 | 100.0 | 11.00 | | |
| 13.0 | 5.8 | 105.0 | 11.10 | | |
| 13.67 | 6.0 | 110.0 | 11.20 | | |
| 14.33 | 6.2 | 115.0 | 11.30 | | |
| 15.0 | 6.4 | 120.0 | 11.40 | | |
| 16.0 | 6.6 | 125.0 | 11.50 | | |
| 17.0 | 6.8 | 130.0 | 11.60 | | |
| 18.0 | 7.0 | 135.0 | 11.70 | | |
| 19.0 | 7.15 | 140.0 | 11.80 | | |
| 20.0 | 7.30 | 145.0 | 11.90 | | |
| 21.0 | 7.45 | 150.0 | 12.00 | | |

Note: Profitability = profit/equity. Local tax paid was deductible.

To calculate the exact tax rate for a specific year between 1920 and 1938, one has to multiply the basic rate by the withdrawal percentage for the specific year. All profit is taxed according to the tax rates above, that is, if the profitability is ten percent, then the company has to pay $4.6\% \cdot 1.55 = 7.13\%$ of *all* profit in corporate tax in 1920.

Source: SFS 1919:733; Genberg (1942, 8–9, 26).

Table 8. The state marginal tax rate, 1939–1947.

| Year | Marginal tax rate, % |
|------|----------------------|
| 1939 | 13 |
| 1940 | 20 |
| 1941 | 20 |
| 1942 | 20 |
| 1943 | 20 |
| 1944 | 20 |
| 1945 | 20 |
| 1946 | 20 |
| 1947 | 20 |

Note: Formally, the tax rate was ten percent, but the withdrawal percentage was 130 percent in 1939 and 200 percent between 1940 and 1947.

Source: Genberg (1942, 27); Rodriguez (1980).

Table 9. The state marginal tax rate, 1948–2013.

| Year | Marginal tax rate, % | Year | Marginal tax rate, % | Year | Marginal tax rate, % |
|------|----------------------|------|----------------------|------|----------------------|
| 1948 | 40 | 1973 | 40 | 1998 | 28 |
| 1949 | 40 | 1974 | 40 | 1999 | 28 |
| 1950 | 40 | 1975 | 40 | 2000 | 28 |
| 1951 | 40 | 1976 | 40 | 2001 | 28 |
| 1952 | 40 | 1977 | 40 | 2002 | 28 |
| 1953 | 40 | 1978 | 40 | 2003 | 28 |
| 1954 | 40 | 1979 | 40 | 2004 | 28 |
| 1955 | 45 | 1980 | 40 | 2005 | 28 |
| 1956 | 50 | 1981 | 40 | 2006 | 28 |
| 1957 | 50 | 1982 | 40 | 2007 | 28 |
| 1958 | 50 | 1983 | 40 | 2008 | 28 |
| 1959 | 50 | 1984 | 40 | 2009 | 26.3 |
| 1960 | 40 | 1985 | 52 | 2010 | 26.3 |
| 1961 | 40 | 1986 | 52 | 2011 | 26.3 |
| 1962 | 40 | 1987 | 52 | 2012 | 26.3 |
| 1963 | 40 | 1988 | 52 | 2013 | 22 |
| 1964 | 40 | 1989 | 52 | | |
| 1965 | 40 | 1990 | 40 | | |
| 1966 | 40 | 1991 | 30 | | |
| 1967 | 40 | 1992 | 30 | | |
| 1968 | 40 | 1993 | 30 | | |
| 1969 | 40 | 1994 | 28 | | |
| 1970 | 40 | 1995 | 28 | | |
| 1971 | 40 | 1996 | 28 | | |
| 1972 | 40 | 1997 | 28 | | |

Note: An additional “profit sharing tax” was in force between 1984 and 1990 but is not included in the figures above. The tax rate from this tax cannot be easily expressed as a single statutory tax rate. We have assumed that this tax increased the statutory tax rate by five percentage points during this time period.

Source: Nordling (1989); Södersten (1993); Agell, Englund, and Södersten (1995); Ministry of Finance (2008, 2013).

Table 10. The local corporate tax rate, 1862–1984.

| Year | Local tax, % | Year | Local tax, % | Year | Local tax, % |
|------|--------------|------|--------------|------|--------------|
| 1862 | 2.0 | 1903 | 5.2 | 1944 | 10.1 |
| 1863 | 2.0 | 1904 | 5.2 | 1945 | 10.0 |
| 1864 | 2.0 | 1905 | 5.4 | 1946 | 10.0 |
| 1865 | 2.0 | 1906 | 5.4 | 1947 | 9.8 |
| 1866 | 2.0 | 1907 | 5.4 | 1948 | 9.8 |
| 1867 | 2.0 | 1908 | 6.2 | 1949 | 10.1 |
| 1868 | 2.0 | 1909 | 6.8 | 1950 | 10.0 |
| 1869 | 2.0 | 1910 | 6.3 | 1951 | 10.2 |
| 1870 | 2.0 | 1911 | 6.1 | 1952 | 12.5 |
| 1871 | 2.0 | 1912 | 6.2 | 1953 | 12.7 |
| 1872 | 2.0 | 1913 | 6.1 | 1954 | 12.4 |
| 1873 | 2.0 | 1914 | 6.4 | 1955 | 12.2 |
| 1874 | 2.0 | 1915 | 7.2 | 1956 | 12.4 |
| 1875 | 2.2 | 1916 | 6.5 | 1957 | 12.6 |
| 1876 | 2.5 | 1917 | 6.2 | 1958 | 13.7 |
| 1877 | 2.8 | 1918 | 6.8 | 1959 | 14.2 |
| 1878 | 3.0 | 1919 | 7.2 | 1960 | 14.6 |
| 1879 | 3.3 | 1920 | 6.5 | 1961 | 15.0 |
| 1880 | 3.8 | 1921 | 8.1 | 1962 | 15.2 |
| 1881 | 3.9 | 1922 | 8.1 | 1963 | 15.5 |
| 1882 | 4.1 | 1923 | 8.3 | 1964 | 16.5 |
| 1883 | 4.2 | 1924 | 8.7 | 1965 | 17.3 |
| 1884 | 4.3 | 1925 | 8.7 | 1966 | 18.3 |
| 1885 | 4.5 | 1926 | 8.7 | 1967 | 18.7 |
| 1886 | 4.9 | 1927 | 8.7 | 1968 | 19.3 |
| 1887 | 4.9 | 1928 | 8.5 | 1969 | 20.2 |
| 1888 | 4.8 | 1929 | 8.3 | 1970 | 21.0 |
| 1889 | 4.7 | 1930 | 8.7 | 1971 | 22.5 |
| 1890 | 4.6 | 1931 | 10.2 | 1972 | 23.8 |
| 1891 | 4.6 | 1932 | 11.0 | 1973 | 23.9 |
| 1892 | 4.7 | 1933 | 10.5 | 1974 | 24.0 |
| 1893 | 4.8 | 1934 | 9.9 | 1975 | 25.2 |
| 1894 | 4.9 | 1935 | 9.5 | 1976 | 26.2 |
| 1895 | 4.8 | 1936 | 9.6 | 1977 | 26.9 |
| 1896 | 4.7 | 1937 | 9.6 | 1978 | 28.7 |
| 1897 | 4.6 | 1938 | 10.5 | 1979 | 29.0 |
| 1898 | 4.5 | 1939 | 11.5 | 1980 | 29.1 |
| 1899 | 4.3 | 1940 | 11.9 | 1981 | 29.6 |
| 1900 | 4.4 | 1941 | 11.1 | 1982 | 29.7 |
| 1901 | 4.8 | 1942 | 10.5 | 1983 | 30.2 |
| 1902 | 5.0 | 1943 | 10.2 | 1984 | 30.3 |

Source: Du Rietz, Johansson, and Stenkula (2015).

Table 11. The local progressive income tax, 1920–1927.

| Profitability, % | Marginal tax rate, % |
|------------------|----------------------|
| 0 | 0 |
| 6.0 | 1 |
| 11.0 | 2 |
| 16.0 | 3 |
| 21.0 | 4 |
| 26.0 | 5 |
| 34.0 | 6 |
| 42.0 | 7 |
| 52.0 | 8 |
| 64.5 | 5 |

Note: Profitability = profit/equity. In the highest tax income bracket, the marginal tax rate is lower because of the average tax cap.

Source: Genberg (1942, 26).

Table 12. The local progressive income tax, 1928–1938.

| Profitability, % | Tax rate, % | Profitability, % | Tax rate, % |
|------------------|-------------|------------------|-------------|
| 0 | 0 | 32 | 1.95 |
| 7 | 0.075 | 33 | 2.025 |
| 8 | 0.15 | 35 | 2.10 |
| 9 | 0.225 | 36 | 2.175 |
| 10 | 0.30 | 36 | 2.25 |
| 11 | 0.375 | 37 | 2.325 |
| 12 | 0.45 | 38 | 2.40 |
| 13 | 0.525 | 39 | 2.475 |
| 14 | 0.60 | 40 | 2.55 |
| 15 | 0.675 | 41 | 2.625 |
| 16 | 0.75 | 42 | 2.70 |
| 17 | 0.825 | 43 | 2.775 |
| 18 | 0.90 | 44 | 2.85 |
| 19 | 0.975 | 45 | 2.925 |
| 20 | 1.05 | 46 | 3.00 |
| 21 | 1.125 | 47 | 3.075 |
| 22 | 1.20 | 48 | 3.15 |
| 23 | 1.275 | 49 | 3.225 |
| 24 | 1.35 | 50 | 3.30 |
| 25 | 1.425 | 51 | 3.375 |
| 26 | 1.50 | 52 | 3.45 |
| 27 | 1.575 | 53 | 3.525 |
| 28 | 1.65 | 54 | 3.60 |
| 29 | 1.725 | 55 | 3.675 |
| 30 | 1.80 | 56 | 3.75 |
| 31 | 1.875 | | |

Note: The tax rate was equal to $\frac{3}{40} \cdot (\text{profitability} - 6\%)$. There was also an average tax cap of 3.75 percent. Profitability = profit/equity. All profit is taxed according to the tax rates above, that is, if the profitability is ten percent, then the company has to pay 0.3 percent of *all* profit in corporate tax. This table is an illustration and shows the tax rate for profitability in integers. To obtain the tax rate for profitability rates between the integer levels, one has to use the formula above.

Source: Genberg (1942, 27).

Table 13. The state equalization tax, 1928–1933.

| Profitability, % | Tax rate, % | Profitability, % | Tax rate, % |
|------------------|-------------|------------------|-------------|
| 0 | 0.0 | 32 | 0.65 |
| 7 | 0.025 | 33 | 0.675 |
| 8 | 0.05 | 35 | 0.7 |
| 9 | 0.075 | 36 | 0.725 |
| 10 | 0.10 | 36 | 0.75 |
| 11 | 0.125 | 37 | 0.775 |
| 12 | 0.15 | 38 | 0.8 |
| 13 | 0.175 | 39 | 0.825 |
| 14 | 0.20 | 40 | 0.85 |
| 15 | 0.225 | 41 | 0.875 |
| 16 | 0.25 | 42 | 0.9 |
| 17 | 0.275 | 43 | 0.925 |
| 18 | 0.30 | 44 | 0.95 |
| 19 | 0.325 | 45 | 0.975 |
| 20 | 0.35 | 46 | 1 |
| 21 | 0.375 | 47 | 1.025 |
| 22 | 0.40 | 48 | 1.05 |
| 23 | 0.425 | 49 | 1.075 |
| 24 | 0.45 | 50 | 1.1 |
| 25 | 0.475 | 51 | 1.125 |
| 26 | 0.50 | 52 | 1.15 |
| 27 | 0.525 | 53 | 1.175 |
| 28 | 0.55 | 54 | 1.2 |
| 29 | 0.575 | 55 | 1.225 |
| 30 | 0.60 | 56 | 1.25 |
| 31 | 0.625 | | |

Note: Profitability = profit/equity. Formally, the state equalization tax was one-third of the local progressive income tax. All profit is taxed according to the tax rates above, that is, if the profitability is ten percent, then the company has to pay 0.1 percent of *all* profit in corporate tax.

Source: Genberg (1942, 27).

Table 14. The state equalization tax, 1934–1938.

| Profitability, % | Tax rate, % | Profitability, % | Tax rate, % |
|------------------|-------------|------------------|-------------|
| 0 | 0.0 | 32 | 1.30 |
| 7 | 0.05 | 33 | 1.35 |
| 8 | 0.10 | 35 | 1.40 |
| 9 | 0.15 | 36 | 1.45 |
| 10 | 0.20 | 36 | 1.50 |
| 11 | 0.25 | 37 | 1.55 |
| 12 | 0.30 | 38 | 1.60 |
| 13 | 0.35 | 39 | 1.65 |
| 14 | 0.40 | 40 | 1.70 |
| 15 | 0.45 | 41 | 1.75 |
| 16 | 0.50 | 42 | 1.80 |
| 17 | 0.55 | 43 | 1.85 |
| 18 | 0.60 | 44 | 1.90 |
| 19 | 0.65 | 45 | 1.95 |
| 20 | 0.70 | 46 | 2.00 |
| 21 | 0.75 | 47 | 2.05 |
| 22 | 0.80 | 48 | 2.10 |
| 23 | 0.85 | 49 | 2.15 |
| 24 | 0.90 | 50 | 2.20 |
| 25 | 0.95 | 51 | 2.25 |
| 26 | 1.00 | 52 | 2.30 |
| 27 | 1.05 | 53 | 2.35 |
| 28 | 1.10 | 54 | 2.40 |
| 29 | 1.15 | 55 | 2.45 |
| 30 | 1.20 | 56 | 2.50 |
| 31 | 1.25 | | |

Note: Profitability = profit/equity. Formally, the state equalization tax was two-thirds of the local progressive income tax. All profit is taxed according to the tax rates above, that is, if the profitability is ten percent, then the company has to pay 0.2 percent of *all* profit in corporate tax.

Source: Genberg (1942, 27).

Table 15. The defense tax in 1918.

| Profitability, % | Tax rate, % | Profitability, % | Tax rate, % | Profitability, % | Tax rate, % |
|------------------|-------------|------------------|-------------|------------------|-------------|
| 0.00 | 0 | 13.50 | 2.10 | 36.00 | 3.30 |
| 5.00 | 0.36 | 14.00 | 2.13 | 38.00 | 3.35 |
| 5.33 | 0.56 | 14.50 | 2.16 | 40.00 | 3.40 |
| 5.67 | 0.76 | 15.00 | 2.20 | 45.00 | 3.45 |
| 6.00 | 0.96 | 15.50 | 2.25 | 50.00 | 3.50 |
| 6.33 | 1.16 | 16.00 | 2.30 | 55.00 | 3.55 |
| 6.67 | 1.36 | 16.50 | 2.35 | 60.00 | 3.60 |
| 7.00 | 1.56 | 17.00 | 2.40 | 65.00 | 3.65 |
| 7.33 | 1.59 | 17.50 | 2.45 | 70.00 | 3.70 |
| 7.67 | 1.62 | 18.00 | 2.50 | 75.00 | 3.75 |
| 8.00 | 1.65 | 18.50 | 2.55 | 80.00 | 3.80 |
| 8.33 | 1.68 | 19.00 | 2.60 | 85.00 | 3.85 |
| 8.67 | 1.71 | 20.00 | 2.65 | 90.00 | 3.90 |
| 9.00 | 1.74 | 21.00 | 2.70 | 95.00 | 3.95 |
| 9.33 | 1.77 | 22.00 | 2.75 | 100.0 | 4.00 |
| 9.67 | 1.80 | 23.00 | 2.80 | 105.0 | 4.10 |
| 10.00 | 1.83 | 24.00 | 2.85 | 110.0 | 4.20 |
| 10.33 | 1.86 | 25.00 | 2.90 | 115.0 | 4.30 |
| 10.67 | 1.89 | 26.00 | 2.95 | 120.0 | 4.40 |
| 11.00 | 1.92 | 27.00 | 3.00 | 125.0 | 4.50 |
| 11.33 | 1.95 | 28.00 | 3.05 | 130.0 | 4.60 |
| 11.67 | 1.98 | 29.00 | 3.10 | 135.0 | 4.70 |
| 12.00 | 2.01 | 30.00 | 3.15 | 140.0 | 4.80 |
| 12.50 | 2.04 | 32.00 | 3.20 | 145.0 | 4.90 |
| 13.00 | 2.07 | 34.00 | 3.25 | 150.0 | 5.00 |

Note: Profitability = profit/equity. All profit is taxed according to the tax rates above, that is, if profitability is ten percent, the company has to pay 1.83 percent of *all* profit in defense tax.

Source: SFS 1918:512.

Table 16. The defense tax in 1919.

| Profitability, % | Tax rate, % | Profitability, % | Tax rate, % | Profitability, % | Tax rate, % |
|------------------|-------------|------------------|-------------|------------------|-------------|
| 0.00 | 0.00 | 13.50 | 4.20 | 36.00 | 6.60 |
| 5.00 | 0.72 | 14.00 | 4.26 | 38.00 | 6.70 |
| 5.33 | 1.12 | 14.50 | 4.32 | 40.00 | 6.80 |
| 5.67 | 1.52 | 15.00 | 4.40 | 45.00 | 6.90 |
| 6.00 | 1.92 | 15.50 | 4.50 | 50.00 | 7.00 |
| 6.33 | 2.32 | 16.00 | 4.60 | 55.00 | 7.10 |
| 6.67 | 2.72 | 16.50 | 4.70 | 60.00 | 7.20 |
| 7.00 | 3.12 | 17.00 | 4.80 | 65.00 | 7.30 |
| 7.33 | 3.18 | 17.50 | 4.90 | 70.00 | 7.40 |
| 7.67 | 3.24 | 18.00 | 5.00 | 75.00 | 7.50 |
| 8.00 | 3.30 | 18.50 | 5.10 | 80.00 | 7.60 |
| 8.33 | 3.36 | 19.00 | 5.20 | 85.00 | 7.70 |
| 8.67 | 3.42 | 20.00 | 5.30 | 90.00 | 7.80 |
| 9.00 | 3.48 | 21.00 | 5.40 | 95.00 | 7.90 |
| 9.33 | 3.54 | 22.00 | 5.50 | 100.0 | 8.00 |
| 9.67 | 3.60 | 23.00 | 5.60 | 105.0 | 8.20 |
| 10.00 | 3.66 | 24.00 | 5.70 | 110.0 | 8.40 |
| 10.33 | 3.72 | 25.00 | 5.80 | 115.0 | 8.60 |
| 10.67 | 3.78 | 26.00 | 5.90 | 120.0 | 8.80 |
| 11.00 | 3.84 | 27.00 | 6.00 | 125.0 | 9.00 |
| 11.33 | 3.90 | 28.00 | 6.10 | 130.0 | 9.20 |
| 11.67 | 3.96 | 29.00 | 6.20 | 135.0 | 9.40 |
| 12.00 | 4.02 | 30.00 | 6.30 | 140.0 | 9.60 |
| 12.50 | 4.08 | 32.00 | 6.40 | 145.0 | 9.80 |
| 13.00 | 4.14 | 34.00 | 6.50 | 150.0 | 10.00 |

Note: Profitability = profit/equity. All profit is taxed according to the tax rates above, that is, if profitability is ten percent, the company has to pay 3.66 percent of *all* profit in defense tax.

Source: SFS 1918:513.

Table 17. The defense tax during World War II.

| Year | Marginal tax rate, % |
|------|----------------------|
| 1939 | 6.5 |
| 1940 | 10 |
| 1941 | 10 |
| 1942 | 12 |
| 1943 | 12 |
| 1944 | 12 |
| 1945 | 12 |
| 1946 | 12 |
| 1947 | 12 |

Source: Genberg (1942, 27); Nordling (1989, 62).

C2. Personal income taxes

Table 18. Marginal personal tax rate on interest income, 1862–2013.

| Year | 0.67 | APW | 1.67 | Top | Year | 0.67 | APW | 1.67 | Top | Year | 0.67 | APW | 1.67 | Top |
|------|------|-----|------|------|------|------|------|------|------|-------|------|------|------|------|
| 1862 | 2.0 | 3.0 | 3.0 | 3.0 | 1906 | 6.4 | 6.4 | 7.4 | 11.4 | 1950 | 21.6 | 25.1 | 28.7 | 73.0 |
| 1863 | 2.0 | 3.0 | 3.0 | 3.0 | 1907 | 6.4 | 6.4 | 7.4 | 11.4 | 1951 | 21.8 | 25.3 | 31.7 | 73.1 |
| 1864 | 2.0 | 3.0 | 3.0 | 3.0 | 1908 | 7.2 | 7.2 | 8.2 | 12.2 | 1952 | 25.5 | 28.1 | 36.1 | 73.8 |
| 1865 | 2.0 | 3.0 | 3.0 | 3.0 | 1909 | 7.8 | 7.8 | 8.8 | 12.8 | 1953 | 25.0 | 28.8 | 38.6 | 69.5 |
| 1866 | 2.0 | 2.0 | 3.0 | 3.0 | 1910 | 7.3 | 7.3 | 8.3 | 12.3 | 1954 | 25.3 | 32.9 | 38.4 | 69.3 |
| 1867 | 2.0 | 2.0 | 3.0 | 3.0 | 1911 | 6.2 | 6.8 | 7.2 | 12.2 | 1955 | 25.2 | 32.8 | 41.2 | 69.3 |
| 1868 | 2.0 | 2.0 | 3.0 | 3.0 | 1912 | 6.3 | 6.9 | 7.5 | 12.3 | 1956 | 29.1 | 32.9 | 41.3 | 69.3 |
| 1869 | 2.0 | 2.0 | 3.0 | 3.0 | 1913 | 6.2 | 6.8 | 7.4 | 25.7 | 1957 | 29.3 | 33.5 | 40.6 | 69.4 |
| 1870 | 2.0 | 2.0 | 3.0 | 3.0 | 1914 | 6.5 | 7.1 | 7.7 | 12.5 | 1958 | 30.1 | 35.3 | 41.3 | 69.8 |
| 1871 | 2.0 | 2.0 | 3.5 | 3.5 | 1915 | 7.3 | 7.9 | 8.5 | 13.3 | 1959 | 31.6 | 38.2 | 41.7 | 70.0 |
| 1872 | 2.0 | 3.0 | 3.0 | 3.0 | 1916 | 7.0 | 7.4 | 8.0 | 12.6 | 1960 | 32.0 | 38.5 | 41.9 | 70.1 |
| 1873 | 2.0 | 3.0 | 3.0 | 3.0 | 1917 | 6.9 | 7.3 | 7.7 | 12.3 | 1961 | 32.3 | 38.8 | 45.6 | 70.3 |
| 1874 | 2.0 | 3.0 | 3.0 | 3.0 | 1918 | 7.7 | 8.1 | 8.7 | 29.9 | 1962 | 34.9 | 39.0 | 45.8 | 70.3 |
| 1875 | 2.2 | 3.2 | 3.2 | 3.2 | 1919 | 8.5 | 8.7 | 9.3 | 30.3 | 1963 | 35.1 | 39.1 | 50.1 | 70.4 |
| 1876 | 2.5 | 3.5 | 3.5 | 3.5 | 1920 | 11.7 | 11.8 | 12.1 | 33.3 | 1964 | 35.9 | 43.9 | 50.7 | 70.8 |
| 1877 | 2.6 | 3.6 | 3.6 | 3.6 | 1921 | 12.9 | 13.0 | 13.0 | 36.4 | 1965 | 36.4 | 42.1 | 51.2 | 71.0 |
| 1878 | 3.0 | 4.0 | 4.0 | 4.0 | 1922 | 12.9 | 13.0 | 13.0 | 36.5 | 1966 | 38.8 | 42.7 | 52.9 | 71.4 |
| 1879 | 3.3 | 4.8 | 4.8 | 4.8 | 1923 | 13.1 | 13.2 | 13.2 | 36.6 | 1967 | 43.3 | 46.4 | 53.4 | 71.5 |
| 1880 | 3.8 | 5.3 | 5.3 | 5.3 | 1924 | 13.5 | 13.5 | 13.5 | 36.9 | 1968 | 44.1 | 47.1 | 54.0 | 71.8 |
| 1881 | 3.9 | 5.4 | 5.4 | 5.4 | 1925 | 13.3 | 13.4 | 13.4 | 36.2 | 1969 | 44.7 | 47.7 | 55.3 | 72.1 |
| 1882 | 4.1 | 5.6 | 5.6 | 5.6 | 1926 | 13.1 | 13.2 | 13.2 | 35.0 | 1970 | 45.2 | 48.2 | 55.8 | 72.4 |
| 1883 | 4.2 | 5.2 | 5.2 | 5.2 | 1927 | 13.1 | 13.2 | 13.2 | 35.1 | 1971 | 35.9 | 47.3 | 60.6 | 76.5 |
| 1884 | 4.3 | 5.3 | 5.3 | 5.3 | 1928 | 12.6 | 12.7 | 12.7 | 33.8 | 1972 | 42.8 | 57.7 | 61.8 | 77.8 |
| 1885 | 4.5 | 5.5 | 5.5 | 5.5 | 1929 | 12.3 | 12.3 | 12.3 | 32.9 | 1973 | 40.1 | 62.3 | 61.9 | 77.9 |
| 1886 | 4.9 | 5.9 | 5.9 | 5.9 | 1930 | 12.7 | 12.7 | 12.7 | 33.1 | 1974 | 43.9 | 61.6 | 62.0 | 78.0 |
| 1887 | 4.9 | 5.9 | 5.9 | 5.9 | 1931 | 14.1 | 14.1 | 14.1 | 34.5 | 1975 | 47.2 | 58.2 | 73.2 | 81.2 |
| 1888 | 4.8 | 5.8 | 5.8 | 5.8 | 1932 | 14.8 | 14.8 | 14.8 | 38.5 | 1976 | 48.2 | 64.2 | 75.2 | 83.2 |
| 1889 | 4.7 | 5.7 | 5.7 | 5.7 | 1933 | 14.9 | 14.9 | 14.9 | 40.7 | 1977 | 41.9 | 62.9 | 75.9 | 84.9 |
| 1890 | 4.6 | 5.6 | 5.6 | 5.6 | 1934 | 14.5 | 14.5 | 14.5 | 42.2 | 1978 | 41.7 | 59.7 | 77.7 | 86.7 |
| 1891 | 4.6 | 5.6 | 5.6 | 5.6 | 1935 | 14.2 | 14.2 | 14.2 | 42.0 | 1979 | 45.0 | 62.0 | 78.0 | 87.0 |
| 1892 | 4.7 | 5.7 | 5.7 | 5.7 | 1936 | 15.0 | 14.2 | 14.2 | 45.4 | 1980 | 43.1 | 59.1 | 82.1 | 85.0 |
| 1893 | 4.8 | 5.8 | 6.1 | 6.1 | 1937 | 15.0 | 14.2 | 14.2 | 45.4 | 1981 | 43.6 | 55.6 | 82.6 | 85.0 |
| 1894 | 4.9 | 5.9 | 6.9 | 6.9 | 1938 | 16.2 | 15.4 | 15.4 | 47.3 | 1982 | 43.7 | 58.7 | 82.7 | 85.0 |
| 1895 | 4.8 | 5.8 | 6.8 | 6.8 | 1939 | 19.5 | 18.7 | 18.7 | 59.0 | 1983 | 40.2 | 53.2 | 75.2 | 84.0 |
| 1896 | 4.7 | 5.7 | 5.7 | 6.0 | 1940 | 23.0 | 22.2 | 24.0 | 65.4 | 1984 | 37.3 | 53.3 | 70.3 | 82.0 |
| 1897 | 4.6 | 5.6 | 5.6 | 5.6 | 1941 | 22.3 | 21.5 | 23.3 | 65.1 | 1985 | 34.4 | 50.4 | 65.4 | 80.0 |
| 1898 | 4.5 | 5.5 | 5.5 | 5.5 | 1942 | 21.9 | 21.9 | 24.2 | 72.0 | 1986 | 45.3 | 50.3 | 70.3 | 80.3 |
| 1899 | 4.3 | 5.3 | 5.3 | 5.3 | 1943 | 21.6 | 21.6 | 23.9 | 71.9 | 1987 | 43.4 | 50.4 | 70.4 | 77.4 |
| 1900 | 4.4 | 5.4 | 5.4 | 5.4 | 1944 | 21.6 | 21.6 | 23.8 | 71.9 | 1988 | 50.6 | 50.6 | 75.6 | 75.6 |
| 1901 | 4.8 | 5.8 | 5.8 | 6.8 | 1945 | 21.5 | 21.5 | 23.7 | 71.9 | 1989 | 47.8 | 47.8 | 72.8 | 72.8 |
| 1902 | 5.0 | 6.0 | 6.5 | 7.0 | 1946 | 21.5 | 21.5 | 23.7 | 71.9 | 1990 | 41.2 | 55.2 | 66.2 | 66.2 |
| 1903 | 5.2 | 6.2 | 7.2 | 11.2 | 1947 | 21.3 | 23.6 | 25.8 | 71.8 | 1991– | 30.0 | 30.0 | 30.0 | 30.0 |
| 1904 | 6.2 | 6.2 | 7.2 | 11.2 | 1948 | 20.6 | 23.2 | 26.8 | 72.9 | 2013 | | | | |
| 1905 | 6.4 | 6.4 | 7.4 | 11.4 | 1949 | 20.8 | 25.3 | 28.8 | 73.0 | | | | | |

Note: Based on assumptions given in the text. APW, 0.67 and 1.67 refer to the marginal tax of a taxpayer with an average annual wage of a production worker (APW) and a taxpayer earning 0.67 or 1.67 APW. Top is the highest tax rate.

Source: Du Rietz, Johansson, and Stenkula (2015); own calculations.

Table 19. Marginal personal tax rate on dividends, 1862–2013.

| Year | 0.67 | APW | 1.67 | Top | Year | 0.67 | APW | 1.67 | Top | Year | 0.67 | APW | 1.67 | Top |
|-------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|
| 1862– | n.a. | n.a. | n.a. | n.a. | 1938 | 16.2 | 15.4 | 15.4 | 47.3 | 1975 | 47.2 | 58.2 | 73.2 | 81.2 |
| 1902 | | | | | 1939 | 19.5 | 18.7 | 18.7 | 59.0 | 1976 | 48.2 | 64.2 | 75.2 | 83.2 |
| 1903 | 0.0 | 0.0 | 1.0 | 5.0 | 1940 | 23.0 | 22.2 | 24.0 | 65.4 | 1977 | 41.9 | 62.9 | 75.9 | 84.9 |
| 1904 | 0.0 | 0.0 | 1.0 | 5.0 | 1941 | 22.3 | 21.5 | 23.3 | 65.1 | 1978 | 41.7 | 59.7 | 77.7 | 86.7 |
| 1905 | 0.0 | 0.0 | 1.0 | 5.0 | 1942 | 21.9 | 21.9 | 24.2 | 72.0 | 1979 | 45.0 | 62.0 | 78.0 | 87.0 |
| 1906 | 0.0 | 0.0 | 1.0 | 5.0 | 1943 | 21.6 | 21.6 | 23.9 | 71.9 | 1980 | 43.1 | 59.1 | 82.1 | 85.0 |
| 1907 | 0.0 | 0.0 | 1.0 | 5.0 | 1944 | 21.6 | 21.6 | 23.8 | 71.9 | 1981 | 43.6 | 55.6 | 82.6 | 85.0 |
| 1908 | 0.0 | 0.0 | 1.0 | 5.0 | 1945 | 21.5 | 21.5 | 23.7 | 71.9 | 1982 | 43.7 | 58.7 | 82.7 | 85.0 |
| 1909 | 0.0 | 0.0 | 1.0 | 5.0 | 1946 | 21.5 | 21.5 | 23.7 | 71.9 | 1983 | 40.2 | 53.2 | 75.2 | 84.0 |
| 1910 | 0.0 | 0.0 | 1.0 | 5.0 | 1947 | 21.3 | 23.6 | 25.8 | 71.8 | 1984 | 37.3 | 53.3 | 70.3 | 82.0 |
| 1911 | 0.0 | 0.6 | 1.0 | 6.0 | 1948 | 20.6 | 23.2 | 26.8 | 72.9 | 1985 | 34.4 | 50.4 | 65.4 | 80.0 |
| 1912 | 0.0 | 0.6 | 1.2 | 6.0 | 1949 | 20.8 | 25.3 | 28.8 | 73.0 | 1986 | 45.3 | 50.3 | 70.3 | 80.3 |
| 1913 | 0.0 | 0.6 | 1.2 | 19.5 | 1950 | 21.6 | 25.1 | 28.7 | 73.0 | 1987 | 43.4 | 50.4 | 70.4 | 77.4 |
| 1914 | 0.0 | 0.6 | 1.2 | 6.0 | 1951 | 21.8 | 25.3 | 31.7 | 73.1 | 1988 | 50.6 | 50.6 | 75.6 | 75.6 |
| 1915 | 0.0 | 0.6 | 1.2 | 6.0 | 1952 | 25.5 | 28.1 | 36.1 | 73.8 | 1989 | 47.8 | 47.8 | 72.8 | 72.8 |
| 1916 | 0.4 | 0.8 | 1.4 | 6.0 | 1953 | 25.0 | 28.8 | 38.6 | 69.5 | 1990 | 41.2 | 55.2 | 66.2 | 66.2 |
| 1917 | 0.6 | 1.0 | 1.4 | 6.0 | 1954 | 25.3 | 32.9 | 38.4 | 69.3 | 1991 | 30.0 | 30.0 | 30.0 | 30.0 |
| 1918 | 0.8 | 1.2 | 1.8 | 23.0 | 1955 | 25.2 | 32.8 | 41.2 | 69.3 | 1992 | 25.0 | 25.0 | 25.0 | 25.0 |
| 1919 | 1.2 | 1.4 | 2.0 | 23.0 | 1956 | 29.1 | 32.9 | 41.3 | 69.3 | 1993 | 25.0 | 25.0 | 25.0 | 25.0 |
| 1920 | 11.7 | 11.8 | 12.1 | 33.3 | 1957 | 29.3 | 33.5 | 40.6 | 69.4 | 1994 | 0.0 | 0.0 | 0.0 | 0.0 |
| 1921 | 12.9 | 13.0 | 13.0 | 36.4 | 1958 | 30.1 | 35.3 | 41.3 | 69.8 | 1995– | 30.0 | 30.0 | 30.0 | 30.0 |
| 1922 | 12.9 | 13.0 | 13.0 | 36.5 | 1959 | 31.6 | 38.2 | 41.7 | 70.0 | 2013 | | | | |
| 1923 | 13.1 | 13.2 | 13.2 | 36.6 | 1960 | 32.0 | 38.5 | 41.9 | 70.1 | | | | | |
| 1924 | 13.5 | 13.5 | 13.5 | 36.9 | 1961 | 32.3 | 38.8 | 45.6 | 70.3 | | | | | |
| 1925 | 13.3 | 13.4 | 13.4 | 36.2 | 1962 | 34.9 | 39.0 | 45.8 | 70.3 | | | | | |
| 1926 | 13.1 | 13.2 | 13.2 | 35.0 | 1963 | 35.1 | 39.1 | 50.1 | 70.4 | | | | | |
| 1927 | 13.1 | 13.2 | 13.2 | 35.1 | 1964 | 35.9 | 43.9 | 50.7 | 70.8 | | | | | |
| 1928 | 12.6 | 12.7 | 12.7 | 33.8 | 1965 | 36.4 | 42.1 | 51.2 | 71.0 | | | | | |
| 1929 | 12.3 | 12.3 | 12.3 | 32.9 | 1966 | 38.8 | 42.7 | 52.9 | 71.4 | | | | | |
| 1930 | 12.7 | 12.7 | 12.7 | 33.1 | 1967 | 43.3 | 46.4 | 53.4 | 71.5 | | | | | |
| 1931 | 14.1 | 14.1 | 14.1 | 34.5 | 1968 | 44.1 | 47.1 | 54.0 | 71.8 | | | | | |
| 1932 | 14.8 | 14.8 | 14.8 | 38.5 | 1969 | 44.7 | 47.7 | 55.3 | 72.1 | | | | | |
| 1933 | 14.9 | 14.9 | 14.9 | 40.7 | 1970 | 45.2 | 48.2 | 55.8 | 72.4 | | | | | |
| 1934 | 14.5 | 14.5 | 14.5 | 42.2 | 1971 | 35.9 | 47.3 | 60.6 | 76.5 | | | | | |
| 1935 | 14.2 | 14.2 | 14.2 | 42.0 | 1972 | 42.8 | 57.7 | 61.8 | 77.8 | | | | | |
| 1936 | 15.0 | 14.2 | 14.2 | 45.4 | 1973 | 40.1 | 62.3 | 61.9 | 77.9 | | | | | |
| 1937 | 15.0 | 14.2 | 14.2 | 45.4 | 1974 | 42.3 | 61.6 | 62.0 | 78.0 | | | | | |

n.a. = not applicable

Note: Based on assumptions given in the text. Dividends were tax exempt before 1903. APW, 0.67 and 1.67 refer to the marginal tax of a taxpayer with an average annual wage of a production worker (APW) and a taxpayer earning 0.67 or 1.67 APW. Top is the highest tax rate.

Source: Du Rietz, Johansson, and Stenkula (2015); own calculations.

Table 20. Effective accrued capital gains tax for an average production worker, 1862–2013 (long-term possession).

| Year | % | Year | % |
|-------|------|------|------|
| 1862– | | 1989 | 9.9 |
| 1965 | 0 | 1990 | 9.2 |
| 1966 | 5.0 | 1991 | 13.0 |
| 1967 | 6.0 | 1992 | 13.7 |
| 1968 | 6.7 | 1993 | 12.4 |
| 1969 | 7.2 | 1994 | 6.6 |
| 1970 | 5.2 | 1995 | 16.5 |
| 1971 | 5.4 | 1996 | 18.2 |
| 1972 | 7.1 | 1997 | 18.1 |
| 1973 | 7.5 | 1998 | 18.6 |
| 1974 | 6.7 | 1999 | 18.7 |
| 1975 | 6.3 | 2000 | 17.8 |
| 1976 | 10.4 | 2001 | 17.2 |
| 1977 | 9.8 | 2002 | 16.7 |
| 1978 | 9.7 | 2003 | 17.2 |
| 1979 | 12.6 | 2004 | 18.5 |
| 1980 | 8.4 | 2005 | 18.6 |
| 1981 | 9.2 | 2006 | 17.7 |
| 1982 | 11.2 | 2007 | 15.5 |
| 1983 | 10.8 | 2008 | 14.7 |
| 1984 | 10.9 | 2009 | 17.4 |
| 1985 | 10.2 | 2010 | 16.1 |
| 1986 | 11.8 | 2011 | 15.2 |
| 1987 | 11.8 | 2012 | 16.4 |
| 1988 | 10.9 | 2013 | 17.0 |

Note: Based on assumptions given in the text.

Source: Du Rietz, Johansson, and Stenkula (2015); own calculations.

C3. Wealth tax

Between 1911 and 1947, the regular personal income tax system was a combined income and wealth tax, and part of a taxpayer's assessed net wealth was included in the tax base. A separate wealth tax also existed between 1934 and 1991/2006, which levied specific tax rates on assessed net wealth.⁶⁶ Below, we show the separate wealth tax in force between 1934 and 2006.

Table 21. Income and wealth tax, 1911–1947.

| | Share of wealth added on taxable income |
|-----------|---|
| 1911–1938 | 1/60 |
| 1939–1947 | 1/100 |

Note: The table refers to the ordinary income tax. Several temporary taxes that also included part of the wealth in the tax base also existed. The temporary defense tax in 1913 included, e.g., ten percent of wealth.

For the explicit tax rates see Du Rietz and Henrekson (2015).

Source: Du Rietz and Henrekson (2015).

Table 22. Wealth tax, 1934–1938.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 50,000 | 0.1 |
| 150,000 | 0.2 |
| 300,000 | 0.3 |
| 500,000 | 0.4 |
| 1,000,000 | 0.5 |

Source: Genberg (1942, 23).

Table 23. Wealth tax, 1939–1947.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 20,000 | 0.1 |
| 40,000 | 0.2 |
| 80,000 | 0.3 |
| 150,000 | 0.4 |
| 300,000 | 0.5 |
| 1,000,000 | 0.6 |

Source: Genberg (1942, 24); SOU 1969:54, 80.

⁶⁶ The wealth tax based on unlisted firm equity was abolished in 1991, whereas the wealth tax was completely abolished in 2007 (Du Rietz and Henrekson 2015).

Table 24. Wealth tax, 1948–1952.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 30,000 | 0.6 |
| 100,000 | 1.0 |
| 150,000 | 1.2 |
| 200,000 | 1.5 |
| 300,000 | 1.8 |

Source: SOU 1951:51, 225.

Table 25. Wealth tax, 1953–1956.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 50,000 | 0.5 |
| 100,000 | 0.8 |
| 150,000 | 1.0 |
| 200,000 | 1.3 |
| 400,000 | 1.6 |
| 1,000,000 | 1.8 |

Source: SOU 1957:48, 174, 176.

Table 26. Wealth tax, 1957–1964.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 80,000 | 0.5 |
| 100,000 | 0.8 |
| 150,000 | 1.0 |
| 200,000 | 1.3 |
| 400,000 | 1.6 |
| 1,000,000 | 1.8 |

Source: SOU 1957:48, 174.

Table 27. Wealth tax, 1965–1969.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 100,000 | 0.8 |
| 150,000 | 1.0 |
| 200,000 | 1.3 |
| 400,000 | 1.6 |
| 1,000,000 | 1.8 |

Source: SOU 1969:54, 14; Bratt and Fernström (1971, 239).

Table 28. Wealth tax, 1970.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 150,000 | 1.0 |
| 250,000 | 1.3 |
| 400,000 | 1.6 |
| 1,000,000 | 1.8 |

Source: Bratt and Fernström (1971, 239).

Table 29. Wealth tax, 1971–1973.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 150,000 | 1.0 |
| 250,000 | 1.5 |
| 400,000 | 2.0 |
| 1,000,000 | 2.5 |

Source: SOU 1971:46, 19; Bratt and Fernström (1975, 246).

Table 30. Wealth tax, 1974–1980.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 200,000 | 1.0 |
| 275,000 | 1.5 |
| 400,000 | 2.0 |
| 1,000,000 | 2.5 |

Source: Bratt, Fernström, and Tolstoy (1982, 286).

Table 31. Wealth tax, 1981–1982.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 400,000 | 1.0 |
| 600,000 | 1.5 |
| 800,000 | 2.0 |
| 1,800,000 | 2.5 |

Source: Bratt, Fernström, and Tolstoy (1982, 286).

Table 32. Wealth tax, 1983.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 300,000 | 1.0 |
| 400,000 | 2.5 |
| 600,000 | 3.0 |
| 800,000 | 3.5 |
| 1,800,000 | 4.0 |

Source: Bratt, Fernström, and Tolstoy (1984, 362).

Table 33. Wealth tax, 1984–1989.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 400,000 | 1.5 |
| 600,000 | 2.0 |
| 800,000 | 2.5 |
| 1,800,000 | 3.0 |

Source: Bratt, Fernström, and Tolstoy (1984, 362); Nordling (1989, 93).

Table 34. Wealth tax, 1990.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 800,000 | 1.5 |
| 1,600,000 | 2.5 |
| 3,600,000 | 3.0 |

Source: Skatteverket (2005, 113).

Table 35. Wealth tax, 1991.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 800,000 | 1.5 |
| 1,600,000 | 2.5 |

Source: Skatteverket (2005, 113).

Table 36. Wealth tax, 1992–1995.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 800,000 | 1.5 |

Source: Skatteverket (2005, 113).

Table 37. Wealth tax, 1996–2000.

| Taxable wealth SEK | Marginal tax rate % |
|-----------------------|------------------------|
| 900,000 | 1.5 |

Source: Skatteverket (2005, 113).

Table 38. Wealth tax, 2001.

| Taxable wealth | | Marginal tax rate |
|----------------|----------------|-------------------|
| Single SEK | Couples SEK | % |
| 1,000,000 | 1,500,000 | 1.5 |

Source: Skatteverket (2005, 113).

Table 39. Wealth tax, 2002–2004.

| Taxable wealth | | Marginal tax rate |
|----------------|----------------|-------------------|
| Single SEK | Couples SEK | % |
| 1,000,000 | 2,000,000 | 1.5 |

Source: Skatteverket (2005, 113).

Table 40. Wealth tax, 2005–2006.

| Taxable wealth | | Marginal tax rate |
|----------------|----------------|-------------------|
| Single SEK | Couples SEK | % |
| 1,500,000 | 3,000,000 | 1.5 |

Source: Skatteverket (2005, 113).

C4. METR

Table 41. Marginal effective tax rate (METR) on capital income, 1862–2013.

| Year | New share issues | | | Retained earnings | | | Debt | | |
|------|------------------|-----|------|-------------------|-----|-----|------|------|-----|
| | 0.67 | APW | Top | 0.67 | APW | Top | 0.67 | APW | Top |
| 1862 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | -0.2 | 1.1 | 1.1 |
| 1863 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.0 | 0.5 | 0.5 |
| 1864 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.0 | 0.6 | 0.6 |
| 1865 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | -0.1 | 0.9 | 0.9 |
| 1866 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | -0.2 | -0.2 | 1.1 |
| 1867 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | -0.4 | -0.4 | 1.3 |
| 1868 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | -0.2 | -0.2 | 1.1 |
| 1869 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.5 |
| 1870 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 | 0.0 | 0.0 | 0.6 |
| 1871 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | -0.7 | -0.7 | 1.3 |
| 1872 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | -0.3 | 1.2 | 1.2 |
| 1873 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | -0.5 | 1.4 | 1.4 |
| 1874 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | -0.3 | 1.1 | 1.1 |
| 1875 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.0 | 0.9 | 0.9 |
| 1876 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 0.0 | 1.1 | 1.1 |
| 1877 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 0.1 | 1.1 | 1.1 |
| 1878 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.2 | 0.5 | 0.5 |
| 1879 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.1 | 0.7 | 0.7 |
| 1880 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | -0.2 | 2.2 | 2.2 |
| 1881 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.0 | 2.0 | 2.0 |
| 1882 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 0.2 | 1.4 | 1.4 |
| 1883 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 0.6 | 1.5 | 1.5 |
| 1884 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 0.5 | 1.1 | 1.1 |
| 1885 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.5 | 1.0 | 1.0 |
| 1886 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 0.5 | 1.1 | 1.1 |
| 1887 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 0.6 | 1.3 | 1.3 |
| 1888 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 0.8 | 2.2 | 2.2 |
| 1889 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 0.8 | 2.3 | 2.3 |
| 1890 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 0.7 | 2.0 | 2.0 |
| 1891 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 0.7 | 2.1 | 2.1 |
| 1892 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 0.7 | 1.5 | 1.5 |
| 1893 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 0.5 | 1.1 | 1.3 |
| 1894 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 0.2 | 0.7 | 1.2 |
| 1895 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | -0.1 | 1.2 | 2.4 |
| 1896 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 0.5 | 1.5 | 1.7 |
| 1897 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 0.7 | 2.1 | 2.1 |
| 1898 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 0.7 | 2.2 | 2.2 |
| 1899 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 0.6 | 2.1 | 2.1 |
| 1900 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 0.7 | 1.8 | 1.8 |
| 1901 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 0.1 | 0.9 | 1.7 |
| 1902 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 0.0 | 1.2 | 2.3 |
| 1903 | 3.2 | 3.2 | 8.9 | 3.2 | 3.2 | 3.2 | -1.8 | -0.5 | 5.7 |
| 1904 | 2.6 | 2.6 | 6.9 | 2.6 | 2.6 | 2.6 | -0.2 | -0.2 | 4.5 |
| 1905 | 3.4 | 3.4 | 9.3 | 3.4 | 3.4 | 3.4 | -0.5 | -0.5 | 6.0 |
| 1906 | 3.4 | 3.4 | 9.3 | 3.4 | 3.4 | 3.4 | -0.5 | -0.5 | 6.0 |
| 1907 | 4.0 | 4.0 | 11.4 | 4.0 | 4.0 | 4.0 | -0.9 | -0.9 | 7.3 |

| Year | New share issues | | | Retained earnings | | | Debt | | |
|------|------------------|------|-------|-------------------|------|------|-------|-------|-------|
| | 0.67 | APW | Top | 0.67 | APW | Top | 0.67 | APW | Top |
| 1908 | 3.6 | 3.6 | 9.2 | 3.6 | 3.6 | 3.6 | -0.1 | -0.1 | 6.1 |
| 1909 | 3.2 | 3.2 | 7.6 | 3.2 | 3.2 | 3.2 | 0.3 | 0.3 | 5.1 |
| 1910 | 3.3 | 3.3 | 8.1 | 3.3 | 3.3 | 3.3 | 0.0 | 0.0 | 5.4 |
| 1911 | 3.9 | 4.7 | 12.4 | 3.9 | 3.9 | 3.9 | -1.3 | -0.5 | 8.0 |
| 1912 | 3.8 | 4.5 | 11.7 | 3.8 | 3.8 | 3.8 | -1.1 | -0.3 | 7.6 |
| 1913 | 3.3 | 3.9 | 37.2 | 3.3 | 3.3 | 3.3 | -0.8 | -0.2 | 35.2 |
| 1914 | 3.7 | 4.3 | 11.1 | 3.7 | 3.7 | 3.7 | -0.9 | -0.2 | 7.3 |
| 1915 | 6.4 | 7.9 | 21.9 | 6.4 | 6.4 | 6.4 | -3.8 | -2.2 | 13.5 |
| 1916 | 6.7 | 7.6 | 20.2 | 5.8 | 5.8 | 5.8 | -2.6 | -1.6 | 12.3 |
| 1917 | 9.2 | 10.6 | 29.2 | 7.1 | 7.1 | 7.1 | -5.3 | -3.8 | 16.8 |
| 1918 | 15.7 | 17.9 | 143.3 | 11.2 | 11.2 | 11.2 | -23.9 | -21.3 | 122.6 |
| 1919 | 11.1 | 11.5 | 57.2 | 8.7 | 8.7 | 8.7 | -8.8 | -8.3 | 45.5 |
| 1920 | 21.6 | 21.7 | 49.6 | 8.7 | 8.7 | 8.7 | -3.6 | -3.4 | 30.5 |
| 1921 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 1922 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 1923 | 10.2 | 10.2 | 24.5 | 4.7 | 4.7 | 4.7 | 0.4 | 0.4 | 17.3 |
| 1924 | 20.7 | 20.8 | 46.8 | 8.3 | 8.3 | 8.3 | -1.3 | -1.2 | 30.8 |
| 1925 | 23.7 | 23.8 | 53.0 | 9.2 | 9.2 | 9.2 | -2.3 | -2.2 | 33.8 |
| 1926 | 14.1 | 14.2 | 31.5 | 6.2 | 6.2 | 6.2 | -0.5 | -0.4 | 20.6 |
| 1927 | 18.2 | 18.3 | 40.3 | 7.5 | 7.5 | 7.5 | -1.3 | -1.3 | 25.7 |
| 1928 | 21.8 | 21.9 | 47.8 | 8.7 | 8.7 | 8.7 | -2.9 | -2.8 | 29.0 |
| 1929 | 16.4 | 16.4 | 35.9 | 7.0 | 7.0 | 7.0 | -1.7 | -1.7 | 22.1 |
| 1930 | 13.5 | 13.5 | 29.4 | 6.0 | 6.0 | 6.0 | -0.8 | -0.8 | 18.5 |
| 1931 | 15.6 | 15.6 | 32.4 | 6.7 | 6.7 | 6.7 | -0.6 | -0.6 | 20.1 |
| 1932 | 20.0 | 20.0 | 43.4 | 8.1 | 8.1 | 8.1 | -1.1 | -1.1 | 28.3 |
| 1933 | 17.3 | 17.3 | 39.8 | 7.2 | 7.2 | 7.2 | -0.1 | -0.1 | 27.6 |
| 1934 | 23.5 | 23.5 | 56.0 | 9.3 | 9.3 | 9.3 | -1.8 | -1.8 | 38.9 |
| 1935 | 25.5 | 25.5 | 61.6 | 9.8 | 9.8 | 9.8 | -2.6 | -2.6 | 42.6 |
| 1936 | 25.2 | 24.3 | 62.9 | 9.5 | 9.5 | 9.5 | -1.1 | -2.3 | 46.0 |
| 1937 | 28.9 | 27.8 | 72.0 | 10.5 | 10.5 | 10.5 | -1.9 | -3.3 | 52.2 |
| 1938 | 29.1 | 28.2 | 68.8 | 11.6 | 11.6 | 11.6 | -3.8 | -5.1 | 48.1 |
| 1939 | 27.1 | 26.1 | 83.1 | 1.8 | 1.8 | 1.8 | -16.7 | -18.2 | 60.8 |
| 1940 | 56.3 | 54.5 | 161.0 | 2.2 | 2.2 | 2.2 | -62.0 | -65.0 | 107.8 |
| 1941 | 54.6 | 52.7 | 159.9 | 2.2 | 2.2 | 2.2 | -61.4 | -64.4 | 107.8 |
| 1942 | 39.2 | 39.2 | 129.3 | 2.3 | 2.3 | 2.3 | -50.0 | -50.0 | 97.3 |
| 1943 | 24.8 | 24.8 | 82.9 | 2.3 | 2.3 | 2.3 | -30.0 | -30.0 | 63.3 |
| 1944 | 22.9 | 22.9 | 76.7 | 2.3 | 2.3 | 2.3 | -27.3 | -27.3 | 58.7 |
| 1945 | 22.8 | 22.8 | 76.7 | 2.3 | 2.3 | 2.3 | -27.3 | -27.3 | 58.7 |
| 1946 | 25.7 | 25.7 | 83.8 | 3.3 | 3.3 | 3.3 | -28.9 | -28.9 | 64.3 |
| 1947 | 31.2 | 34.1 | 102.2 | 3.5 | 3.5 | 3.5 | -36.5 | -31.6 | 77.9 |
| 1948 | 38.5 | 42.7 | 121.3 | 6.0 | 6.0 | 6.0 | -68.1 | -60.2 | 85.0 |
| 1949 | 27.6 | 32.2 | 81.9 | 6.0 | 6.0 | 6.0 | -42.7 | -34.1 | 58.0 |
| 1950 | 30.9 | 35.1 | 90.4 | 6.0 | 6.0 | 6.0 | -46.3 | -38.6 | 63.8 |
| 1951 | 75.6 | 84.6 | 206.5 | 20.0 | 20.0 | 20.0 | -95.3 | -78.5 | 147.6 |
| 1952 | 86.0 | 89.2 | 145.8 | 54.3 | 54.3 | 54.3 | 2.4 | 8.5 | 116.4 |
| 1953 | 61.1 | 63.6 | 90.8 | 44.4 | 44.4 | 44.4 | 15.6 | 20.4 | 72.2 |
| 1954 | 53.2 | 59.0 | 87.3 | 33.5 | 33.5 | 33.5 | 0.9 | 12.1 | 65.9 |
| 1955 | 65.8 | 72.5 | 105.0 | 43.4 | 43.4 | 43.4 | -5.5 | 8.5 | 75.7 |
| 1956 | 83.2 | 87.2 | 125.7 | 52.4 | 52.4 | 52.4 | -12.9 | -3.8 | 84.1 |

| Year | New share issues | | | Retained earnings | | | Debt | | |
|------|------------------|-------|-------|-------------------|------|-------|-------|-------|-------|
| | 0.67 | APW | Top | 0.67 | APW | Top | 0.67 | APW | Top |
| 1957 | 81.4 | 85.7 | 122.0 | 51.8 | 51.8 | 51.8 | -10.7 | -0.9 | 82.2 |
| 1958 | 74.6 | 80.2 | 118.0 | 41.6 | 41.6 | 41.6 | -26.1 | -13.1 | 74.4 |
| 1959 | 61.1 | 66.4 | 91.7 | 35.8 | 35.8 | 35.8 | -11.6 | 0.7 | 59.8 |
| 1960 | 71.0 | 78.5 | 114.7 | 34.4 | 34.4 | 34.4 | -3.1 | 11.5 | 82.1 |
| 1961 | 58.0 | 64.9 | 98.4 | 32.1 | 32.1 | 32.1 | 0.0 | 12.6 | 73.0 |
| 1962 | 71.4 | 76.6 | 117.5 | 35.6 | 35.6 | 35.6 | 1.9 | 11.5 | 85.8 |
| 1963 | 66.2 | 70.8 | 106.3 | 35.4 | 35.4 | 35.4 | 6.2 | 14.5 | 78.9 |
| 1964 | 67.9 | 77.1 | 107.8 | 36.0 | 36.0 | 36.0 | 6.6 | 23.4 | 79.9 |
| 1965 | 77.5 | 84.9 | 123.4 | 39.1 | 39.1 | 39.1 | 4.7 | 18.6 | 90.2 |
| 1966 | 90.0 | 95.7 | 137.2 | 50.3 | 50.9 | 55.7 | 10.9 | 21.7 | 100.3 |
| 1967 | 80.3 | 84.4 | 116.8 | 47.6 | 48.1 | 52.0 | 23.2 | 30.3 | 88.1 |
| 1968 | 71.6 | 75.0 | 102.2 | 44.7 | 45.2 | 48.7 | 24.1 | 30.0 | 78.2 |
| 1969 | 66.8 | 69.8 | 94.2 | 43.1 | 43.5 | 46.8 | 24.2 | 29.6 | 72.7 |
| 1970 | 107.0 | 112.2 | 153.6 | 55.7 | 56.3 | 60.5 | 24.5 | 34.2 | 112.0 |
| 1971 | 87.7 | 105.7 | 151.9 | 55.3 | 57.2 | 62.2 | -3.2 | 31.0 | 118.6 |
| 1972 | 92.1 | 113.7 | 142.8 | 55.2 | 57.6 | 60.9 | 16.9 | 58.0 | 113.6 |
| 1973 | 91.4 | 125.1 | 148.7 | 55.9 | 59.5 | 62.2 | 8.2 | 72.7 | 118.0 |
| 1974 | 115.0 | 149.8 | 179.4 | 65.9 | 69.1 | 72.2 | 21.4 | 83.7 | 141.6 |
| 1975 | 123.7 | 143.3 | 184.4 | 67.2 | 69.1 | 73.4 | 31.0 | 70.0 | 151.5 |
| 1976 | 113.8 | 147.5 | 187.5 | 51.2 | 56.3 | 62.7 | 5.3 | 72.5 | 152.3 |
| 1977 | 105.6 | 151.6 | 199.8 | 51.2 | 57.9 | 65.4 | -24.4 | 68.6 | 165.9 |
| 1978 | 99.9 | 137.3 | 193.4 | 50.5 | 56.1 | 65.2 | -28.0 | 48.9 | 164.2 |
| 1979 | 103.0 | 130.5 | 171.0 | 70.2 | 75.2 | 82.9 | 19.4 | 72.8 | 151.3 |
| 1980 | 113.8 | 154.1 | 219.3 | 52.7 | 57.9 | 66.9 | -34.0 | 47.8 | 180.3 |
| 1981 | 120.5 | 145.0 | 205.3 | 71.8 | 75.4 | 84.9 | 0.2 | 50.4 | 173.4 |
| 1982 | 108.3 | 134.3 | 179.9 | 72.5 | 76.9 | 85.2 | 11.9 | 63.7 | 154.3 |
| 1983 | 118.6 | 141.5 | 195.8 | 88.0 | 92.2 | 102.9 | 13.0 | 58.8 | 167.6 |
| 1984 | 101.5 | 127.9 | 175.3 | 79.9 | 84.5 | 93.6 | -19.3 | 38.0 | 140.6 |
| 1985 | 92.0 | 118.3 | 167.1 | 72.7 | 77.3 | 86.6 | -9.0 | 42.0 | 136.3 |
| 1986 | 92.7 | 99.5 | 140.3 | 70.1 | 71.5 | 80.2 | 29.0 | 41.6 | 117.4 |
| 1987 | 90.1 | 99.7 | 136.3 | 69.6 | 71.5 | 79.3 | 24.2 | 41.9 | 110.0 |
| 1988 | 110.7 | 110.7 | 148.8 | 75.0 | 75.0 | 82.6 | 42.5 | 42.5 | 115.1 |
| 1989 | 108.4 | 108.4 | 148.0 | 72.8 | 72.8 | 80.4 | 39.8 | 39.8 | 112.2 |
| 1990 | 103.5 | 131.0 | 152.6 | 58.7 | 62.9 | 66.3 | 25.3 | 71.4 | 107.6 |
| 1991 | 84.8 | 84.8 | 84.8 | 65.5 | 65.5 | 65.5 | 42.2 | 42.2 | 42.2 |
| 1992 | 44.8 | 44.8 | 44.8 | 43.4 | 43.4 | 43.4 | 27.9 | 27.9 | 27.9 |
| 1993 | 50.7 | 50.7 | 50.7 | 45.8 | 45.8 | 45.8 | 29.3 | 29.3 | 29.3 |
| 1994 | 26.7 | 26.7 | 26.7 | 34.1 | 34.1 | 34.1 | 29.9 | 29.9 | 29.9 |
| 1995 | 61.8 | 61.8 | 61.8 | 46.1 | 46.1 | 46.1 | 30.2 | 30.2 | 30.2 |
| 1996 | 54.8 | 54.8 | 54.8 | 43.4 | 43.4 | 43.4 | 28.3 | 28.3 | 28.3 |
| 1997 | 55.2 | 55.2 | 55.2 | 43.5 | 43.5 | 43.5 | 28.4 | 28.4 | 28.4 |
| 1998 | 53.4 | 53.4 | 53.4 | 42.8 | 42.8 | 42.8 | 27.9 | 27.9 | 27.9 |
| 1999 | 53.1 | 53.1 | 53.1 | 42.6 | 42.6 | 42.6 | 27.8 | 27.8 | 27.8 |
| 2000 | 56.6 | 56.6 | 56.6 | 44.1 | 44.1 | 44.1 | 28.8 | 28.8 | 28.8 |
| 2001 | 59.0 | 59.0 | 59.0 | 45.1 | 45.1 | 45.1 | 29.5 | 29.5 | 29.5 |
| 2002 | 61.1 | 61.1 | 61.1 | 45.9 | 45.9 | 45.9 | 30.0 | 30.0 | 30.0 |
| 2003 | 58.7 | 58.7 | 58.7 | 44.9 | 44.9 | 44.9 | 29.4 | 29.4 | 29.4 |
| 2004 | 53.8 | 53.8 | 53.8 | 42.9 | 42.9 | 42.9 | 28.0 | 28.0 | 28.0 |
| 2005 | 53.5 | 53.5 | 53.5 | 42.8 | 42.8 | 42.8 | 28.0 | 28.0 | 28.0 |

| Year | New share issues | | | Retained earnings | | | Debt | | |
|------|------------------|------|------|-------------------|------|------|------|------|------|
| | 0.67 | APW | Top | 0.67 | APW | Top | 0.67 | APW | Top |
| 2006 | 56.9 | 56.9 | 56.9 | 44.2 | 44.2 | 44.2 | 28.9 | 28.9 | 28.9 |
| 2007 | 44.7 | 44.7 | 44.7 | 28.7 | 28.7 | 28.7 | 14.7 | 14.7 | 14.7 |
| 2008 | 48.9 | 48.9 | 48.9 | 30.3 | 30.3 | 30.3 | 15.8 | 15.8 | 15.8 |
| 2009 | 35.5 | 35.5 | 35.5 | 24.4 | 24.4 | 24.4 | 13.5 | 13.5 | 13.5 |
| 2010 | 41.0 | 41.0 | 41.0 | 26.7 | 26.7 | 26.7 | 15.4 | 15.4 | 15.4 |
| 2011 | 45.5 | 45.5 | 45.5 | 28.5 | 28.5 | 28.5 | 16.8 | 16.8 | 16.8 |
| 2012 | 39.6 | 39.6 | 39.6 | 26.2 | 26.2 | 26.2 | 14.9 | 14.9 | 14.9 |
| 2013 | 35.3 | 35.3 | 35.3 | 23.2 | 23.2 | 23.2 | 17.0 | 17.0 | 17.0 |

Note: Based on assumptions given in the text. APW and 0.67 refer to the marginal tax of a taxpayer with an average annual wage of a production worker (APW) and a taxpayer earning 0.67 APW. Top is the highest tax rate.

Source: Own calculations.

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