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Entrepreneurship and the Theory of Taxation

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ENTREPRENEURSHIP AND THE THEORY OF TAXATION^{*}

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Abstract: A review of the literature on firm taxation reveals that the economics of entrepreneurship has only recently and gradually been taken into consideration, and not yet sufficiently so. We discuss how this affects conclusions derived from standard models of capital taxation when applied to entrepreneurial income, identifying some defining features of entrepreneurship important for analyzing the effects of taxation of owner-managed firms in the process. 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 savings 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, falling in deep contrast to what is typically assumed in taxation theory.

When distinct attributes of entrepreneurship are taken into account, certain conclusions of capital taxation models no longer hold, including the neutrality of capital taxation in owner-managed firms. Cost of capital formulas derived from the behavior of public firms 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.

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1. Introduction

Advances in the theory of taxation in recent decades have had a significant impact on public policy. Many, if not 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 the 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, publicly financed 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 already 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 has a tendency to underestimate the distortions caused by taxing entrepreneurial firms.

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 United States 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, suggesting in turn that viewing the entrepreneur as a distinct factor of production could offer a solution.

2. Entrepreneurs in Taxation Theory

The usefulness of economics hinges on the ease with which concepts in question can be formalized and captured in models. Yet the entrepreneurial function seems to elude analytical tractability. This problem does not plague taxation theory alone, but embodies rather a general predicament in neoclassical economics (Bianchi and Henrekson 2005). Baumol (2008), 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 classic-

al 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 2008).

While few economists would dispute the importance of entrepreneurship for growth and efficiency, entrepreneurs are either seldom included in models, or implicitly assumed to function as any other workers or investors. Phelps (2007, p. 544–545, italics in original) notes, for example, that micro-founded neoclassical theory, for all its immense advantages, also introduced limitations, as it

...abstracted from the distinctive character of the modern economy—the endemic uncertainty, ambiguity, diversity of beliefs, specialization of knowledge, and problem solving. As a result it could not capture, or endogenize, the observable phenomena that are endemic to the modern economy—innovation, waves of rapid growth, big swings in business activity, disequilibria, intense employee engagement, and workers’ intellectual development...

The development of new macroeconomic theory has allayed many of these limitations in analyzing dynamic problems. Entrepreneurship, however, has yet to be successfully incorporated into models, and is often disregarded altogether.

Kopczuk and Slemrod (2006) draw attention to the absence of firms and firm theory in modern taxation theory, writing that they are often assumed to be “simply mechanical vehicles for combining productive inputs into output in cost-minimizing proportions.” Transactions within the boundaries of the firm evade taxation more easily; tax compliance is higher when more transactions are carried out through arm’s length relationships. Their model demonstrates the importance of including contractual arrangements and organizational forms in understandings of taxation theory.

Proponents of this state of affairs readily indicate that entrepreneurship is embedded in the processes that drive markets to equilibrium. That said, the missing entrepreneur is not a problem in and of itself. Models and assumptions do not have to be descriptively true, as long as predictive power and the workings of analyzed processes are not compromised (Friedman 1957). A compelling case can, however, be made that the failure to explicitly incorporate the entrepreneur has led to models that overlook key elements of the topic under investigation, including the cost of capital framework and entrepreneurial income. Asimakopulos and Burbidge (1975) argue that including or abstracting from the entrepreneur in a taxation model influences the analysis. The interpretation of the marginal return on capital can change, for example, and taxation can influence the return on entrepreneurial effort even when the cost of

capital itself remains unaffected. Asimakopulos and Burbidge (1975) write: “The imposition of a profit tax on one sector will affect the earnings of the entrepreneur in that sector even though the marginal product of capital remains equal to the rate of interest in all sectors.”

Neglecting the entrepreneur in theories of taxation has resulted in potentially misleading policy implications. Indeed, issues of secondary importance in analyses of large, established firms may prove crucial when analyzing small entrepreneurial businesses.

3. A Framework for Analyzing Entrepreneurship

Entrepreneurship has a distinct character marked by risk, dynamism (Schumpeter 1934), uncertainty (Knight 1921), liquidity constraints (Holtz-Eakin et al. 1994) and the inability to separate savings 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). This article 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 and entrepreneurship, as well (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 innovator-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 individu-

als make optimal decisions, exert a high level of effort, assume very high risks and bear the requisite uncertainty, incentives must 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 capital 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). Entrepreneurs tend to have both substantially more savings and a higher savings to income ratio than other households (Gentry and Hubbard 2004). 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). Even when narrowly defined, entrepreneurs hold more than half of the total household assets of the top percentile of wealth distribution (Gentry and Hubbard 2004, Cagetti and De Nardi 2006).

Heaton and Lucas (2000) demonstrate the importance of entrepreneurial income in household portfolio decisions. The imputed value of proprietary business income constitutes a significant share of national equity holdings, especially among rich households below retirement age. Financial models of portfolio choice gain significantly more explanatory power from taking entrepreneurial income into account.

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

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. The relative advantage of managerial and entrepreneurial control in agency terms and more generally differs from situation to situation, depending on technology, optimal establishment size and industry structure.

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. 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).

seem to substitute away from stocks. Another explanation could of course be the aforementioned agency costs that drive entrepreneurs to own an excessively large portion of the equity of their firm (as seen from a diversification perspective). Interviews with successful entrepreneurs confirm that the overwhelming majority was initially funded by modest amounts of personal assets (Gentry and Hubbard 2004).

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. 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 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.³ 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 In the economy as a whole, capital and labor also affect each other's marginal returns. In this case, however, each agent is too small to influence the stock of capital and labor and take this effect into account. Financial markets serve to enable separation of savings, investment and effort instead.

4. Entrepreneurial Income

First, 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 illustrates that the super rich account for a considerable share of total assets. Interestingly, self-made billionaires hold more than 60 percent of this net worth in the United States and other Anglo-Saxon countries, mostly on account of entrepreneurial firms.⁴ In Europe, the corresponding figure reaches about 40 percent. Yet these figures are substantially underestimated, as much additional wealth either emanates from self-made billionaires' 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 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. As exhibited among the super rich and most other entrepreneurs, this income does not fit the simple labor-capital division of sources of 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

⁴ The exceptions largely involve athletes and media personalities, where production functions involve unique talent but no capital investments (Murphy et al. 1991). The wealth proportions are based on our own calculations from the 2006 list.

represent economic rents, or 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.⁵ 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 would 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.

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

Imagine a production function with three factors of production: labor, capital and entrepreneurial effort. Assume a well-functioning economy, so that any rents are competed away. Further assume that this economy is approximated with a production function that only includes capital and labor. It is likely that the incomplete model would point to the existence of “rents” in areas of the economy intensely coupled to entrepreneurship.

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.⁶ 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.

⁵ This is not always the case. Feldstein (1977) demonstrates that the taxation of even pure land rent can have economic impact, for example through portfolio effects.

⁶ 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.

Since many, perhaps even most, entrepreneurial ventures fail to produce an above-market return, those that succeed will *ex post* earn returns that are far higher than the expected *ex ante* return on entrepreneurship. There are thus two components of *ex post* “rents” that exceed the firm’s costs for traditional factors. The first has a long-run expected value of zero, and is analogous to the equity return above the market rate for passively invested capital, where some firms earn above-market returns *ex post*, and some below-market. This above-market return simply constitutes compensation for those entrepreneurial ventures that either fail or generate below-market returns (both for capital and for labor). This component would exist despite the existence of transaction costs limiting the external financing of entrepreneurial ventures, and with free entry as well. Returns that are only positive *ex post* for some firms are not entrepreneurial rents, and do not differ from stocks or portfolios of above-average performance.

The second, and more interesting, component of the above market return is the *ex ante* expected “rent” with a positive expected value that compensates for the supply of entrepreneurial effort. This represents the scarce intersection of entrepreneurial talent, willingness to take risks and exert effort, and the opportunity to invest in new ventures. As stated previously, entrepreneurial income should not be interpreted as a mere combination of return from capital and labor, but rather as the reward for supplying *a joint bundle of required components*, including ideas, efforts and savings.⁷

“Rent” is often used to describe earnings obtained through the diversion rather than creation of wealth.⁸ 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.⁹ If so, entrepreneurial “rents” do not differ much conceptually from the rent of workers (wage income) and the rent earned by savers (interest rate).¹⁰

⁷ The duration of above-market returns varies substantially. Rents with the fastest decay involve activities that are easy to imitate because their knowledge or skill is not embodied in a specific individual or organization. In such cases, the knowledge is easily transmitted at low cost and disseminates rapidly through the economy.

⁸ 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).

⁹ Disregarding potentially offsetting income effects.

¹⁰ Taxes can of course also affect the sum of entrepreneurial rents through price changes with part of the incidence on entrepreneurship. If high personal taxes limit demand for output intense in entrepreneurial effort (such as personal services), the return on entrepreneurship will fall.

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, it seems that these returns more closely resemble those earned by factors of production, and should thus be referred to as *entrepreneurial income*.

6. 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).

In certain (but far from all) situations involving entrepreneurs, including entrepreneurial income as separate from labor and capital income increases analytical clarity. 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. Unraveling the return to entrepreneurship from that to capital and labor is relevant to the analysis of taxation in several ways. One such case occurs when the cross-price elasticity of entrepreneurship with regard to capital is different than between capital and hired labor. Separating entrepreneurship from capital and labor as a distinct factor of production assumes meaning if the saving and labor supply decisions of entrepreneurs are sufficiently inseparable within the same firm or project.

Empirical observations have illustrated that entrepreneurs behave differently than comparable wage earners, providing support for viewing entrepreneurship as a separate factor of production. One such aspect is the higher income elasticity with respect to taxes. 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 de-

scribe 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 also been blamed for discouraging entry into entrepreneurship (Gentry and Hubbard 2000).

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. Georgellis and Wall also (2006) report a U-shaped relationship between marginal taxes and self-employment.

Studies from many countries have consistently shown that the self-employed tend to have a higher elasticity of taxable income with respect to tax rates than employees (e.g. Sillamaa and Veall 2001, Chetty et al. 2009, Hansson 2009; Kleven et al 2009, Saez 2009). Yet this fact alone does not prove that entrepreneurship is a distinct factor of production. 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. Whether the self-employed also are more alert to the tax structure and more responsive to taxes in real terms has not been properly determined. It should be noted, however, that from a revenue-maximizing perspective, high levels of responsiveness imply that high tax rates on the self-employed shrink the tax base.

In addition to many theoretical models, policies such as dual taxation of labor and capital income rely on the assumption that the returns on the two activities can be both conceptually separated, and calculated and divided in practice. In this framework, the reward for time and effort constitutes labor income, while the reward for postponement of consumption and risk taking is taken as capital income. Yet the controversy of how capital income can be separated from labor income is old (Marx 1891). Markets reward resources that contribute to value creation—the marginal contribution times the price of the good. Labor is rewarded not only because it is a required input in production (demand side), but also because it is scarce (supply side). A fixed amount of potential hours coupled with dislike for toil limits the supply of

hours, which then raises the return on labor. The return on capital can be explained in similar terms. The physical limitations are less important here, especially in terms of capital that does not depreciate. Alternatively, the supply of capital is restricted by a positive rate of time preference, risk aversion and a positive valuation of liquidity.¹¹

The entrepreneur is rewarded for both effort and the postponement of consuming firm equity in an uncertain future. But the earnings of owner-managers are likely to be more complicated 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—which further restrains the supply of entrepreneurship.

As a result, the supply of entrepreneurship tends to be more constrained than labor or capital, explaining the above-market returns earned by entrepreneurs (controlling for capital and labor output). The inability to decouple saving, investment and effort incites the need for entrepreneurial talent and opportunity to intersect, unlike labor and capital markets. Moreover, potential entrepreneurs with high-quality ideas and talent are few and far between. Still, 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.

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

¹¹ In well-functioning markets, the return to each factor of production is a function of demand (determined by the value of its marginal contribution to production) and supply (determined by constraints of the factor due to physical limitations and its return in the best alternative use). Contributing to production is in itself not sufficient for generating income, since without scarcity the factor would be used to such an extent that its marginal value product would fall towards zero, the classical examples being air, water and sunshine. Labor is, in essence, limited due to the physical limitations of number of workers and hours per day, coupled with the value of leisure, while the supply of capital is inelastic because savers must be compensated both for postponing consumption and assuming risk.

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 thus 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.

Becker (1971) notes that “entrepreneurial capacity” can be seen as an independent factor of production, defining it as “resources supplied by owners of firms that do not have perfect substitutes among hired factors.” Entrepreneurship is simplified as decision-making ability constrained by agency problems, since the owners are uniquely able to protect their interests. Factors hired in the market, such as managers, board members and accountants, or even partners, never possess equally strong incentives to protect the owner’s interests. Assuming fixed costs in entering entrepreneurship, the supply curve should initially slope downward. At some point, though, it should reverse and begin to rise as the opportunity cost of the time and attention of the entrepreneur gradually increases, while the postponement of consumption becomes increasingly costly.

Many if not most enterprises require a sustained inflow of effort and capital to attain maturity. Due to imperfect markets for capital and innovative ideas, the entrepreneur must work with the firm while postponing the consumption of its equity in order for an idea to develop into an innovation and become marketable. Reducing *either* savings or effort below a sufficient level will cause the value of the firm fall to zero. Small firm growth requires time, during which the entrepreneur must be willing to postpone consumption by not withdrawing equity or being forced to infuse additional equity. Multiple factors explain this state of affairs, including knowledge accumulation, liquidity constraints (Holtz-Eakin et al. 1994a) and the tax incentives that encourage entrepreneurs to begin with smaller than optimal injections of capital and later grow to the preferred size (Sinn 1991). Initially, the marginal return on investments financed by retained earnings is very high, while investments in intangible assets are illiquid until the firm has matured.¹² This injection of initial capital—often quite small (Gentry and

¹² With the exception of classical examples such as brand name and reputation, this includes the process by which ideas are turned into innovations by entrepreneurial firms,. Reducing uncertainty, transforming tacit

Hubbard 2004)—is thus not the main component of savings. Instead, the entrepreneur creates “capital” by combining the initial investment, the innovative idea and work effort. Thus, the quantitatively important savings decision does not constitute the initial capital injection, but rather the fact that entrepreneurs refrain from withdrawing the equity value of their firm before they have matured in terms of production efficiency and asset tradability.

That entrepreneurial activity is inherently uncertain is widely acknowledged. Yet discussions of the discrete nature of entrepreneurial creation occur far less often. The ability to separate capital and labor income relies on supply decisions being made both at the margin and independently from each other (except through the utility function), which does not hold true when the entrepreneur is the individual supplier of complementary inputs. The value of the firm does not increase until the *product idea* is turned into a marketable commodity using *entrepreneurial effort* and *entrepreneurial investment*. All three components are required to create value, but all three of them are embedded in one single individual and one tax subject, who takes all margins into account when making decisions.

7. Taxation of Entrepreneurial Firms

7.1 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 (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, 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. Debt financing is also more

knowledge into organizational capital or other more tangible forms, and resolving the information asymmetry problem that prevents separate evaluations of the idea eventually increase the transferability of entrepreneurial assets.

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 Landau 1993). Indisputably, 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.

7.2 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. 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 savings 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 simply 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 United States. 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 reality. 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.¹³

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. Kanniainen 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 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,

¹³ 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.

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.

7.3 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 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 surpasses 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.”¹⁴

¹⁴ 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.

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 these devices’ substantive economic role.

7.4 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 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 and conglomerations. 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 plays 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; at any rate, 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 is oft-neglected: *the causes for the failures in financial markets do not apply to (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.”

7.5 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.

Knighitian uncertainty is often acknowledged as important, but it has proved 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.¹⁵ Yet the classic models of 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

¹⁵ 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 arguments here only presuppose that entrepreneurs face some uncertainty, not necessarily that they face more or most of the uncertainty in the economy.

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.

8. 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.¹⁶

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.¹⁷ 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.

¹⁶ Cnossen (2000) argues that high marginal taxes 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.

¹⁷ 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), and 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 fur-

ther, 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 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 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.

9. Defining and Measuring Entrepreneurial Income

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 proprietor 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 one 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 and News Corp), 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 entrepre-

neurship for national income, although it does not result in an underestimation of the earnings of 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.

To take one example, the official measure “entrepreneurial income” only constitutes a small fraction of Swedish factor income. This statistic grossly underestimates the earnings of entrepreneurs, arising from its narrow definition of both entrepreneurs and income. The measure excludes incorporated proprietors, and only takes some forms of business earnings into account. As reported, Swedish self-employed income sits far below that of salaried workers, and is clearly underestimated. Including capital income reduces the gap, but even average total factor income of self-employed households is somewhat lower than the average for salaried workers. By contrast, consumption surveys indicate that the average expenditure of the self-employed hits a rate of some 11 percent above that of workers (Statistics Sweden 2001). This is also true in the U.S., where the consumption expenditure of the self-employed was 13 percent higher than that of employees in 2005 (U.S. Bureau of Labor Statistics 2007).

Another category usually identified as self-employed include 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).

Both 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.

Capitalist owners constitute another non-entrepreneurial group present in some data. Here again, it is 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.

10. Concluding Remarks

In short, the inherited theory of capital income cannot be used to evaluate the effects of taxation on entrepreneurship, as they abstract from key economic mechanisms that give rise to entrepreneurial income.

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.

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 no longer holds 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. Empirical studies should also begin to estimate the quantitative importance of the effects identified and discussed in this paper.

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