

IFN Working Paper No. 732, 2008

Entrepreneurship and the Theory of Taxation

Magnus Henrekson and Tino Sanandaji

ENTREPRENEURSHIP AND THE THEORY OF TAXATION^{*}

Magnus Henrekson[†] and Tino Sanandaji[‡]

November 13, 2009

Abstract: A review of the literature on firm taxation reveals that the economics of entrepreneurship has not sufficiently been taken into consideration. We discuss how this affects conclusions derived from standard models of capital taxation when applied to entrepreneurial income. Some defining features of entrepreneurship important for analyzing the effects of taxation of owner–managed firms are identified. These include the lack of a well-functioning external market for entrepreneurial effort, limited access to external capital and complementarities between entrepreneurial innovation, effort and capital. Due to these constraints, the entrepreneurial project is tied to the individual owner–manager. The entrepreneur is unable to decouple saving decisions from investment decisions, and makes joint decisions on the supply of effort and capital. The return from successful entrepreneurial ventures can therefore not be readily divided into labor and capital income, in deep contrast to what is typically assumed in taxation theory.

It is argued that when distinct attributes of entrepreneurship are taken into account, certain conclusions of capital taxation models may no longer hold, including the neutrality of capital taxation in owner-managed firms. Cost of capital formulas derived from the behavior of public firms could underestimate distortions when applied to the investment behavior of entrepreneurial firms.

For tax purposes and otherwise, it becomes useful to analyze return to entrepreneurial activity as income of a distinct factor of production. In this context, conceptual issues and the difficulties of measuring entrepreneurial income are discussed.

Keywords: Capital income taxation; Dual income taxation, Entrepreneurship; Innovation; Institutions; Labor supply; New firm creation; Optimal factor taxes; Taxation; Tax policy.

JEL Codes: H21; H25; L5; L26; M13; O31; E25;G32.

^{*} Financial support from the Gustaf Douglas Research Program on Entrepreneurship at the Research Institute of Industrial Economics and from the Jan Wallander and Tom Hedelius Research Foundation is gratefully acknowledged. We thank Andrea Asoni, David Cesarini, Vesa Kannianen, Linda Nyberg and Lars Persson for useful comments and suggestions.

[†] Research Institute of Industrial Economics (IFN), P.O. Box 55665, SE-102 15 Stockholm, Sweden. Ph: +8-46-665 45 02. E-mail: Magnus.Henrekson@ifn.se. Homepage: www.ifn.se/mh.

[‡] Harris School of Public Policy, University of Chicago, 1155 East 60th Street, Chicago, IL 60637, and Research Institute of Industrial Economics (IFN), P.O. Box 55665, SE-102 15 Stockholm, Sweden. E-mail: tino@uchicago.edu.

1. Introduction

Advances in the theory of taxation in recent decades have had a significant impact on public policy. Most developed countries have broadened tax bases, closed loopholes and cut marginal taxes. Capital taxation has been reformed to limit the distortionary effects on the source and use of capital, based on principles of neutrality such as those outlined in King and Fullerton (1984). Economists—with powerful models at their disposal—are uniquely suited to offer guidance to policy makers in a field like capital taxation. But this strength also carries the risk of misguided advice, especially in instances when model structures are incomplete with regard to the real-life economic issues they are designed to address. The scholarly study of entrepreneurship taxation has suffered in this regard; the inherited models of capital taxation have been insufficiently adapted to the economics of owner-managed firms.

With the help of neoclassical investment theory (Jorgenson 1963, 1967), it is possible to summarize the effects of a multitude of tax rates and rules in a few equations to describe the wedge between the effective average and marginal tax rate and the pre-tax cost of capital. However, cost of capital formulas were originally derived from the behavior of a specific class of investors, namely large, public firms. There is reason to surmise that these models need to be adjusted when applied to the taxation of small and/or entrepreneurial firms. This class of models typically suggests that economic distortions do not arise from the taxation of owner-managed firms' capital return, since the firm's cost of capital is unaffected by taxes in steady state. This vital conclusion is analogous to the so-called “new view” result regarding dividend taxation for public firms, and is indeed derived from the same underlying assumptions. If the marginal investment is assumed to be financed using already existing and already taxed capital, the cost of capital is invariant to taxation. The same assumptions lead to the remarkable result that capital taxes are neutral between private and public firms, even when entrepreneurial income is taxed at higher rates than return from passively invested capital.

Before the effect of any tax can be analyzed, the underlying economic process on which the tax is imposed must be carefully modeled. Entrepreneurial investments differ in many respects from the investment situation that is assumed—sometimes implicitly—in the standard neoclassical model. For example, the cost of capital no longer acts as the only central variable when the capital and effort of the entrepreneur are complementary in production and jointly supplied. A new entrepreneurial venture can rarely rely on external debt financing or on al-

ready taxed (“trapped”) equity to eliminate the costs of taxation. The ability to reduce the impact of taxes by pooling taxes with losses on successful projects is more constrained in smaller and less diversified startups, in which the probability of failure is far higher than in public firms. Consequently, the simple cost of capital formulas have a tendency to underestimate the distortions caused by taxing entrepreneurial firms.

This difficulty in modeling entrepreneurship does not plague taxation theory alone, but embodies rather a general predicament in neoclassical economics (Bianchi and Henrekson 2005). Baumol (2009), however, has recently taken significant steps toward outlining a micro-founded theory of the supply of productive entrepreneurship. He adds the supply of entrepreneurship to “the classical tripartite division of ‘factors of production’—land, labor and capital,” in order to create “a genuine four-group subdivision of the economy’s inputs” (Baumol 2009).

We illustrate the importance of including entrepreneurship in economic models of taxation by examining the so-called Nordic system of dual taxation, in which capital and labor income are taxed separately. Whereas most entrepreneurs in the U.S. are taxed according to the individual income tax schedule, the Nordic system contains a sharp division between capital and labor income. Owners of closely held firms thus face special tax rules, which assign part of their income to capital income (taxed at a lower, flat rate) and the rest to labor income (taxed at a higher, progressive rate). It is in this context that the standard formulas for calculating capital taxation have been extensively applied to entrepreneurial firms.

While the hazards of not taking entrepreneurship into account when analyzing entrepreneurial firms is particularly salient in the case of the Nordic dual taxation system, the problem is a general one. The income generated by innovative business owners’ efforts and investments differ in many respects from other economic categories. Taking this into account, we outline a framework for incorporating elements of entrepreneurial choice into the theory of taxation, including the suggestion that entrepreneurship be viewed as a distinct factor of production.

Our main conclusion is that neglecting the entrepreneur in theories of taxation has resulted in misleading policy implications. Indeed, issues of secondary importance in analyses of large, established firms may prove crucial when analyzing small entrepreneurial businesses.

2. Crucial Aspects of Entrepreneurship and Taxation

Entrepreneurship has a distinct character marked by risk, dynamism (Schumpeter 1934), uncertainty (Knight 1921), liquidity constraints (Holtz-Eakin et al. 1994a, 1994b) and the inability to separate saving from investments (Gentry and Hubbard 2004). The entrepreneur has been described as a jack-of-all-trades (Lazear 2004) who is particularly alert to change (Kirzner 1973) and distinct in his/her preferences (McClelland 1961, Brockhaus 1980). Although no complete neoclassical theory of entrepreneurship has been developed, partial progress has been made on several counts by separate models, each focusing on a key aspect of the entrepreneurial process (Kihlstrom and Laffont 1979, Kanbur 1982, Aghion and Howitt 1992, Sinn 1991a, 1991b, Holtz-Eakin et al. 2001, Cagetti and De Nardi 2006, Kannianen et al. 2007). We will discuss those aspects that relate to the theory of taxation and the interpretation of entrepreneurial income. These include the joint factor supply of business owners, the non-contractibility of key competencies and the resulting lack of access to external capital, and variations in access to investment opportunities both across and between entrepreneurs and mature firms. Risk, uncertainty and liquidity constraints are also touched upon. Although this list is by no means complete, the crux of our argument remains salient: there exists great merit in incorporating a fuller range of entrepreneurship aspects into models of taxation.

Agency problems and non-contractibility form the core of theories of the firm, including the entrepreneurial firm (Coase 1937, Williamson 1975). For example, many innovations are difficult or even impossible to sell when underlying ideas cannot be properly evaluated before they are sold, or when successful innovation depends on tacit knowledge tied to the individual entrepreneur. In general, the entrepreneur tends to know a project's quality and prospects for success much better than the providers of capital, creating an investment wedge. Similar agency problems exist with respect to entrepreneurial effort. To ensure that individuals make optimal decisions, exert a high level of effort, assume very high risks and bear the requisite uncertainty, incentives have to be aligned through a large ownership share. Firm equity owned by the self-employed increases effort and in turn firm performance, but this incentive mechanism limits the degree of external financing (Bitler et al. 2005).¹ Hence, standard labor purchased in the market cannot be substituted for entrepreneurial effort. Neither can passive capi-

¹ Of course, large public firms face agency problems of their own. Imposing a formal managerial structure enables the separation of ownership and control, but at the high cost of limiting the firms' growth and hampering its adaptability.

tal invested in large firms, since these firms generally lack access to the same innovative ideas and entrepreneurial talent.²

Gentry and Hubbard (2004) point out that “the ‘saving’ and ‘investment’ decisions of entrepreneurs are likely to be related” due to higher costs of external financing. Inheritance, lottery wins and other “exogenous” liquidity gains increase the likelihood of both becoming an entrepreneur and promoting firm growth, indicating that liquidity constraints may be important (Holtz-Eakin et al. 1994a, 1994b, Blanchflower 2004). Interviews with successful entrepreneurs confirm that the overwhelming majority were initially funded by modest amounts of personal assets (Gentry and Hubbard 2004). Entrepreneurs tend to have both substantially more savings and a higher savings to income ratio than other households. However, their wealth is far less diversified—close to half of entrepreneurs’ total wealth resides in their business and complementary real estate (Gentry and Hubbard 2004, Cagetti and De Nardi 2006). Self-employment income is more correlated with the rate of return of stock markets than is wage income, partially explaining why households with more variable entrepreneurial income seem to substitute away from stocks (Heaton and Lucas 2000). This fact together with the aforementioned agency costs force entrepreneurs to hold a much less diversified portfolio than passive investors.

Needless to say, incentive and information problems associated with entrepreneurship can be mitigated in many ways. Examples include specialized venture capital firms, banks with long-term relationships with local businesses and bonus programs that emulate entrepreneurial incentives. Assuming completely binding liquidity constraints for entrepreneurs would be misleading. It is however noteworthy that most standard models of capital taxation make the equally dubious assumption of costless access to external capital.

The joint supplies of innovation, effort and investment that characterize entrepreneurship have important implications for tax policy. Even if capital and labor are separately taxed, capital taxation could affect entrepreneurial labor supply, while taxing owner–manager labor earnings could affect investments (Carroll et al. 2000b). Unlike taxes on passive owners, personal

² The distinction is not absolute, but is often one of degrees. Both regular labor and passive capital can at times be used as imperfect substitutes for entrepreneurship, and the innovation or products produced through entrepreneurial ventures may in some way be replicated by non-entrepreneurial firms. Thus, the argument does not rely on the irreplaceability of entrepreneurship, only that such ventures enjoy comparative advantage in certain product categories and market functions (Baumol 2004).

taxation of owners/managers may affect the expansion and hiring decisions of firms in a similar fashion. The negative cross-price elasticity between capital and labor offered by the same agent translates into a joint supply decision. In principle, this hypothesis could be empirically tested by measuring the cross-price elasticity of capital and income for the self-employed versus other agents. Controlling for income effects, the supply elasticity of hours worked should be affected by a change in capital returns (due to taxes, for example), and the supply of investments should be affected by changes in labor income.

But before discussing the problems of standard capital taxation theory as applied to the earnings of entrepreneurial firms, it is worthwhile to take a step back and consider what these earnings are actually composed of.

3. Entrepreneurial Income

Let us imagine an alternative history. Say Wal-Mart founder Sam Walton remained an employee at JC Penney, choosing instead to invest the same fraction of his income in public assets with a risk and liquidity profile similar to Wal-Mart's. It is safe to say that he could not have become the richest man in the world using this strategy. Staunch in his role as employee, Walton could not have retained his billions of dollars worth of surplus, which he would have had neither the incentive nor even the opportunity to create. Any employee contract attempting to decouple ownership but retain the incentive structure enjoyed by the owner of an entrepreneurial firm would face insurmountable transaction costs.

The Forbes 500 list of the world's billionaires reveals that self-made entrepreneurs hold more than 60 percent of total net worth of the super-rich in the U.S. and other Anglo-Saxon countries.³ In Europe, the corresponding figure reaches about 40 percent. Even these figures underestimate the importance of entrepreneurial income, as much additional wealth either emanates from self-made entrepreneurs' parents and spouses (e.g., Wal-Mart), or is created by entrepreneurs who inherited a small firm and are therefore not defined as self-made (e.g., Rupert Murdoch).

Whether some entrepreneurs become rich through unusually high creation of value, or because they were better than average at capturing the Schumpeterian surplus created by their

³ The wealth proportions are based on our own calculations from the 2006 list.

innovations is not easily explained. Nevertheless, it is clear that the return on entrepreneurship is an important part of both national income and capital formation. However, this income does not fit the simple labor-capital division of factor income.

How should the income of Sam Walton, Bill Gates and millions of other entrepreneurs be interpreted by economists? Does it simply represent a high return on labor in the form of reward for exceptional talent, or rather unusual returns on capital accomplished through luck or risk taking? Does the income in excess of the risk-adjusted market return on labor and savings represent economic rents, or is it “bills on the sidewalk”, that lucky agents will come across, but that carry no meaningful economic function?

The answers to these questions are not trivial details—they determine how we should expect the income in question to respond to taxes (and to price changes in general). At one extreme, a suitcase containing a million dollars would be picked up even if it were taxed at 99 percent, assuming that pure rents are not influenced by taxes. If entrepreneurial earnings represent a sum of shadow labor returns and the return to invested capital, we would not expect these earnings to react any differently to taxation than those of ordinary investors. In contrast, if entrepreneurial income represents the reward for combining extraordinary effort, risk taking and thrift, these above market returns could be more responsive to taxation than ordinary capital income. Correctly interpreting entrepreneurial income is a critical component of accurate tax analyses of the self-employed.

In principle, entrepreneurial income can be estimated empirically. Yet this is admittedly difficult, not least because of underreporting. The opportunity cost of labor and capital should be disentangled from total proprietors’ income. More importantly, truly entrepreneurial ventures should be distinguished from non-entrepreneurial self-employment.

There are at least three mechanisms that contribute to the underestimation of entrepreneurial income as a share of GDP, and two that leads to overestimation. Underreporting to evade taxes is the first and perhaps the most obvious mechanism—proprietors’ earnings are more underreported than any other income source in the U.S. (Slemrod 2007). Second, it is easy to forget that much entrepreneurial activity takes place in large, publicly listed firms (e.g., Apple), in which the return manifests itself as capital gains and dividends for Steve Jobs and the like. Lastly, only a small fraction of Schumpeterian returns to innovation tend to be captured

by entrepreneurs themselves. Nordhaus (2004) estimates this figure to be as low as 2.2 percent, even when taking into account innovations by both independent entrepreneurs and within large organizations. The rest accrues to consumers in the form of lower prices and improved quality. This mechanism leads to an underestimation of the importance of entrepreneurship for national income, although it does not result in an underestimation of the earnings of individual entrepreneurs.

Almost all measures of entrepreneurial income use self-employment income as a proxy, which leads to an overestimation since large part of self-employment is non-entrepreneurial. Another category usually identified as self-employed includes the more or less pure capitalists, who own firms without participating in the firm's activities (and perhaps are nominally recorded as holding a management position). This distinction may be a matter of degree, not least with respect to the life cycle. An entrepreneur who builds a firm in his or her career but has effectively retired may still own large part of the firm.

These measurement problems are substantial, but not unmanageable. Most data sources can weed out at least some of the non-entrepreneurial self-employed by using measures of employment, number of clients/customers, industry, firm growth, amount of capital, and so forth. Furthermore, while proprietors in many countries are more numerous than entrepreneurs, they tend to earn less on average and have low capital intensity so that proxies for entrepreneurial income and investment may nevertheless be attributable to true entrepreneurs. The degree of entrepreneurship may also vary. An owner of a franchised restaurant is not likely to be as entrepreneurial as the founder of the chain, but probably more so than a hired manager with no equity stake.

Whereas entrepreneurial income is difficult to measure, we can readily estimate the earnings of the self-employed. As *Table 1* illustrates, average earnings of the self-employed constitute 10 percent of GDP in the OECD. Not surprisingly, the income of the self-employed is strongly correlated with the share of the work-force that is self-employed, with a correlation coefficient of 0.73.

Table 1 Self-employment share of income and employment in OECD countries, 2006 (%).

	Self-employed income as a share of GDP	Self employment as a share of workforce
Australia	8.2	13.3
Austria	10.7	16.9
Belgium	8.4	16.0
Canada	5.4	8.3
Czech republic	11.5	18.5
Finland	3.7	11.8
France	6.5	8.9
Germany	9.5	11.3
Greece	26.9	34.9
Hungary	10.2	12.7
Ireland	8.2	16.4
Italy	15.0	24.7
Japan	4.4	13.2
Luxembourg	6.3	9.5
Norway	6.0	6.0
Poland	22.9	24.4
Portugal	14.5	18.5
Slovak Republic	23.2	13.0
Spain	16.1	14.2
Sweden	6.5	5.7
Switzerland	8.2	11.9
United Kingdom	6.0	12.8
United States	11.6	6.2
OECD weighted average	10.0	11.3

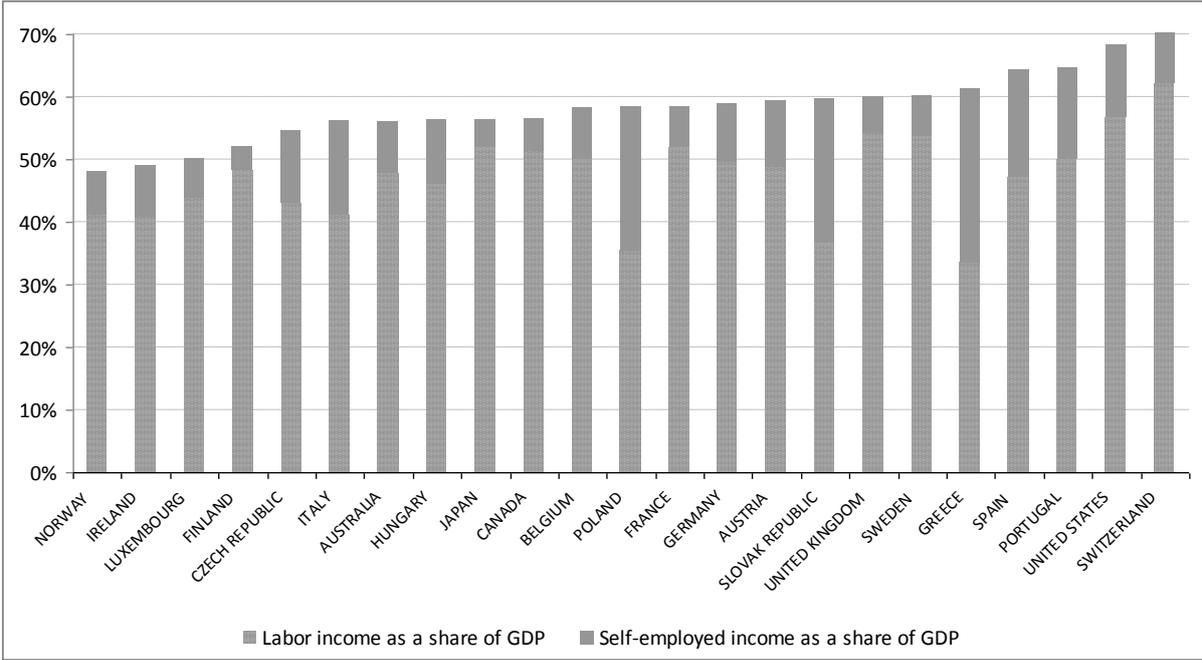
Source: Own calculations based on OECD (2009).

This paper mainly discusses entrepreneurial and self-employment income in the context of taxation. However, there is value in adding a third factor of production and a third source of factor income to economic analysis in general. The question of income distribution and the relative earnings of capitalists and workers illustrate this fact. Both standard neoclassical and Marxist analyses have focused on the breakdown and distribution of national income between workers and capitalists; adding the self-employed to the picture improves our understanding of income distribution.

Figure 1 shows the labor share (defined here simply as wages and compensations share of GDP) and self-employed share of GDP for 23 OECD countries. Including the self-employed has considerable implications. When the self-employed share is taken into account, the dispersion of factor income across countries decreases, as the combined share of labor and self-

employment of GDP has a variance that is only about half of that of the labor share alone. Furthermore, the share of GDP that goes to workers and the self-employed (and is thus earned through effort) is considerably larger than indicated by the labor share. For countries like Greece or Italy, where a large fraction of the economy consists of self-employment, labor and capital shares alone are likely to be misleading indicators of income distribution.

Figure 1 Labor share (wages and compensations) and self-employed share of GDP for 23 OECD countries in 2006 (%).

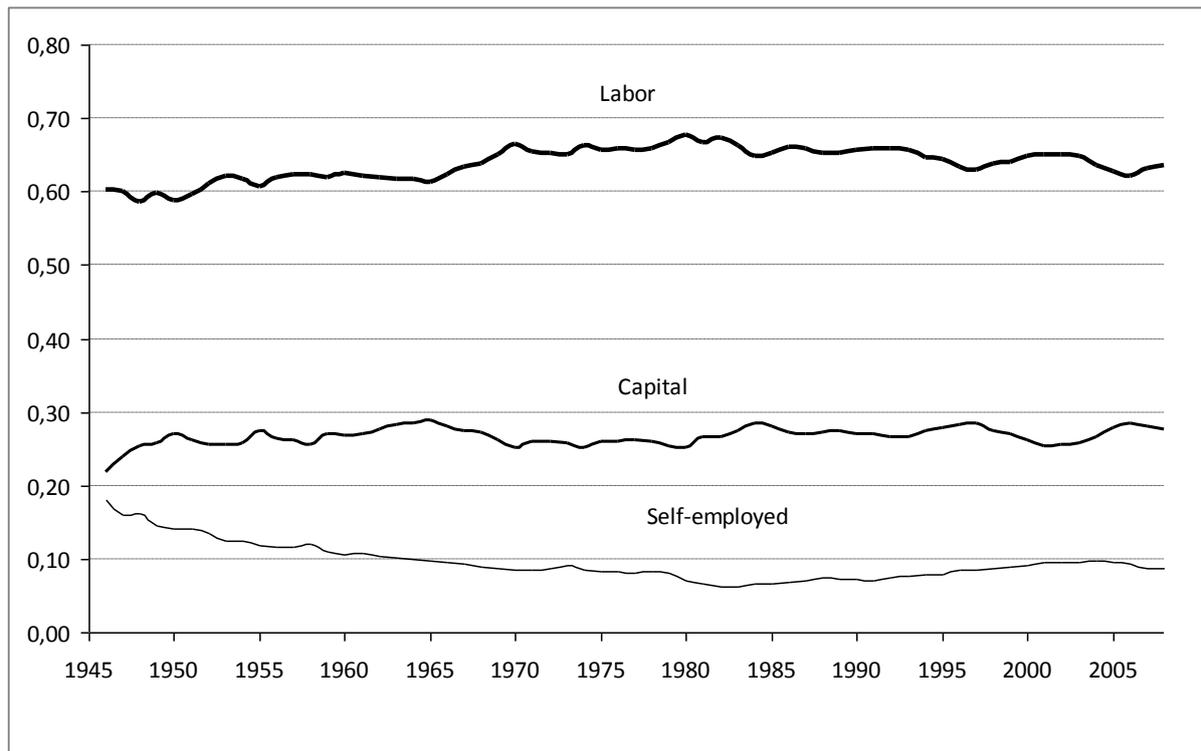


Source: Own calculations based on OECD (2009).

Figure 2 plots the labor, self-employment and capital income shares in the United States in the postwar period. At first, self-employment decreases, but it begins to increase again in the early 1980s. In 2008, net non-farm self-employed income in the U.S. was estimated at 1,050 billion dollars. Again, adding self-employment factor income to the usual capital-labor division enriches the analysis. The increase in proprietors’ income as a share of GDP accounts for 40 percent of the four percentage point decrease in the U.S. labor share between 1980 and 2008.

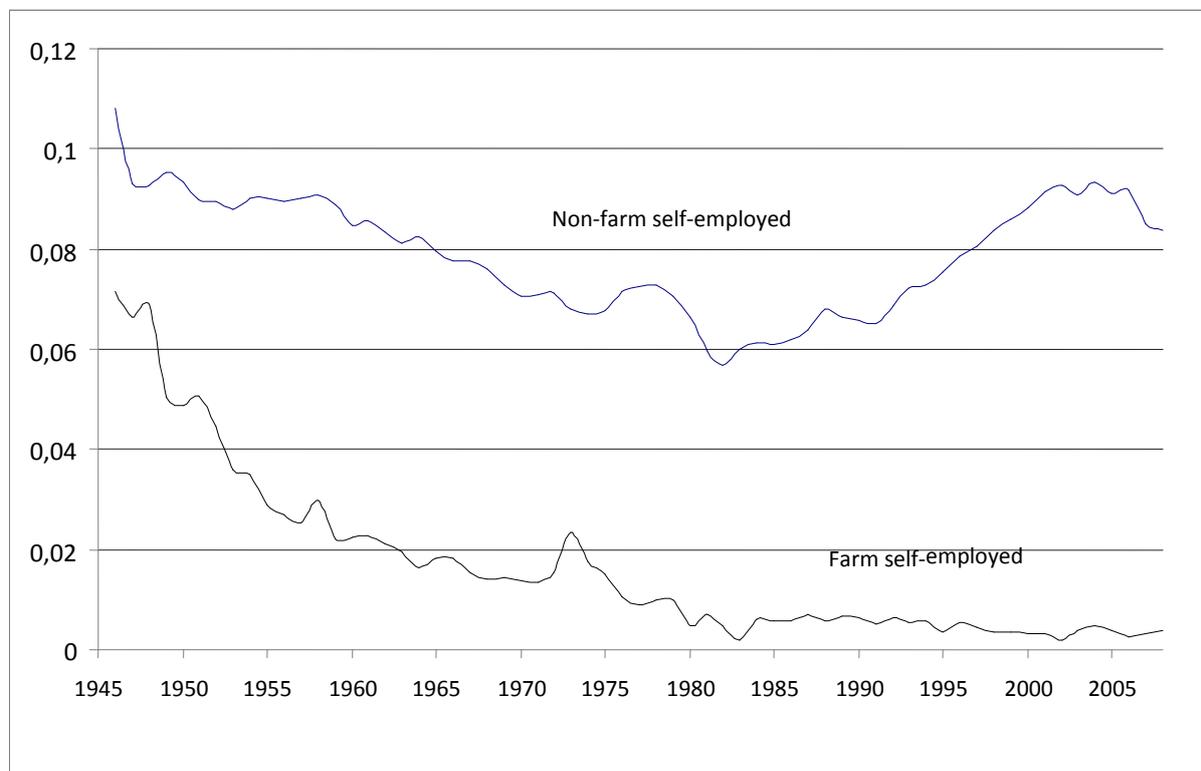
Figure 3 separates the farm share from the non-farm share of self-employed income, and more clearly illustrates the decline and subsequent recovery of self-employed income in the U.S. economy over the postwar period.

Figure 2 The income share of labor, capital and the self-employed in the U.S., 1946–2008



Source: Own calculations based on *National Economic Accounts*, Bureau of Economic Analysis.

Figure 3 The income share of the farm and non-farm self-employed, the U.S. 1946–2008



Source: Own calculations based on *National Economic Accounts*, Bureau of Economic Analysis.

4. Entrepreneurship as a Distinct Factor of Production

In order to achieve simplicity and analytical tractability, economic theory merges inputs into broader categories that are then used in production functions. To be specific, manufacturing workers, engineers and janitors are classified as labor, whereas factory buildings, machines and patents are classified as capital. These distinctions are based on the premise that factors differ from one another in crucial respects. The classifications are thus somewhat arbitrary. It is also important to recognize that the distinctions are economic, not descriptive. For this reason, the appropriate level of aggregation of inputs into factors of production depends on context. It is important to be able to separate the return to human capital from the returns to raw labor and general capital (Schultz 1961, Becker 1962), and distinguish “pure” land rents from total land income (Ricardo 1817, George 1879).

Similar to other economic inputs, entrepreneurship is valuable and scarce (Schultz 1979), has a definable (although hard to measure) quantity, and a shadow market price. In certain (but far from all) situations involving entrepreneurs, including entrepreneurial income as separate from labor and capital income increases analytical clarity. We believe that taxation of the self-employed is one such area.

The entrepreneurial production function we have in mind includes the value of innovation and/or entrepreneurial talent, effort in the form of hours worked, and capital, broadly defined as any assets that are not consumed. Crucially, these factors are assumed to be complements. The entrepreneur often “creates” the capital of the firm by investing in tangible and non-tangible assets that in time create a return, such as developing the product and building firm structures. At any given moment, this capital requires a continued commitment on the part of the entrepreneur, whether or not it is sold externally at value. The growth of the firm is often financed through retained earnings until the point when the firm is sufficiently developed so that it can be sold, or produce cash flow that can be withdrawn by the owner without difficulty. Thus, the quantitatively important saving decision does not constitute the initial capital injection, but rather the fact that entrepreneurs refrain from withdrawing the equity value of their firms before they have matured in terms of production efficiency and asset tradability.

The entrepreneur is rewarded for both effort and the postponement of consuming firm equity into an uncertain future. But the earnings of owners–managers are likely to be more compli-

cated than a simple additive sum of capital and labor. Successful entrepreneurial firms need several components that are hard or nearly impossible to purchase externally. These include product or business ideas, sufficient managerial skills to implement innovations, and the willingness to exert time and effort to realize an uncertain outcome. Because of well-known agency costs, entrepreneurs must provide a significant share of requisite capital themselves. Lastly, these requirements must be combined with the postponement of consumption (and additional risk taking) in one individual—the entrepreneur. The inability to decouple saving, investment and effort incites the need for entrepreneurial talent and opportunity to intersect, unlike labor and capital markets. As a result, the supply of entrepreneurship tends to be more constrained than labor or capital supply of the individual entrepreneur, explaining the above-market returns earned by entrepreneurs (controlling for capital and labor output). Moreover, potential entrepreneurs with high-quality ideas and talent are few and far between. High risk, high uncertainty, large demands on effort, lack of access to capital markets, and long time lags before expected returns reduce the number even more. This is especially true since the best potential entrepreneurs tend to have the most valuable outside options. While an external market for entrepreneurship does not exist, demand for products produced through entrepreneurial activity translates into a derived demand curve for entrepreneurship.

Empirical observations have illustrated that entrepreneurs behave differently than comparable wage earners. One such aspect is the higher income elasticity with respect to taxes. Studies from many countries have consistently shown that the self-employed tend to have a higher elasticity of taxable income than employees (e.g. Sillamaa and Veall 2001, Chetty et al. 2009, Hansson 2009; Kleven and Schultz 2009, Saez 2009). Some of this higher responsiveness is likely to be behaviorally deep, while some is shallower. The self-employed usually have more flexibility in reporting income, shifting it across taxable categories, and substituting it intertemporally. For example, the self-employed are far more likely to locate at “kinks” in tax schedules.

Relative taxation compared to wage earners also influences the choice of whether to become self-employed, although the direct effect seems more important (Bruce and Gurley 2004). Business owners tend to enjoy more opportunities to evade taxes than wage earners. However, this type of self-employment is distinctly separate from entrepreneurship. Considering self-employment actually leads to an underestimate of the disincentives on entrepreneurship

caused by a high general level of taxation, as the share of non-entrepreneurial self-employment is likely to be positively related to the tax level.

Firm growth, investment, hiring of outside labor and personal effort have all been shown to be significantly affected by taxes (Carroll et al. 2000a, 2000b, 2001; Rosen 2005). Several factors may describe the difference, such as the complementarity of capital returns and effort, or the self-employed's greater discretion in defining working hours and other margins compared to hired labor. In addition, higher marginal income taxes have been blamed for discouraging entry into entrepreneurship (Gentry and Hubbard 2000). Taken together, the empirical response of the self-employed to taxation supports the approach of including entrepreneurship as a distinct factor in the specific context of the taxation of entrepreneurial income.

5. Are Above-Market Returns to Entrepreneurs Windfall Gains?

Imagine a production function with three factors of production: labor, capital and entrepreneurial effort. If such an economy is approximated with a production function that only includes capital and labor, it is likely that we would appear to observe excess "rents" in areas of the economy intensely coupled to entrepreneurship. This is an artifact of the incomplete production function, and it would clearly be mistaken to believe that such "rents" could be taxed without efficiency costs.⁴

Taxation theory frequently assumes that a rate of return above the market rate is a form of windfall gain or "rent," and is thus immune to taxation (e.g., Sørensen 2001). Hubbard (1997) discusses investments with "inframarginal returns," namely investment decisions that generate above-market rate of return due to superior ideas or managerial skills. Shaviro (2004) suggests that these returns constitute rents, and that they are therefore worth exploiting regardless of the tax rate.⁵ When including entrepreneurs in models, however, inframarginal returns do in fact become sensitive to taxation. Because these returns represent entrepreneurial income—the joint reward for effort, risk, uncertainty and the search for innovation—this policy conclusion no longer holds true.

⁴ The controversy of how factor income should be separated from labor income is old (Marx 1891). Arguably one theoretical mistake of Marxism with considerable policy implications was assuming only one factor in the production function (labor), where at least two are needed for reasonable analyses.

⁵ He also touches on the problem of conceptually separating capital from labor and various components of capital income, for example when effort and capital are combined.

“Rent” is often used to describe earnings obtained through the diversion rather than creation of wealth.⁶ Alternatively, they describe the return to fixed assets where appropriation is costless (e.g., land rents). Entrepreneurial rents, on the other hand, tend to reward innovation and the supply of entrepreneurial effort, which can be expected to be elastic in regard to rents.⁷ If so, entrepreneurial “rents” do not differ much conceptually from the “rent” of workers (wage income) and the “rent” earned by savers (interest rate).

Hence, the term “rent” can be misleading when analyzing the returns to entrepreneurship. Nor does it seem sufficient to ascribe the above-market returns of entrepreneurs to the simple arithmetic sum of labor and capital earnings. Instead, these returns more closely resemble those earned by factors of production, and should thus be referred to as *entrepreneurial income*.

6. Taxation of Entrepreneurial Firms

6.1 Effective Taxation as a Function of Ownership and Source of Finance

The firm’s cost of capital lies at the heart of the theory of taxation (Hall and Jorgenson 1967, Jorgenson 1963, 1967). King and Fullerton (1984) document that by the 1970s, effective tax rates on business income came to differ tremendously in rich countries depending on financing and ownership categories. Taxes favored debt as a form of financing, whereas new equity issues were penalized. In general, businesses held directly by individuals and families were taxed much more heavily than other ownership categories.

These differences in effective tax rates can greatly affect the organization of business activity and the industry mix of productive activity,⁸ and therefore also incentives for entrepreneurship. To the extent that debt financing is less costly and more readily available for larger and more established firms, high statutory tax rates coupled with tax-deductible interest payments work to the disadvantage of smaller firms and potential entrepreneurs. Smaller and medium sized firms do not only have lower average access to debt, the tax advantaged finance instrument. They are also more sensitive to the ebbs and flows of the credit cycle, a salient fact in

⁶ Entrepreneurs are *rent seeking* in the literal sense of the word, but not in the confiscatory sense most commonly used in public choice theory (e.g., Tullock 1967).

⁷ Disregarding potentially offsetting income effects.

⁸ See, e.g., Rydqvist et al. (2009), who show how the tax system endogenously induces changes in the ownership structure favoring institutional ownership. For a case study discussing the evolution in the UK, see Bank and Cheffins (2008).

2008–2009. The argument has been made that innovative activities of small and medium-sized firms is especially disparately impacted by the tax advantage given to debt (Achleitner et al. 2009).

Debt financing is also more easily available to firms with ready forms of collateral. Hence, firms and sectors that largely utilize physical capital reap greater benefits from tax code provisions that favor debt financing. This aspect of the tax system favors capital-intensive industries and modes of production over labor and knowledge intensive ones, which works to the detriment of entrepreneurial, often equity-constrained, firms. In time, the wave of tax reforms that swept the OECD in the 1980s evened out many of these differences (Jorgenson and Landaу 1993).

6.2 Application of the Principle of Neutrality

The criteria of neutrality of the marginal cost of capital is arguably too narrow; all changes in behavior resulting from ownership taxation should be included as potential distortions, in addition to the cost and source of capital. Keuschnigg and Ribi (2009) introduce moral hazard, and derive financial constraints from this assumption. They then show that profit taxes affect investment, although not through the cost of capital, but through the effect on cash flows. Taxes distort not only the volume, but also the direction of entrepreneurial supply. For example, they push entrepreneurial supply towards non-taxed “consumption” in the form of managerial control and empire building (Schumpeter 1934), or more hobby-oriented ventures rather than wealth-creating schemes.

Apel and Södersten (1999) argue that taxing equity returns may stimulate small-firm investments under certain conditions. They achieve their result with a model in which the stock and debt instruments of large firms are traded internationally, while small firms are financed locally. But these results stem from the effects on portfolio allocation, in a model of small firms where saving and investments are abstracted from. In this framework, taxes lower the entrepreneurs’ cost of capital by “pushing” funds away from large firms as savers adjust their portfolio holdings in response to taxes. While the argument is valid in a narrow sense, the result is nevertheless misleading. Our attention is directed by a model’s structure; in this case, the assumption of a fixed supply of capital limits the focus to a secondary effect of portfolio adjustment. Clearly, it is more important to study incentives for wealth creation and potential tax-induced distortions rather than the potential tax-driven reallocation of assets that are simp-

ly assumed to exist. This has been one of the main flaws of the so-called “new view” of dividend taxation. The “new view” was originally developed for publicly owned firms, but the framework has come to be applied to owner-managed firms as well. Indeed, one could argue that this class of models constitutes the intellectual basis for the Nordic system of dual income taxation of entrepreneurs.

The division between the “new view” and “old view” has been a central theme in capital taxation theory, revitalized after the quasi-experiment of the 2003 dividend tax cut in the U.S. Harberger (1962) outlined the principles behind the old view, writing that private capital taxes adversely affect productive investment. In a frictionless world, taxes are less distortionary for firms that exclusively use the least taxed source of finance (Modigliani and Miller 1958). Since debt is the source most favored by taxes, all investments would then become debt financed, equalizing the marginal cost of capital with the interest rate (Stiglitz 1973). This “neutrality view” is clearly at odds with observed real life behavior of firms. The new view (King 1974, 1977, Auerbach 1979, Bradford 1981) acknowledges instead that firms use a mix of debt and equity finance, not least to counter agency problems arising because of full debt financing. Nevertheless, the new view holds that dividend taxes should still be considered neutral whenever firms use retained earnings to finance the marginal investment.⁹

Dietz (2005) develops a model that takes entrepreneurial financing decisions into account, concluding in turn that capital income taxation distorts the size distribution of firms. While already existing, publicly listed firms can use retained earnings as the (marginal) source of finance, dividend taxes are anticipated by entrepreneurs who consider the discrete choice of starting new firms, and discourage some from doing so. Kannianen et al. (2007) demonstrate that the dividend tax can create an entry barrier for firms and investments. After taking agency problems into account, Keuschnigg and Nielsen (2004) reveal that taxes impair entrepreneurship by reducing managerial support from the venture capitalists. For their part, Cullen and Gordon (2007) thoroughly evaluate the effects of taxes on entrepreneurial risk taking, considering both the risk-sharing element and the option value that exists in the U.S. for successful firms to lower taxes through incorporation. Morck and Yeung (2005) find that firms responded to the cut in the dividend tax by increasing dividend payouts. They interpret this as an improvement on economic performance, since dividends reduce the agency problems

⁹ Auerbach (2002) investigates the differences between the old and the new view, highlighting the assumed source of marginal investment as the driving force behind the conflicting results of the two theories.

stemming from excessive retention of cash flows (Jensen 1986). Poterba (2004) obtains the same result, arguing that the response to the 2003 tax cut lends support to old view predictions. Chetty and Saez (2005, 2006) suggest that the tax cut led to improved capital allocation, as the firms most likely to have fewer investment opportunities increased payouts by the largest degree.

Our argument treads a parallel to these results and conclusions. Oversimplification has doomed the new view to underestimate the distortions of dividend taxation, a result of the assumption that different forms of capital are essentially perfectly substitutable. Because they fill other important roles, however, dividends are used despite tax disincentives, such as to reduce agency problems between management and owners. Chetty and Saez (2007) explicitly model agency problems in mature firms, and find that dividend taxes distort investment decisions in such a setting.

6.3 Dual Taxation and the Self-Employed

Models of dual taxation that claim that taxing the self-employed is essentially a “free lunch” face the same problem, for similar reasons. If entrepreneurship is included in the models, the conditions for optimal taxation in theories of capital taxation change (Kanniainen et al. 2007). The neutrality result for the Nordic system of dual taxation is based on assumptions that may not correctly predict the economic behavior of entrepreneurs. Both sets of models fail to include the constraints that firms face regarding finance and incentive alignment. Entrepreneurial firms cannot solely rely on reinvested earnings, and will indeed anticipate the trapped equity effect before startup. Distortions arise because capital cannot flow without cost between entrepreneurs with access to investments and firms with equity that has already been “trapped.”

The same mistake is committed in a broad class of investment models that examine a firm’s investment choices. The problem begins when a firm is already endowed with capital or access to financial markets, complete with the choice of various projects. The firm should invest if the return from the project exceeds the cost of capital by any proportion—the relationship between the rate of return and the cost of capital is all that matters. If the government allows a tax deduction for the cost of the investment, the two margins decrease at the same rate, and any previously profitable investments are also profitable after taxation by the same

percentage (the absolute dollar return is lower, and transferred to the government). This is seen as a neutral tax on “pure profit.”¹⁰

The most serious problem with this analysis is its static nature. Even at the outset, the seemingly natural assumption that the returns be measured in percentage terms is greatly misleading. In many ventures, the profitability of capital is influenced by costly activities, such as *ex ante* search costs or *ex post* entrepreneurial effort. These costs are better expressed as fixed amounts rather than percentage returns, and are carried by factors of production other than capital. Simple adjustments like this may suffice to overrule the neutrality assumption so often invoked in models of capital taxation. Such “fixed” extra-investment costs are more likely to be important in entrepreneurial ventures, rather than passive portfolio investments. The neutrality result only holds if firms hire entrepreneurs to search for ventures with above-market returns and subsequently exert the optimal amount of entrepreneurial effort to maximize these returns. Stiglitz (1988, p. 539) alluded to the problems involved with the neutrality result of capital taxation:

Some of the return may be attributed to managerial effort, in which case the difference between the present and discounted value of the returns and the direct costs (excluding those associated with management) is a mixture of pure profits and return to management and entrepreneurship.

The deeper reason why both sets of theories can give rise to misleading results is an insufficient consideration of the agents making investments. While firms “should” rely on organic growth, or “should” use capital gains instead of dividends, they do not do so to the extent that models free from transaction costs predict. Disparity between model predictions and economic behavior is not likely to be due to irrationality on the part of the firms and entrepreneurs, but rather indicates that the models are missing some relevant characteristics. The fact that investors are willing to use financial tools with tax disadvantages, such as dividends, testifies to the substantive economic role of these devices.

6.4 Misapplying Domar–Musgrave’s Results Concerning Risk Sharing Through Taxation

Revealed preferences and market behavior also prove informative in attempting to resolve another important controversy in firm taxation. The classical result of Domar and Musgrave (1944) that taxes can encourage risk taking has in some cases been used to justify high taxes on entrepreneurs (SOU 2002:52). This risk-sharing result in the Domar–Musgrave framework

¹⁰ A rudimentary version of this argument was already put forward by the Cowlyn Committee in Britain in the 1920s as a justification for the non-distortionary effects of profit taxation.

derives from the assumption of full loss offset, meaning that the government is in effect a silent partner in any business venture. Some of the gains are taxed away if the investment is successful, but the state also compensates the investor if it fails. However, no real-world tax system offers full loss offsets, as the risk for abuse and moral hazard is too substantial. A full loss offset rule would dramatically lower the effective tax rate, so that sharply higher statutory tax rates would be required for any given revenue, thereby increasing the marginal distortion of taxes. Furthermore, such rules would increase costs even further by creating transactions solely intended to lower taxes, such as purchases of loss-making firms. Nevertheless, the assumption of full loss offsets is frequently used (e.g., Keuschnigg and Dietz 2007). The practical difference between full loss offset and the actual rules of most tax systems is particularly important for entrepreneurial ventures, in which complete bankruptcy constitutes a vital part of the financial risk. Large established firms can often mitigate this difference between the theoretical and the practical, however, by offsetting the tax rebates generated by losses against existing profits in other ventures.

As mentioned previously, the risk-smoothing effects of taxes are less relevant for entrepreneurial income because of the mechanism through which entrepreneurial effort influences the investment cost function. Similar to new view theories, the risk-smoothing framework models investment as a positive-sum gamble without entry cost and without the ability to influence the outcome by exercising effort. Entrepreneurial effort is, however, tantamount to a fixed cost of investment, and can also influence the likelihood of success; it is tax deductible in neither case. For most startups, the non-deductible opportunity cost of the entrepreneur widely exceeds initial capital investment. This is especially true of those startups that are most likely to evolve into successful firms, usually started by experienced and highly skilled entrepreneurs with attractive outside options. Taxes on the return of entrepreneurial effort entail no risk-smoothing advantages (as opposed to the Domar–Musgrave risk-sharing assumption), and are not symmetrically deducted from the investment cost (as opposed to the new view investment function).

In order to evaluate the trade-off between tax and risk, the model in question should be able to account for *why* individuals choose to absorb non-diversified risk in the first place. Risk sharing with the government through taxes would be welcomed by investors if the individual absorption of risk occurs because of missing markets. However, there is an additional condition that must hold which is oft-neglected: *the causes for the failures in financial markets do not*

apply (or apply to a lesser degree) to the state. For example, private markets lack the ability to share risk across generations. It is important to not make the flawed assumption that missing markets alone justify government risk sharing. Unless the government can reduce transaction costs, no efficiency gain will be had; what's more, intervention can exacerbate the problem. Markets for external finance may be missing or rationed due to agency problems, causing entrepreneurs to be less careful with outside money. In that case, government risk sharing would not solve the moral hazard problem; it would simply ignore it, leading to further inefficiency. As noted by Kaplow (1995), if "entrepreneurs voluntarily bear nonsystematic risk to improve their incentives, the provision of government compulsory partial insurance through taxation would be welfare reducing."

6.5 Further Speculation on Taxation and Risk Sharing

Leaving aside whether risk is diversifiable, the Domar–Musgrave risk-smoothing framework analyzes calculable risk. However, influential arguments have been made that measurable risk should be distinguished from *uncertainty* (Knight 1921, Keynes 1921). Whereas risk depends on a known probability distribution of an event, uncertainty refers to future outcomes; the probability distribution is unknown, and outcomes cannot be calculated. Knight famously suggested that the entrepreneur's central role in the economy is to absorb, manage and reduce uncertainty. Despite this, a discussion of uncertainty has remained absent from models of taxation of entrepreneurship/entrepreneurs.

Knightian uncertainty is often acknowledged as important, but it has proven difficult to model and close to impossible to measure. The discussion here is therefore speculative. It may indeed be more realistic to view most probabilistic events in the unknown as a mixture of risk and uncertainty. While the probability distribution of non-trivial experiments is seldom precisely known, forming some measure of the probability distribution is in most cases quite possible.

Taking uncertainty into account influences the analysis of taxation. Because uncertainty can be reduced by investing time and effort in learning, the entrepreneur's handling of uncertainty differs crucially from risk. Indeed, transforming incalculable uncertainty into calculable risk may be viewed as one of the central roles of entrepreneurship.¹¹ Yet the classic models of

¹¹ Entrepreneurs are not alone in facing uncertainty. Large public firms that enter new markets, governments that deal with new types of economic crisis, or agencies that attempt to explore space all face uncertainty. The argu-

taxation of risky investments fail to include this type of investment. If entrepreneurial learning that reduces uncertainty is socially beneficial, taxation of profits decreases the incentives for engaging in a valuable activity. This welfare result would stand in contrast to the effects of taxation in a model that includes risk but not uncertainty and learning.

6.6 Taxation of Entrepreneurial Function or Organizational Form

Entrepreneurship is a function that usually occurs within the contractual form of self-employment. The state is incapable of directly taxing the function, and is thus restricted to mandating rules for entrepreneurship's most common guise: the owner-managed firm. Taxation is not the only capacity to suffer from the problem of observing an imperfect proxy of entrepreneurship; all public policy toward entrepreneurship shares the same fate (and, for that matter, all empirical investigations of entrepreneurship as well).

Evaluating the extent of this problem depends on which theory of entrepreneurship one adheres to. Theories that emphasize rapid growth and innovation see a clear contrast between truly entrepreneurial firms and the vast majority of the non-innovative self-employed. Indeed, such a theory holds that the entrepreneurial self-employed are more similar to large innovative firms than to other self-employed firms.¹² At one extreme, many self-employed firms are pure tax entities, engaged in no entrepreneurial activity whatsoever; this consideration has, for example, dominated the design of the Nordic dual system. Other theories that emphasize residual property rights or the market's responsiveness would see more of a continuum separating the "purest" entrepreneurial firms from other self-employed. The self-employed restaurateur cannot be compared to the founder and operator of a Silicon Valley startup, but she is still more entrepreneurial than the hired manager of a chain restaurant.

While no tax system can be geared perfectly toward the entrepreneurial function, taxes should at least not punish the form in which entrepreneurship often takes place. Furthermore, some of the issues we discuss here, such as credit constraints, are not unique to the entrepreneur; they

ments here only presuppose that entrepreneurs face some uncertainty, not necessarily that they face more or most of the uncertainty in the economy.

¹² A thorough discussion of the tax treatment of intrapreneurial talent is beyond the scope of this paper. We can simply note that the innovative intrapreneur is likely to work in rapidly growing sections of firms, and be rewarded with residual property rights that emulate ownership, such as stock options, more than other employees. Thus, the taxation of stock options and similar reward instruments are likely to be especially important for the behavior of intrapreneurs.

may also apply to the non-entrepreneurial self-employed, who enjoys a role of her own in the economy.

7. The Nordic Dual Income Tax

The dual income tax was introduced in Sweden, Norway and Finland as part of comprehensive tax reforms. In specifying the details of the tax system, the economic theory of taxation has in part driven policy formation in Sweden (Agell et al. 1998, SOU 2002:52, Lindhe et al. 2004, Sørensen 2008). This also holds true for other Nordic countries (Sørensen 2001).

According to the electorate's standard political preferences, labor should be taxed less heavily than capital, both on average and on the margin. Income from one's own toil is often considered more legitimate than investment income. Moreover, it is more evenly distributed than capital income. Yet, most dual tax systems impose lower and often flat tax rates on capital, while taxing labor income heavily and progressively. This occurs because dual taxation attempts to strike a compromise between the goals of efficiency and equality. The regressive effect of taxing capital at a lower rate is accepted since dual income taxation makes it easier to tax skilled workers at higher rates.¹³

Differences in the sensitivity of tax bases dictate the dual tax's attraction (e.g., Sørensen 1994, and Cnossen 2000). Capital income is thought to be more responsive to both the level and to the progressivity of the tax rate. While capital is transferable, human capital is almost completely tied to specific individuals. Capital can flow across national borders at low cost, whereas labor/human capital mobility requires migration.¹⁴ The same underlying difference makes capital more sensitive to high levels of progressivity, as well as to the average level of taxation. While it is relatively easy for the rich to transfer ownership of financial capital (for example to kin) in order to reduce the marginal rate, labor income is closely tied to the individual and is thus hard to transfer.

¹³ Cnossen (2000) argues that high marginal taxes on labor are a better way to reduce inequality than capital taxation, since the latter taxes the choice to postpone consumption, while the former is a tax on innate ability. He adds that "rank and status in modern societies are related less and less to differences in wealth and more and more to differences in human capital." However, the distinction is far from obvious. Innate ability only translates into high income through effort and human capital investments, both of which are sensitive to taxation. In any case, wealth holdings tend to be strongly correlated with high wages, so that both taxes tend to fall on the same individuals.

¹⁴ Additionally, both capital and in particular labor can internally "migrate" into the black market or to untaxed household production as a response to taxes (Davis and Henrekson 2005, Prescott 2004).

Several European countries have moved elements of their tax system towards the dual income model (Eggert and Genser 2005; Genser and Reutter 2007). Prominent economists have advocated introducing a dual income system in the rest of Europe and elsewhere (Sørensen 2009). Cnossen (2000) suggests that the Nordic dual income tax system should be adopted by the European Union as a whole. He argues that this would enable high progressive tax rates on labor income when coupled with low taxes on capital (for efficiency reasons). But this principle becomes somewhat less clear-cut when considering the self-employed. In general, tax authorities divide the surplus of entrepreneurial firms into capital and labor income. In turn, the state specifies a presumed return on parts of the firm's equity to determine the capital share.

Dual income tax systems' separation of capital income from progressive income taxation of wages is said to help small, open economies strike a better balance between multiple policy goals, such as attracting mobile international capital while maintaining high redistributive expenditures (e.g., Zodrow 2006, and Cnossen 2000).

Keuschnigg and Dietz (2007) propose introducing a dual income tax in Switzerland. Their analysis is primarily focused on the tax advantages of debt financing for large firms, but features a typically incomplete model of taxation of entrepreneurial firms. One important problem stemming from the dual taxation of the self-employed in Nordic countries is resolved by proposing that the effective tax on capital income be set equal to the highest marginal tax on labor income. This eliminates both the incentives for arbitrage and the need for complex income splitting rules. But Keuschnigg and Dietz (2007) are not alone in their approbation; the dual income tax is also viewed favorably by other leading capital taxation scholars. Zodrow (2006) writes that the dual income tax "deserves serious consideration by governments who are attempting to design capital income tax policy in the face of increasing capital mobility and international tax competition."

However, the dual income tax system must first solve the problem of taxing entrepreneurs by not allowing the market process (in combination with accounting standards) to separate total income into economically appropriate categories. Indeed, the administrative costs and potential distortive behavior that arise when the self-employed face different tax rates on income more or less artificially designated as capital and labor income have been referred to as "the

Achilles heel of the dual income taxation system” (Sørensen 1994). We take this one step further, arguing that perfectly dividing the income of entrepreneurs into a capital and labor component is theoretically impossible, even when administrative obstacles are disregarded. Nor is there any economic law that says that the choice must be made between a dual and a uniform tax system. Based on analogous Ramsey-principle type arguments, one could, for example, imagine a triple income taxation system, in which capital income, wages and entrepreneurial income are taxed separately and at different rates.

Under the Swedish dual income system of taxation, the “normal” rate of return of capital is imputed by the tax authority. Returns exceeding this level are assumed to be labor income, and taxed at a higher progressive level. The normal rate of return is calculated as the risk free interest rate plus a risk premium determined by the state. In order to calculate the rate of return, the equity base of the firm must be calculated. However, the owner is not permitted to expand the firm’s capital base using what the tax system views as labor income. So even if consumption is postponed and labor (or entrepreneurial) earnings are reinvested in the firm, the return on labor originating in investments will be taxed as labor earnings. This approach toes the philosophical line set by the labor theory of value, which saw labor as the original source of capital wealth, therefore attributing all subsequent earnings to labor.

Such a system leaves entrepreneurs at a disadvantage compared to passive investors. This is true even if the split rate correctly reflects the average market rate of return of private equity. Since entrepreneurial investments are discrete in nature, and since entrepreneurs are not able to carry over losses from bad to good investments, a distortion will arise as a result. Assume that the split rate is indeed binding for investment decisions, and that returns above 10 percent are taxed at 50 percent. Further imagine a risk-neutral investor who can invest in an entrepreneurial enterprise that gives 0 percent return half the time and 20 percent return the rest of the time (the investment itself is always recovered). The entrepreneur can also invest in the public market, and get a return of 8 percent. Even though the rate of return allowance is 2 percentage points above the market rate in this example, taxation will induce the entrepreneur to make the socially less productive investment. This is so because good outcomes exceed the split rate, whereas bad outcomes cannot be netted against good outcomes. Such a tax rule would have been less harmful if it had been placed on returns on public equity, since it is possible to pool investments across many firms and projects. Ironically, with its assumption of risk

smoothing, the tax system designed for owner-managed businesses is particularly ill-suited for characteristically discrete entrepreneurial investments.

Kanniainen et al. (2007) demonstrate that the Nordic dual tax is seldom neutral. In particular, they examine the dual taxation system's impact on startups, where it affects investments, career decisions and the quality of entrepreneurs. This conclusion is reached in a model that incorporates startup decisions, uncertainty, and a schematic depiction of firms' growth life cycle (but not the joint supply of capital and labor).

The principle of neutrality is itself not immune to criticism. It assumes implicitly the same responsiveness for all forms of taxed income, which is not always true. Sørensen (2005), for example, points to the potential conflict between neutral and optimal taxation that occurs when elasticities differ across different forms of capital. The introduction of dual taxation was itself based on the premise that the tax elasticity of labor and capital differed. This distinction is likely to hold equally true for entrepreneurial effort, a category that the dual income tax system ignores.

While dual taxation highlights the difficulty of taxing entrepreneurial income under a model that implicitly assumes away the existence of entrepreneurial income, the issue is not unique to the Nordic dual system. Single income systems have the luxury to remain agnostic about the source of income from a tax collection viewpoint. However, modeling and estimating the source of the income of entrepreneurs is still important from other perspectives. For instance, disentangling the income of entrepreneurs is important for national accounting (Gollin 2002).

The recent debate about the highest marginal taxes in the U.S. centered to a considerable extent around the incidence of taxes on small businesses, with opponents of the tax increase arguing that taxes on small business income would hurt entrepreneurial activity (e.g., Norqvist 2008 and Wall Street Journal 2008). Indeed a sizable share of top incomes in the U.S. emanates from small businesses. However, much of this is earned by high income non-entrepreneurs, who have incorporated for tax and legal reasons. Some is earned by non-entrepreneurial owners–managers, and some by entrepreneurs (yet another portion is earned by intrapreneurs, employees who pursue entrepreneurial activity). Disentangling these components is important for the policy debate, and can only be done through a workable model of entrepreneurial income.

8. Concluding Remarks

The inherited theory of capital income should not in its unadjusted form be used to evaluate the effects of taxation on entrepreneurship, as they abstract from key economic mechanisms that give rise to entrepreneurial income. This is not to deny that the cost of capital framework and the principle of neutrality have been valuable tools for economists and policy makers alike. But models derived from the behavior of public firms should not be applied to the taxation of entrepreneurial firms without proper adjustment.

Entrepreneurial effort generally consists of the joint supply of labor and capital held by the unique owner–manager. Due to non-contractibility with external financiers, owners can rarely decouple their saving and investment decisions, and they are required to provide much of the initial financing of the firm themselves. Similarly, the labor supply decision of a proprietor is closely tied to investments, as the two are strongly complementary. The limited supply coupled with the significant value creation through the entrepreneurial process give rise to expected returns that exceed the market return for the opportunity cost of work hours and postponed consumption. When properly defined, entrepreneurial income should thus not be considered as excess return that can be taxed away without behavioral effects and negative welfare consequences.

This has important implications for tax policy. When capital and labor are taxed separately, taxation of capital can affect the supply of entrepreneurial effort, and vice versa. Personal taxation of owners-managers may similarly affect firm expansion and hiring decisions, unlike taxes on passive owners. Thus, entrepreneurial income cannot be split into labor income and capital income as the dual income tax theory suggests. Another (empirically testable) implication of our arguments is that the cross elasticity of supply of entrepreneurial effort – in terms of hours and intensity – is positive and statistically and economically significant with respect to entrepreneurial capital. Conversely, the cross elasticity of supply of entrepreneurial capital is positive with respect to entrepreneurial effort. We would, for example, predict that the Nordic dual system reduces the supply of entrepreneurial capital both through less injections and through lower investments of retained earnings, even though the Nordic dual system ostensibly only adversely taxes self-employed effort. This prediction is in contrast to models based

on the new view that analyze the Nordic dual tax, and which predict that the cost of capital and the equilibrium amount of firm capital is unaffected by the tax on “labor” alone.

Models of capital taxation can be misleading when applied to situations in which entrepreneurship is important. Such models have been used to analyze the taxation of small business owners, concluding in turn that this represents a “free lunch” in terms of distortions. This does not hold true when a broader set of decisions and constraints faced by entrepreneurs are taken into account. Still, these models have in many cases provided the basis for public policy. Future research in the theory of taxation should therefore pay attention to the particular nature of entrepreneurship, including aspects such as complementary resources provided by the individual entrepreneur and missing markets for entrepreneurial effort and uncertainty bearing.

Due to the multifaceted nature of entrepreneurship, and the lack of one coherent and agreed upon model, entrepreneurship would in our opinion best be integrated into capital taxation theory in an incremental way. Likely the most fruitful outcome, in line with the economic approach to market distortions, is to use separate models that each focus on a few assumptions underlying the base model. Separate models could each incorporate one or more unique aspects associated with entrepreneurial activity into existing models and analyze the implications. We have pointed to some assumptions, such as capital constraints and the joint supply of capital and labor, which we expect would alter the tax neutrality result.

References

- Achleitner, Ann-Kristin, Jutta Allmendinger, Hariolf Grupp, Dietmar Harhoff, Patrick Llerena, Joachim Luther, Gero Stenke, Ulrich Schmoch, Petra Meurer and Ulbricht Lena (2009), “Research, Innovation and Technological Performance in Germany.” Berlin: Commission of Experts for Research and Innovation (EFI).
- Agell, Jonas, Peter Englund and Jan Södersten (1998), *Incentives and Redistribution in the Welfare State – The Swedish Tax Reform*. London: Macmillan.
- Aghion, Philippe and Peter Howitt (1992), “A Model of Growth through Creative Destruction.” *Econometrica* 60(2), 323–351.
- Apel, Mikael and Jan Södersten (1999), “Personal Taxation and Investment Incentives in a Small Open Economy.” *International Tax and Public Finance* 6(1), 79–88.
- Auerbach, Alan J. (1979), “Share Valuation and Corporate Equity Policy.” *Journal of Public Economics* 11(3), 291–305.
- Auerbach, Alan J. (2002), “Taxation and Corporate Financial Policy.” In Alan J. Auerbach and Martin S. Feldstein, eds., *Handbook of Public Economics*, Vol. 3. Amsterdam: North-Holland.
- Bank, Steven A. and Brian R. Cheffins (2008), “Tax and the Separation of Ownership and Control.” In Wolfgang Schön, ed., *Tax and Corporate Governance*. Berlin: Springer-Verlag, 111–161.
- Baumol, William J. (2004) “Education for Innovation: Entrepreneurial Breakthroughs versus Corporate Incremental Improvements.” In Adam B. Jaffe, Joshua Lerner and Scott Stern, eds., *Innovation Policy and the Economy, Volume 5*. Cambridge, MA: MIT Press.
- Baumol, William J. (2009), *Toward the Elementary Micro Theory of Innovative Entrepreneurship; Schumpeter*

- Formalized*. Book Manuscript. New York University.
- Becker, Gary S. (1962), "Investment in Human Capital: A Theoretical Analysis." *Journal of Political Economy* 70(1), 9–49.
- Bianchi, Milo and Magnus Henrekson (2005), "Is Neoclassical Economics Still Entrepreneurless." *Kyklos* 58(4), 353–377.
- Bitler, Marianne P., Tobias J. Moskowitz and Annette Vissing-Jørgensen, (2005). "Testing Agency Theory with Entrepreneur Effort and Wealth." *Journal of Finance* 60(2), 539–576.
- Blanchflower, David G. (2004), "Self-Employment: More May not Be Better." *Swedish Economic Policy Review* 11(2), 15–73.
- Bruce, Donald and Tami Gurley (2004), "Taxes and Entrepreneurial Entry: An Empirical Investigation Using Longitudinal Tax Return Data." In *Proceedings of the 97th Annual Conference on Taxation*, National Tax Association, 336–343.
- Bradford, David F. (1981), "The Incidence and Allocation Effects of a Tax on Corporate Distributions." *Journal of Public Economics* 15(1), 1–22.
- Brockhaus, Sr., Robert H. (1980), "Risk taking Propensity of Entrepreneurs." *Academy of Management Journal* 23(3), 509–20.
- Cagetti, Marco and Mariacristina De Nardi (2006), "Entrepreneurship, Frictions, and Wealth." *Journal of Political Economy* 114(5), 835–870.
- Carroll, Robert, Douglas Holtz-Eakin, Mark Rider and Harvey S. Rosen (2000a), "Income Taxes and Entrepreneurs' Use of Labor." *Journal of Labor Economics* 18(2), 324–351.
- Carroll, Robert, Douglas Holtz-Eakin, Mark Rider and Harvey S. Rosen (2000b), "Entrepreneurs, Income Taxes, and Investment." In Joel B. Slemrod, ed., *Does Atlas Shrug? The Economic Consequences of Taxing the Rich*. New York: Russell Sage.
- Carroll, Robert, Douglas Holtz-Eakin, Mark Rider and Harvey S. Rosen (2001), "Personal Income Taxes and the Growth of Small Firms". In James M. Poterba, ed., *Tax Policy and the Economy 15*. Cambridge, MA: MIT Press.
- Chetty, Raj and Emmanuel Saez (2005), "Dividend Taxes and Corporate Behavior: Evidence from the 2003 Dividend Tax Cut." *Quarterly Journal of Economics* 120(3), 791–833.
- Chetty, Raj and Emmanuel Saez (2006), "The Effects of the 2003 Dividend Tax Cut on Corporate Behavior: Interpreting the Evidence." *American Economic Review* 96(2), 124–129.
- Chetty, Raj and Emmanuel Saez (2007), "An Agency Theory of Dividend Taxation." NBER Working Paper No. 13538.
- Chetty, Raj, Anders Frederiksen, John N. Friedman, Tore Olsen, and Luigi Pistaferri (2009), "The Effect of Adjustment Costs and Institutional Constraints on Labor Supply Elasticities: Evidence from Denmark." Working Paper, University of California at Berkeley.
- Cnossen, Sijbren (2000), "Taxing Capital Income in the Nordic Countries: A Model for the European Union?" In Sijbren Cnossen, ed., *Taxing Capital in the European Union*. Oxford: Oxford University Press.
- Coase, Ronald H. (1937), "The Nature of the Firm." *Economica* 4(4), 386–405.
- Cullen, Julie Berry and Roger H. Gordon (2007), "Taxes and Entrepreneurial Risk-taking: Theory and Evidence for the U.S." *Journal of Public Economics* 91(7–8), 1479–1505.
- Davis, Steven J. and Magnus Henrekson (2005), "Tax Effects on Work Activity, Industry Mix and Shadow Economy Size: Evidence from Rich-Country Comparisons." In Ramón Gómez-Salvador et al., eds., *Labour Supply and the Incentives to Work in Europe*. Cheltenham, UK: Edward Elgar.
- Dietz, Martin D. (2005), "Capital Income Taxation, New Firm Creation, and the Size Distribution of Firms." Working Paper, December.
- Domar, Evsey D. and Richard A. Musgrave (1944), "Proportional Income Taxation and Risk-Taking." *Quarterly Journal of Economics* 58(3), 388–422.
- Eggert, Wolfgang and Bernd Genser (2005), "Dual Income Taxation in EU Member Countries." *CESifo DICE Report* 3(1), 41–47.
- Genser, Bernd and Andreas Reutter, (2007), "Moving Towards Dual Income Taxation in Europe." *FinanzArchiv* 63(3), 436–456.
- Gentry, William M. and R. Glenn Hubbard (2000), "Tax Policy and Entry into Entrepreneurship." *American Economic Review* 90(2), 283–287.
- Gentry, William M. and R. Glenn Hubbard (2004), "Entrepreneurship and Household Saving," *Advances in Economic Analysis & Policy* 4(1), 1053–1053.
- George, Henry (1879 [1911]), *Progress and Poverty*, Everyman Edition. London: J. M. Dent.

- Gollin, Douglas (2002), "Getting Income Shares Right." *Journal of Political Economy* 110(2), 458–474.
- Hall, Robert E. and Dale W. Jorgenson (1967), "Tax Policy and Investment Behavior." *American Economic Review* 57(3), 391–414.
- Hansson, Åsa (2009), "Are Small Business Owners More Successful in Avoiding Taxes: Evidence from Sweden." Working Paper 2009:6, Department of Economics, Lund University.
- Harberger, Arnold (1962), "The Incidence of the Corporate Income Tax." *Journal of Political Economy* 70(3), 215–240.
- Heaton, Jonathan and Deborah Lucas (2000), "Portfolio Choice and Asset Prices: The Importance of Entrepreneurial Risk." *Journal of Finance* 55(3), 1163–1198.
- Holtz-Eakin, Douglas, David Joulfaian and Harvey S. Rosen (1994a), "Sticking It Out: Entrepreneurial Survival and Liquidity Constraints." *Journal of Political Economy* 102(1), 53–75.
- Holtz-Eakin, Douglas, David Joulfaian and Harvey S. Rosen (1994b), "Entrepreneurial Decisions and Liquidity Constraints." *RAND Journal of Economics* 25(2), 334–347.
- Holtz-Eakin, Douglas, Mark Rider, and Harvey S. Rosen (2001), "Personal Income Taxes and the Growth of Small Firms." In James M. Poterba, ed., *Tax Policy and the Economy. Vol. 15*, Cambridge, MA: MIT Press.
- Hubbard, R. Glenn (1997), "How Different Are Income and Consumption Taxes?" *American Economic Review* 87(2), 138–142.
- Jensen, Michael C. (1986), "Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers." *American Economic Review* 76(2), 323–329.
- Jorgenson, Dale W. (1963), "Capital Theory and Investment Behavior." *American Economic Review* 53(2), 247–257.
- Jorgenson, Dale W. (1967), "The Theory of Investment Behavior." In Robert Ferber, ed., *Determinants of Investment Behavior*. New York: National Bureau of Economic Research.
- Jorgenson, Dale W. and Ralph Landau (1993), *Tax Reform and the Cost of Capital: An International Comparison*. Washington D.C.: Brookings.
- Kanbur, S. M. Ravi (1982), "Entrepreneurial Risk Taking, Inequality, and Public Policy: An Application of Inequality Decomposition Analysis to the General Equilibrium Effects of Progressive Taxation." *Journal of Political Economy* 90(1), 1–29.
- Kanniainen, Vesa, Seppo Kari and Jouko Ylä-Liedenpohja (2007), "Nordic Dual Income Taxation of Entrepreneurs." *International Tax and Public Finance* 14(4), 407–426.
- Kaplow, Louis (1995), "Taxation and Risk Taking: A General Equilibrium Perspective." NBER Working Paper No. 3709.
- Keuschnigg, Christian and Martin D. Dietz (2007), "A Growth Oriented Dual Income Tax." *International Tax and Public Finance* 14(2), 191–222.
- Keuschnigg, Christian and Søren Bo Nielsen (2004), "Start-ups, Venture Capitalists, and the Capital Gains Tax." *Journal of Public Economics* 88(5), 1011–1142.
- Keuschnigg, Christian and Evelyn Ribi (2009), "Profit Taxation and Finance Constraints." University of St. Gallen Department of Economics Working Paper Series 2009-05
- Keynes, John Maynard (1921), *A Treatise on Probability*. London: Macmillan
- Kihlstrom, Richard E. and Jean-Jacques Laffont, (1979), "A General Equilibrium Entrepreneurial Theory of Firm Formation Based on Risk Aversion." *Journal of Political Economy* 87(3), 719–748.
- King, Mervyn A. (1974), "Taxation and the Cost of Capital." *Review of Economic Studies* 41(1), 21–35.
- King, Mervyn A. (1977), *Public Policy and the Corporation*. London: Chapman-Hall.
- King, Mervyn A. and Don Fullerton, eds. (1984), *The Taxation of Income from Capital. A Comparative Study of the United States, the United Kingdom, Sweden and West Germany*. Chicago: University of Chicago Press.
- Kirzner, Israel M. (1973), *Competition and Entrepreneurship*. Chicago: University of Chicago Press.
- Kleven, Henrik Jacobsen and Esben Anton Schultz (2009), "Estimating Reported Income Responses Using Danish Tax Reforms". Working Paper, Department of Economics, London School of Economics.
- Knight, Frank H. (1921), *Risk, Uncertainty and Profit*. Boston: Houghton Mifflin Company.
- Lazear, Edward E. (2004), "Balanced Skills and Entrepreneurship." *American Economic Review* 94(2), 208–211.
- Lindhe, Tobias, Jan Södersten and Ann Öberg (2004), "Economic Effects of Taxing Different Organizational Forms under a Dual Income Tax." *International Tax and Public Finance* 11(4), 469–485.
- Marx, Karl (1891), "Wage Labour and Capital." English translation of pamphlet published in German in *Neue Rheinische Zeitung*, 264–267 & 269, April 5–8 and 11, 1849.
- McClelland, David C. (1961), *The Achieving Society*. Princeton, New Jersey: Van Nostrand.

- Modigliani, Franco and Merton H. Miller (1958), "The Cost of Capital, Corporation Finance and the Theory of Investment." *American Economic Review* 48(3), 261–297.
- Morck, Randall K. and Bernard Yeung (2005), "Dividend Taxation and Corporate Governance." *Journal of Economic Perspectives* 19(3), 163–180.
- Nordhaus, William D. (2004), "Schumpeterian Profits in the American Economy: Theory and Measurement." NBER Working Paper No. 104333.
- Norqvist, Grover (2008) "An Argument against Obama's Tax Plan." *Politico.com* 7/11/2008. <http://www.politico.com/news/stories/0708/11670.html>.
- OECD (2009), *OECD Annual National Accounts, Vol. 2, 1970–2007*. Paris: OECD.
- Poterba, James M. (2004), "Taxation and Corporate Payout Policy." *American Economic Review* 94(2), 171–175.
- Prescott, Edward C. (2004), "Why Do Americans Work So Much More than Europeans?" *Quarterly Review of the Federal Reserve Bank of Minneapolis*, July, 2–13.
- Rosen, Harvey S. (2005), "Entrepreneurship and Taxation: Empirical Evidence." In Vesa Kannianen and Christian Keuschnigg, eds., *Venture Capital, Entrepreneurship and Public Policy*. Cambridge, MA: MIT Press.
- Ricardo, David (1817), *On the Principles of Political Economy and Taxation*, 3rd ed. London: John Murray.
- Rydqvist Kristian, Joshua Spizman and Ilya Strebulaev (2009), "The Evolution of Aggregate Stock Ownership—a Unified Explanation." CEPR Discussion Paper No. 7356.
- Saez, Emmanuel (2009), "Do Tax Filers Bunch at Kink Points? Evidence, Elasticity Estimation, and Salience Effects," Working Paper, University of California at Berkeley.
- Schultz, Theodore W. (1961), "Investment in Human Capital." *American Economic Review* 51(1), 1–17.
- Schultz, Theodore W. (1979), "Concepts of Entrepreneurship and Agricultural Research." Kaldor Memorial Lecture, Iowa State University, October.
- Schumpeter, Joseph A. (1934), *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.
- Shaviro, Daniel (2004), "Replacing the Income Tax with a Progressive Consumption Tax." *Tax Notes* 103(14), 91–101.
- Sillamaa, Mary Anne and Michael Veall (2001), "The Effect of Marginal Tax Rates on Taxable Income: A Panel Study of the 1988 Tax Flattening in Canada." *Journal of Public Economics* 80(3), 341–356.
- Sinn, Hans-Werner (1991a), "The Vanishing Harberger Triangle." *Journal of Public Economics* 45(3), 271–300.
- Sinn, Hans-Werner (1991b), "Taxation and the Cost of Capital: The 'Old' View, the 'New' View and Another View." In David F. Bradford, ed., *Tax Policy and the Economy* 5. Cambridge, MA: NBER.
- Slemrod, Joel (2007), "Cheating Ourselves: The Economics of Tax Evasion." *Journal of Economic Perspectives* 21(1), 25–48.
- Sørensen, Peter Birch (1994), "From the Global Income Tax to the Dual Income Tax – Recent Tax Reformes in the Nordic Countries." *International Tax and Public Finance* 1(1), 57–79.
- Sørensen, Peter Birch (2001), "The Nordic Dual Income Tax – In or Out?" Invited speech given at the meeting of the OECD Working Party No. 2 on Fiscal Affairs in Paris.
- Sørensen, Peter Birch (2005), "Neutral Taxation of Shareholder Income." *International Tax and Public Finance* 12(6), 777–801.
- Sørensen, Peter Birch (2008), "The Taxation of Business Income in Sweden." Commissioned report. Stockholm: Ministry of Finance.
- Sørensen, Peter Birch (2009), "Dual Income Taxes: A Nordic Tax System." Working Paper, Economic Policy Research Unit, University of Copenhagen.
- SOU 2002:52, *Beskattning av småföretagare. Del 1. 3:12-reglerna*. Betänkande av 3:12-utredningen. Stockholm: Fritzes.
- Stiglitz, Joseph E. (1973), "Taxation, Corporate Financial Policy, and the Cost of Capital." *Journal of Public Economics* 2(1), 1–34.
- Stiglitz, Joseph E. (1988), *Economics of the Public Sector*. 2nd edition. New York, NY: Norton.
- Tullock, Gordon (1967), "The Welfare Costs of Tariffs, Monopolies, and Theft." *Western Economic Journal* 5(1), 224–232.
- Wall Street Journal (2008), "Socking it to Small Business: The Obama Plan is an Incentive to Hire Fewer Workers." October 21, available at: <http://online.wsj.com/article/SB122455021772252457.html>.
- Williamson, Oliver E. (1975), *Markets and Hierarchies: Analysis and Antitrust Implications*. New York: Free Press.

Zodrow, George R. (2006), "Capital Mobility and Source-Based Taxation of Capital Income in Small Open Economies." *International Tax and Public Finance* 13(2), 269–294.