The Quarterly Journal of Austrian Economics

VOL. 13 | NO. 2 | 3–30
SUMMER 2010

Ownership and Competitive Dynamics

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ABSTRACT: Changes in ownership titles are essential to understanding competitive dynamics and, more broadly, the market process. There is ample evidence that a crucial source of productivity growth, and hence wellbeing, is due to the reallocation of inputs and outputs from less to the more productive firms. Furthermore, ownership is essential in stimulating and shaping this reallocation process. We argue that a primary role of ownership in an economy is to supply fuel and precision to this reallocation process, as argued by Austrian economists, most notably Ludwig von Mises. Part of the economic function of ownership is that it eases entrepreneurial experimentation and provides an incentive to engage in such activities. These activities can be carried out with varying degrees of competence; in other words, "ownership competence" is unevenly distributed across entrepreneurs. As Mises recognized, the unhampered market process is required to sort among the entrepreneurial embodiments of such ownership competence.

KEYWORDS: ownership, the market process, entrepreneurship

JEL CLASSIFICATION: D23, D83, G34

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INTRODUCTION

There is accumulating evidence that competitive dynamics in the form of entrepreneurial initiative, new firm formation, mergers and demergers, "churning," etc. strongly impact economic growth. For example, Foster, Haltiwanger, and Krizan (1998) estimate that competitive dynamics through reallocation of productive assets account for about 50 percent of aggregate productivity growth. Moreover, hampering the automatic restructuring of industries in developed countries has been shown to imply a penalty in terms of forgone growth (Audretsch, Carree, van Stel, and Thurik 2003).[1] While these "stylized facts" would come as no surprise to the classical economists, to Joseph Schumpeter or to Ludwig von Mises, mainstream economists have been surprisingly late with respect to linking such firm- and industry-level dynamics with economy-level growth. In fact, much of the existing evidence is due to business historians, non-mainstream economists, and entrepreneurship scholars (e.g., Chandler, 1990; Pelikan, 1993; Chandler and Hikino, 1996; Bresnahan and Malerba, 1999; Wennekers and Thurik, 1999; Ahn, 2001; Audretsch et al.; 2003).

In this paper we examine some of the conceptual micro-underpinnings of the competitive dynamics/growth link. In particular, we argue that the category of *ownership* needs to be brought more explicitly into these discussions and linked to entrepreneurship. Many competitive processes involve the establishment of new firms as vehicles that facilitate realizing entrepreneurial judgments concerning novel uses of assets to meet future demands (Knight, 1921; Mises, 1949; Foss and Klein, 2005; Foss, Foss, Klein and Klein, 2007). And many competitive processes involve changes in the boundaries of established firms, as these engage in experimental processes of merging or divesting (Klein and Klein, 2001; Matsusaka, 2001; Teece, 2003). These changes give rise to processes of entry (both acquisitive and greenfield), exit (both by closure and by divestment), and shifts in market share between incumbents (both organically and via mergers and acquisitions). Such processes involve changes in ownership titles, whether assets are acquired by

[1] In a more reduced form and cross-country analysis, Bjørnskov and Foss (2010) show that entrepreneurship (measured as new firm formation) strongly and positively impacts total factor productivity. See also Wennekers and Turik (1999).

entrepreneurs in order to form new firms or whether established firms change their boundaries or size. Thus, ownership would seem to be an analytical category that must assume a central role in the understanding of industrial dynamics, and, more broadly, the "selective function of the market" (Mises, 1949, p. 312).

Economic and business historians (e.g., Chandler, 1990) and corporate governance scholars (Shleifer and Vishny, 1997) have indeed often pointed to ownership arrangements and changes in such arrangements as crucial to the functioning of the market process. However, ownership as a distinct and crucial analytical category is almost conspicuous by its absence from most discussions of the market process and industrial dynamics, whether mainstream neoclassical, or evolutionary and Schumpeterian. Austrians have done a better job of linking ownership and the market process than most other economists (Mises, 1949; Rothbard, 1962; Klein and Klein, 2001); yet, even many Austrian discussions of the market do not touch on ownership issues. In fact, Kirzner (1973, 1975) explicitly abstracts from ownership in deciding to found his analysis of the market process on the "poor and penniless" entrepreneur (for critiques, see Rothbard, 1974; Salerno, 2007).

A possible reason why ownership is so often absent from discussions of industrial dynamics and the market process is that the dominant understanding of ownership does not link it to economic change. Some non-mainstream economists (e.g., evolutionists) neglect ownership as an analytical category, while mainstream economists fundamentally see ownership as a solution to various externality problems, whether externalities stemming from misaligned investment incentives (Hart, 1995), or from commons or anti-commons problems (Demsetz, 1967; Buchanan and Yoon, 2000). These treatments tend to obscure the role of ownership in a dynamic economy—a role, we argue, that turns on *easing the process of commercial experimentation*. Rudiments of such a view can be found in works such as Mises (1949), Littlechild (1986), Pelikan (1993), Klein and Klein (2001), and Foss, Foss, Klein and Klein (2007). The view is perhaps most directly associated with the Austrians, and particularly Mises's (1949) work: it is here that we find a simultaneous emphasis on entrepreneurial "appraisal" (Salerno, 1999) (i.e., entrepreneurial experimentation), the idea that asset ownership is necessary to carrying out entrepreneurial

ventures, the point that entrepreneurs are not equally competent with respect to exercising the functions of ownership, and on the role of the financial markets for reallocating ownership titles.

The overall purpose of the present paper is to reconstruct and take this view somewhat further. We begin by providing an empirical characterization of the link between reallocation processes and productivity growth. The overall conclusion here is that these processes are essential for productivity growth. Productivity advances as inputs and outputs are reallocated to new firms from failing ones, as competition between continuing firms shift resources toward the more productive, and finally as the reallocation processes motivate firms to improve what they are already doing. We then link productivity growth to ownership, arguing that ownership has a decisive influence on the magnitude and efficiency of these reallocation processes. How well ownership serves welfare and economic progress can (and should) thus be formulated as a question of how well ownership serves the reallocation processes associated with the market process. We conclude that this perspective should be the basis for discussions about the state of ownership in an economy, or evaluation of changes in the nature and composition of ownership, and, of course, public policy regarding ownership.

COMPETITIVE DYNAMICS AND PRODUCTIVITY GROWTH: FINDINGS AND STYLIZED FACTS

The Pace and Magnitude of Asset Reallocation

The pace and magnitude of processes of asset reallocation in a developed economy are substantial. In terms of job creation, Davis and Haltiwanger (1998) found that more than 10 percent of all jobs are created and more than 10 percent of all jobs are destroyed in any given year. Baldwin (1995) found that among continuing firms the average firm increased employment with 1.5 percent annually, but more interestingly, he found that these aggregate statistics did not reveal the true level of dynamics: behind the 1.5 percent aggregate employment growth was an average annual increase of employment among the growing firms of 7.8 percent, and an average decrease of employment among contracting firms of about 6.3 percent. Focusing on a 10-year horizon, Foster, Haltiwanger and Krizan (1998) estimated that the job creation rate (the sum of jobs created

by expanding incumbents and entrants divided by the average of the base and end year employment) was approximately 40 percent, and the job destruction rate about 45 percent (jobs destroyed by contracting and closing firms). Furthermore, and contrary to what might be expected, the reallocation of employment is only to a limited degree explained by general or industry specific business cycles. Dunne, Roberts and Samuelson (1989) found that for every job created in a growing industry, 0.604 jobs are lost in the same industry, and conversely, for every job destroyed in a contracting industry, 0.644 jobs are created. In terms of output, Baldwin (1995) found that over a decade a total of 44 percent of market share is shifted to the successful firms from the unsuccessful.

The overall picture emerging from these studies (and several others) is one of a massive reallocation of capital assets, jobs, and outputs. It is also noteworthy that the figures presented above are from the manufacturing sector. While data for the service sector are generally of poorer quality than those from manufacturing, a substantial amount of case evidence from the service sector has been accumulated. This evidence strongly suggests that the pace of reallocation in the service sector is significantly higher than in manufacturing (Foster et al., 2002; Ahn, 2001), implying that as economic activity is increasingly shifted towards services, the competitive dynamics just described increase even further.

Productivity and Efficiency Consequences

Studies of productivity typically document a wide dispersion of productivity levels within an industry. In a study of 23 manufacturing industries, Baily, Hulten and Campbell (1992) found an average difference in total factor productivity between the top 20 percent and the bottom 20 percent of about 2.75. Not only is the dispersion wide, but it also fairly stable (Baily et al., 1992). The fact that there are large and fairly stable variations in productivity indicates that competitive dynamics may play an important role in productivity growth by reallocating resources towards the more productive units. A growing literature attempts to quantify this contribution (see Foster, Haltiwanger and Kirzan, 1998; Bartelsman and Doms, 2000; Baldwin and Wu, 2003). What is decomposed is either total factor productivity growth or labor productivity

growth. The first level of decomposition is the distinction between the contribution from continuing firms, and the contribution from the turnover of firms.

Focusing first on the contribution from continuing firms, this component can be further divided into two parts. The first is the "*within*" effect, which captures the productivity growth of continuing firms weighted by their initial shares in the period studied. In other words this is the productivity growth arising from improvements by continuing firms, holding their market shares fixed. Note that this component is not directly linked to reallocation (but as noted below, there is probably a strong indirect link). The second is the "*mobility*" effect, which captures the productivity growth arising from reallocation of shares towards the more productive among the continuing firms. The contribution from the turnover of firms is called the "*net entry*" effect. This component will be positive if entrants have higher productivity than exiting firms.[2] Foster et al. (1998) decomposed productivity growth from US manufacturing 1977-1987, and found that competitive dynamics account for about 50 percent of the aggregate productivity growth. Furthermore, this 50 percent share consisted of a net entry effect and a mobility effect of roughly equal size (about 25 percent each). The remaining 50 percent was due to the "within" effect. Using UK manufacturing data covering the period 1980-1992, Disney, Haskel and Heden (2003) find an even larger share from reallocation: 80-90 percent of total factor productivity growth and 50 percent of labor productivity growth.[3] Overall, this demonstrates that the reallocation process described above is not a meaningless churning of inputs and outputs; it is a key engine of progress. In fact, the contribution from the "within" effect also seems to be heavily influenced by

[2] We abstract from some technicalities that are not important for our line of argument. For details regarding productivity decompositions see for example Baily, Haltiwanger and Hulten (1992); Griliches and Regev (1995) and Foster et al. (1998).

[3] There are studies that find a larger "within" effect. An extreme example is Baldwin and Gu (2003). Using Canadian manufacturing data for the period 1988-1997, and focusing only on labor productivity growth, they calculate the "within" effect to account for 98 percent. The difference across studies is mainly due to the contribution from continuing firm reallocation, while virtually all studies that focus on long time spans find a large "net entry" effect.

the reallocation process. Bartelsman, Haltiwanger and Scarpetta (2004) argue that the pace of entry and exit may be interpreted as a measure of competitive intensity, and may therefore induce incumbents to become more efficient. Correlating the productivity growth of incumbents with the contribution from net entry (in a large number of industries, in a large number of countries) resulted in a correlation of 0.58. Furthermore, they found a correlation between firm turnover rates and the productivity growth of incumbents of 0.33. Disney et al. (2003), and Baldwin (1995) both reach similar conclusions using different methodology and data. In combination this strongly suggests that the "within" component of productivity growth is far from independent of the process of reallocation, and may in fact be driven by it.

The Market for Corporate Control and Productivity

The findings reported above on decompositions of aggregate productivity growth generally do not count mergers and acquisitions as entry or exit. The unit of analysis is usually at the plant or establishment level, and change of ownership of an existing establishment is not regarded as entry, exit or transfer of market share. Therefore, the contribution from the market for corporate control to productivity growth is not revealed by these studies. However, there are strong reasons to believe that ownership changes do have productivity consequences. In fact, the contribution from the market for corporate control has been the centerpiece of considerable controversy in the academic literature. Studies using stock market data tend to find (weakly) negative returns to acquiring shareholders on average, which has led some to characterize the market for corporate control as destructive. Yet, these findings may only document a tendency towards overpaying for targets, and therefore they merely reveal a tendency to transfer of the full value (and then some) of any productivity gains to selling shareholders (Sirower, 1997). It does not represent evidence that the market for corporate control destroys value at large. An undisputable fact is that selling shareholders typically receive substantial premiums, but the question we must ask is if the gains to sellers exceed the loss to buyers. Andrade, Mitchell and Stafford (2001) summarize the stock market data, and conclude that the sum of the two is clearly positive, and furthermore, that this does not seem to be caused by transferring

value from other stakeholders. This would seem to indicate an overall positive productivity effect from control changes.

Such stock market evidence uses share price movements around the time of announcement to estimate the value creation (or destruction) from control changes. This involves a few notable assumptions. First, it relies on the stock market evaluations to be unbiased in the sense that the stock market neither systematically over- or undervalues the gains from combining firms. Second, the transactions must not be anticipated by the stock market so that share prices already reflect (entirely or partially) the value of the combination before the deal is announced. Finally, this methodology is only applicable to listed firms, which is not a representative sample of the universe of firms.

For these reasons it is certainly useful to complement the stock market data with micro-level productivity data. A useful point of departure is to ask whether the establishments destined for control changes are above or below average in terms of productivity. Initially, the findings on this issue were conflicting. Baldwin (1995) and Ravenscraft and Scherer (1989) both found evidence that units subject to control changes were above average in terms of productivity, while Lichtenberg and Siegel (1987) found the reverse: that divested units had initial productivity below average, and they observed substantial deterioration of productivity prior to the control change. McGuckin and Nguyen (1995) concluded that they were both right. They found that smaller establishments undergoing control changes were typically above average in terms of productivity, while the large establishments that underwent control changes were typically below average productivity. As summarized by Caves (1998), this seems to indicate that control changes involve attempts to either lift the performance of an unproductive large unit, or supply the resources needed to leverage the strength of a highly productive small one.

The obvious next question is whether these attempts are successful. The microeconomic data on productivity indicates that they are. Lichtenberg and Siegel (1987), Lichtenberg (1992), Baldwin (1995), McGuckin and Nguyen (1995), Maksimovic and Phillips (2001) all find that control changes are associated with increases in productivity for the target. Using accounting data on operating performance, Healy, Palepu and Ruback (1992)

found that the combined firms achieve improvements in asset productivity compared to their industry peers, but lost market share (possibly due to a regression to the mean effect). Andrade et al. (2001) report an improvement in operating margin of the combined entity of about 1 percent on average (compared to the industry median). Furthermore, Baldwin (1995) documented that the highest productivity and market share gains arise from related mergers, in particular when an established firm acquires from an exiting firm. Focusing on productivity changes by type of control change, Lichtenberg and Siegel (1990) found that units subject to LBOs and MBOs were more productive than average before the buyout, and that the productivity increased faster after the buyout than for other types of transactions.

In sum, the evidence shows that while spectacular examples of failures are not hard to find, this should not blind us to the fact that the general effect of the market for corporate control is constructive and productivity-enhancing. The function of the market for corporate control is to reallocate ownership of productive resources to their better uses (or users), whether it is a small unit in need of complementary resources, or larger units in need of better management. Without a market for corporate control, all such processes would have to occur organically, which would make the process of moving resources away from low productivity firms and toward successful ones considerably slower. The market for corporate control also probably interacts with other dynamic process, for example, by reducing the risks of greenfield entry and entrepreneurship via the option to divest in the future (cf. Matsusaka, 2001).

OWNERSHIP AND COMPETITIVE DYNAMICS

Having provided a stylized description of the process of competitive dynamics, and having reviewed the evidence documenting a strong link to productivity growth, we now turn to ownership. Our major point here is that a fruitful and comprehensive lens for discussing ownership is to look at how—and to what degree—ownership contributes to a process of competitive dynamics that advances productivity growth.

Ownership and the Competitive Process

Owners/capitalists supply the capital that allows new firms or business units to be born, and those that succeed in meeting consumer tastes to grow (Mises, 1949, p. 258). They also decline investing in some units and remove capital from others, leaving them to contract or close down. Ownership can also contribute various resources besides capital. Owners/capitalists in effect take on entrepreneurial functions in deciding where to deploy their capital and where not to. In this sense, they are ultimate decision-makers (Mises, 1949; Rothbard, 1962) who exercise what Knight (1921) called "judgment," that is, the cognitive faculty that allows decision-makers to make decisions in those situations in which there are no obvious decision-rules (Foss and Klein, 2005). As capital goods are fundamentally heterogeneous (Mises, 1949; Lachmann, 1956) and are combined to meet future, perhaps still non-existent demands, productive ventures require what may be called "skilled foresight," that is, the simultaneous ability to forecast in a superior manner future consumer preferences and to understand which combinations of capital goods that will satisfy these preferences in a profitable manner (Mises, 1949; Salerno, 1999; Foss et al., 2007). Among these capital goods may be the owner/entrepreneur's expertise in a specific field (e.g., an academic becoming a biotech entrepreneur) or relationships that can be made available to a firm.

Such skills or competences are clearly not uniformly distributed across capitalists/owners. As Pelikan (1993) notes, it is highly problematic that virtually no theory explicitly addresses the differential competencies with which owner/entrepreneurs exercise their decisions. Owners/entrepreneurs are not equally competent with respect to their investment behaviors, and this is bound to have consequences both for how well their own ventures fare and for overall resource allocation and wellbeing. Among the few theories to address this is the Misesian appraisement theory of entrepreneurship (Mises, 1949; Salerno, 1999), as well as the experimental, market process view of mergers and acquisitions developed by Matsusaka (2001; see also Klein and Klein, 2001). In short, ownership contributes to competitive dynamics by providing the capital that *fuels* the process, by *complementing* the portfolio of

resources possessed by a given unit, and by *screening* ideas, firms and decision makers.

Consider first the *fueling* function of ownership. The supply of capital to fuel the competitive process is (primarily) done by owners in the form of equity and by banks in the form of credit. If these sources were perfect substitutes, ownership would not be crucial for this function. If so, individuals with excess capital could deposit all their capital to banks, which could then lend this capital to firms. They are, however, not perfect substitutes, mainly because a bank does not have an upside, while an equity investor does. This means that a bank will not be able to supply capital to high risk/high expected return projects to the degree that an equity investor will. In other words, there will be projects that a well- diversified equity investor might find attractive, but a bank would not (unless risk can be transferred to equity investors). The excessive risk aversion that would ensue in a "banks only" economy would therefore mean less capital and less dynamics. This would presumably be worst for firms with a weak balance sheet, for example, because they are young and have not accumulated any reserves yet, or because of high debt due to rapid growth, because they mainly have assets with low liquidation value (intangibles), or because they are small and banks incur fixed costs in establishing and monitoring a loan. Obviously, such firms are important for a dynamic competitive process.

Next, consider the *screening* function. Screening of resource allocation decision and performance is performed both by managers and owners.[4] Again, if managers and owners were perfect substitutes with respect to this function, ownership would be far less important for competitive dynamics. Owners and managers are not perfect substitutes, however. Obviously, without screening by owners, there would be no one to screen the decisions and performance of top managers. Given imperfect interest alignment between owners and managers this screening is crucial for preventing that organizations are diverted from the goal of

[4] Banks may also perform a screening role. This role is typically limited to monitoring that specific ex ante conditions for the supply of credit is not violated, as specified in covenant agreements. A bank will therefore have limited influence on resource allocation until these conditions are violated or close to being violated.

maximizing shareholder value (Berle and Means, 1932; Fama and Jensen, 1983; Jensen and Meckling, 1976). Shareholder value maximization is in turn considered to be the goal that is most likely to lead firms to maximize productivity.[5] Deviation from shareholder value maximization will therefore imply a weaker link between competitive dynamics and productivity. Furthermore, even if there was no conflict of interest, reversal of inefficient resource allocation decisions and replacement of inefficient managers would be much slower if top managers were not subject to screening by owners. It is also noteworthy that the characteristic of the ideal owner differs across the fueling and screening functions. For the fueling function, a well-diversified owner with a small (and therefore liquid) stake will have the lowest cost of supplying capital. For the screening function the ideal owner will have a large stake. The reason for this is that while the costs of screening is incurred by the owner him- or herself, the benefits are shared proportionally with all other owners. Fragmented ownership therefore leads to a free-rider problem and an undersupply of the screening function (Shleifer and Vishny, 1986, 1997).

Finally, there is the *complementing* function. Ownership can provide a firm with access to complementary resources in two different ways. The first is the direct way, which involves owners making their own knowledge, their own networks, or other kinds of nonfinancial resources available to the firms they own. For young, entrepreneurial firms this is crucial since—at least initially—there will be few other resources accumulated. Similarly, experienced venture capitalists can contribute important nonfinancial resources to a young firm. This direct infusion will presumably decrease in relative importance as a firm accumulates more resources internally, but it may nevertheless be relevant even for large firms. Warren Buffett's competence is presumably important for the firms owned by Berkshire Hathaway, even if they are both large and mature.

The second way is indirect, and it operates through having (what might otherwise be independent) firms under common ownership.

[5] Shareholder value maximization may also lead firms to pursue market power, but in a modern economy few firms are so well entrenched that they can ignore the continuous race towards increasing productivity (Williamson, 1991).

At the heart of corporate strategy is the notion that common ownership permits benefits from sharing, combining and pooling resources that would be difficult to obtain otherwise (Penrose, 1959; Montgomery and Wernerfelt, 1988; Prahalad and Hamel, 1990). The underlying assumption here is that the alternatives for a firm, i.e., to obtain all complementary resources through internal accumulation or some form of external contracting, are often overly costly, time consuming, or both. Accessing complementary resources through integration under common ownership is therefore important to allow a firm with some strong resources to grow without being held back by the need to accumulate or contract for all complementary resources. The market for corporate control is of course vital to ensure that ownership to a given resource bundle is directed to the owners that can create the most value from it (Jensen and Ruback, 1983). In sum, ownership and ownership changes provide firms with a degree of freedom in accessing resources that makes the competitive process more intense and dynamic than would otherwise have been the case.

Ownership and the Net Entry effect

These functions of ownership may be linked to the decomposition of productivity growth in the previous section. It is convenient to start with the "net entry" effect. Recall that the net entry effect will be positive if new firms are more productive than the exiting firms they replace. For the entering firms to be more productive than the exiting ones, it is important that good ideas get realized (as new firms). The number of ideas that get realized will depend on the probability of attracting capital to an idea. If capital is in very short supply, some good ideas are likely to go unrealized because the person(s) holding the idea expects a low probability of being able to attract capital, and hence discards the idea. In other words, the *fueling* function of ownership is important to get ideas realized, or put differently, to secure a sufficient supply of ideas. Furthermore, the fueling function is important because if the cost of capital is too high for new firms compared to continuing firms, new firms will not be borne and expand at the rate they should. This implies that new firms will not replace poorly performing continuing firms at the rate they should, and the net entry component of productivity

growth will suffer. However, if owners are poor at screening the good ideas from the bad (or capital is available in excess), too many bad ideas will attract capital. Hence, the *screening* function is important to make sure that the right ideas attract capital. If too many bad ideas attract capital entrants are not likely to be superior to exiting firms, and as a result the net entry effect will contribute little (or even negatively) to productivity growth.

Finally, it is often important that owners supply complementary resources that are difficult for a newborn unit to assemble on its own. If not, the economy will not get what it could have from each realized idea, and the net entry effect will be reduced because new firms do not grow in size and productivity as rapidly as they might have, given access to *both* capital and complementary resources. This *complementing* function also points to the need for a market for corporate control, where ownership is allowed to change as the need for complementary resources changes. Ideally, the market for corporate control should also be fiercely competitive, so that transactions push rewards backwards to the original idea holders and early investors (that typically have borne the greatest risk). This in turn will provide further stimulus to the supply of ideas, and make it more attractive to supply capital and complementary resources to the better ones. In terms of this function, ownership should represent a dynamic process of matching the needs of an idea (a firm) with heterogeneous owners.

Ownership and the Mobility Effect

Turning now to what we above labeled "the mobility effect," that is, productivity growth coming from increases in the market shares of established firms with high productivity at the expense of firms with lower productivity. To illustrate the relationship between ownership and this component of productivity growth, we shall consider continuing firms as to varying degrees possessing three essential inputs: ideas, capital and complementary resources. Ideas can be good or bad, with the distinction being that good ideas will increase average productivity, and bad ideas will reduce it. Capital is equity capital the firm uses in the pursuit of ideas. Firms are either short of capital or they are unconstrained by it. Complementary resources are additional resources needed to pursue

ideas (Lachmann, 1956). We shall assume that complementary resources are costly to assemble for firms, so that unless a firm already possesses the complementary resources needed to realize its ideas, it will be both quicker and more cost efficient to have owners supply them (instead of developing them in-house) (Teece, 1986). Some firms will have good ideas and possess the complementary resources needed to pursue those ideas, but be short on capital, such as a relatively new, high productivity firm wishing to expand. If such a firm is not provided access to capital to fund its expansion, the mobility effect will be depressed because a high productivity firm is constrained in its growth, and as a result it is slowed down in the process of capturing both inputs and outputs from firms with lower productivity. The key function of ownership with respect to such firms will be the *fueling* function, since the firm needs capital and little else.

Other continuing firms may have good ideas, but lack both capital and complementary resources. For such firms, the *complementing* function is what is critical. The solution is to transfer ownership to a parent firm with the necessary complementary resources (or merge with one), which essentially means transferring ownership of the idea to whoever is best equipped to exploit it. If this is done, the firm is either in the position of the first category (i.e., a firm that has everything except sufficient capital pursue its ideas), or if the new parent has excess capital in addition to the desired complementary resources—there are no remaining constraints. For firms in this category, a well functioning market for corporate control is crucial, and it is also crucial that previous owners (or managers) do not value control for its own sake. This will essentially involve depriving the firm access to valuable complementary resources for the sake of maintaining control. Note also that since the idea is a good one, failure to match it with capital and complementary resources involves a forgone (or at least delayed) opportunity for productivity growth, and the mobility effect will be less than it could have been.

Finally, mature firms may have plenty of capital, but no good ideas, or even be pursuing bad ones. For such firms the *screening* function of ownership is critical (Pelikan, 1993). If the screening function is not performed properly, capital and other productive resources remain outside their best use, or even worse, they may

be actively destroyed by the pursuit of bad ideas. If the situation cannot be changed by replacing management with managers with better ideas (thereby changing the firm to a firm with good ideas), two options remain. If the firm possesses complementary resources that are valuable to other firms, the firm should be sold so that these resources are put to better use, and the capital released should be invested in firms with better ideas. If the firm does not possess any valuable complementary resources, the firm should be closed down as soon as possible releasing capital and labor to better uses. If not, the mobility effect will suffer because the pursuit of ideas that lowers productivity is not blocked, and because low productivity firms are not deprived of resources as quickly as they should be.

Ownership and the "Within" Effect

As noted above, the "within" effect refers to productivity improvements by existing firms, holding their initial shares constant. In other words, this component does not involve reallocation of shares. However, the incentives to create the within effect may, to a large extent, come from reallocation processes. The empirical finding of a strong association between competitive dynamics and the size of the within effect suggests that the possibility of winning or losing in the reallocation processes is important to ensure that firms constantly strive to increase their productivity. The role of ownership is therefore first and foremost to create a context of competition in input and output markets that provide this basic incentive to improve. This means that if ownership does a good job in terms of the net entry and mobility effect, it will also have stimulated the within effect.

While the competitive context is mainly influenced by the owners of other firms, the owners of the focal firm are, of course, important too. First of all, they decide the rewards and punishments for success or failure in the competitive process, and in doing so they may strengthen or weaken the incentives for progress. Moreover, the major goals, strategies and investment decisions of a firm need the owners' approval. Progress will therefore also depend on owners' ability to evaluate and improve these decisions, and more

generally to ensure that the interests of hired managers are not left to dominate decision-making.

IMPLICATIONS FOR THE UNDERSTANDING OF OWNERSHIP

Ownership Competence

So far, we have argued that reflecting on the stylized facts of competitive dynamics reveal a number of functions and dimensions of ownership that are given scant attention in mainstream economics. Thus, what we called the "complementing," "screening," and "fueling" functions of ownership seem to be essential to the functioning of the experimental market process. The different functions of ownership require different underlying skills, and while the owner remains the ultimate decision-maker (Rothbard, 1962), he can sometimes rely on the skills of others to perform the various functions of ownership (cf. Foss, Foss and Klein, 2007). For example, the owner-capitalist can hire investment analysts to screen ventures for him. Overall, the notion that ownership has different functions underpinned by different skills suggest that it may be possible to speak of "ownership competence" as an over-arching construct, that is, the competence with which owners exercise their fueling, complementing and screening functions in the competitive process.

While these functions may surely be informally invoked in discussions, for example, of corporate governance, we know of no systematic discussion that embeds them in an overall view of economic dynamics. Arguably, this is because such functions are particularly important in the context of a market process, characterized by entrepreneurial appraisal, given a highly uncertain future. And that is not a context with which mainstream economists have been comfortable. As we shall argue, however, Austrian economics offers a basic conceptualization of the competitive process that harmonizes with these functions, and it is arguable that the Austrians have gone further in the understanding of the crucial function of ownership in making possible the asset reallocation function of the market process.

Ownership in the Economics Literature

Menger (1871) begins (conventionally) by defining property rights as economic categories, arising out of scarcity, but then moves on (unconventionally) to note that ownership affords *flexibility* in the face of uncertainty. For example, he observes that fire extinguishers and medicine chests are owned precisely because of the unpredictability of the relevant states of nature (cf. Littlechild, 1986; Loasby, 1994). Böhm-Bawerk (1883) provides a lengthy and sophisticated discussion of the relation between the law, ownership and property rights. Mises (1936, p. 27) points out that ownership refers to "the power to use economic goods," and he emphatically argues that "… the economic significance of the legal *should have* lies only in the support it lends to the acquisition, the maintenance and the regaining of the natural *having*" (emphasis in original). In a later work, he notes the connection between property rights and externalities (Mises, 1949, pp. 654-655), and explains the emergence of various institutions of property in terms of considerations of changing scarcities (1949, pp. 650, 678, 679). Of course, the key point of Mises's calculation argument is that private ownership rights is a precondition for meaningful pricing (Mises, 1949), and the process of entrepreneurial appraisal is unthinkable in the absence of such rights. Since owners are heterogeneous with respect to which complementary resources they can provide, and firms are heterogeneous in terms of their needs, it is important that there exist a market where control rights can be traded. The possibility of transferring control via the market for corporate control serves to direct ownership of productive resources to the uses and users that can create the most value from them, as Mises (1920, 1936, 1949) strongly emphasizes.

While brief, the above summary suffices to suggest that Austrian insights on ownership and property rights have not been fully assimilated into mainstream economics (including property rights economics!). The key overall notion is that ownership and dynamics are very closely related. While ownership would still be enjoyed in the evenly rotating economy, its role and function would be narrowly circumscribed.

The linking of ownership and a dynamic economic reality is a very recent undertaking in the mainstream economics literature. In fact,

ownership as an analytical category was essentially sidestepped until Coase (1960). Much of the post-Coasian property rights literature (e.g., Alchian 1965; Demsetz 1964, 1967; Umbeck 1981) dealt with the meaning of ownership, the relationship between property rights and ownership, and the importance of legal considerations for understanding ownership. However, no clear understanding emerged of issues such as how much exclusivity over uses of assets is required before one qualifies as "owner"; what determines the observed concentration of different types of rights in the hands of one agent; and what is the role played by legal considerations in the understanding of ownership (cf. Foss and Foss, 2001)?

A main ambiguity in the literature concerns the extent to which ownership is defined by the recognition by others of a claim to ownership, that is, the extent to which exclusivity is based on a (explicit or implicit) recognition by other parties of the property rights of the owner or by the owner's own ability to maintain exclusivity. One may attempt to solve this ambiguity in various ways. One is to drop the concept entirely for purposes of economic analysis (while recognizing that the concept makes perfect legal sense), and instead concentrate exclusively on property rights and their allocation in contracts (as in complete contracting, principal-agent theory).

However, an Austrian perspective suggests that this strategy runs into problems in the face of unforeseen uses of assets. In this case, there is a need for an institution that allocates these use rights. In fact, this institution is the one that is normally called private ownership. Another strategy is to identify ownership with claims to exclusivity that are privately enforced and/or are enforced by various legal and non-legal institutions. This strategy makes ownership contingent on what is seen as constituting a recognized claim (Umbeck, 1981), so that ownership essentially becomes an expectation that an agent holds with respect to his ability to use and receive income from certain assets. We shall argue that this expectation depends not only on enforcement issues (i.e., the traditional focus of the property rights literature) but also on entrepreneurship.

Ownership and Entrepreneurship

In order to see how entrepreneurship connects to issues of property rights and ownership, consider the work of Barzel (1997).

Barzel consistently defines notions of property rights and ownership in terms of expectations. Thus, Barzel (1994, p. 394; emphasis in original) defines, echoing Mises (1936, p. 27), a property right as

> ... an individual's net valuation, in expected terms, of the ability to directly consume the services of the asset, or to consume it indirectly through exchange. A key word is *ability*: The definition is concerned not with what people are legally entitled to do but with what they believe they can do.

And like Mises, Barzel stresses the importance of the distinction between legal and economic rights. Whereas the former refers to a legally recognized holding of a title to an asset, the latter refers to those property rights over the "attributes" of an asset that agents expect to control. Attributes are (valued) characteristics and possible uses of assets, and there is a strong emphasis that assets are 1) multi-attribute and 2) heterogeneous to the extent to which they differ in terms of attributes. As Foss, Foss, Klein and Klein (2007) point out, this is closely related to the emphasis on heterogeneous capital goods in the Austrian theory of capital.

Although Barzel stresses property rights to *known* attributes of assets as the relevant units of analysis, it is important to stress that most assets have multiple non-specified and not yet discovered attributes. This creates a distinctly entrepreneurial role for asset ownership that is hard to grasp when entrepreneurship is assumed away. Demsetz points out that the notion of "full private ownership" over assets is "vague," and "must always remain so," because "... there is an infinity of potential rights of actions that can be owned…. It is impossible to describe the complete set of rights that are potentially ownable" (Demsetz 1988, p. 19). However, asset ownership confers a bundle of rights, including *rights to hitherto undiscovered attributes of the relevant asset*.[6] There are two aspects of this, one relating to trades of ownership titles, that is, bundles of rights, and one relating to capture of hitherto undiscovered attributes.

With respect to the former aspect, note that ownership reduces information, communication and contracting costs relative to a

[6] One obvious, but non-economic reason is that the legal system distinguishes between the law relating to contract and the law relating to ownership of assets.

situation in which it was necessary to contract over all these rights. Ownership eases the process of entrepreneurial arbitraging by allowing entrepreneurs to acquire, in one transaction, a bundle of rights to attributes (i.e., a distinct asset). This means that the parties do not have to engage in costly bargaining over many rights to single attributes. The dissipation of value is at a minimum. From this perspective the importance of ownership as the device that provides the complementing, fueling and screening functions to the market is that it performs these functions in a transaction cost minimizing manner.

Asset ownership also implies that one, at least as a starting point, possesses the rights to unspecified, hitherto undiscovered uses of the asset. Thus, for this reason an entrepreneur may prefer to acquire ownership of an asset rather than acquire a specified, finite list of rights to uses of an asset. In other words, ownership is a low-cost means of allocating the rights to attributes of assets that are discovered (or, if you prefer, created) by the entrepreneur/owner. As Littlechild (1986, p. 35) argued, it may pay to buy, say, the field at the bottom of one's garden from one's neighbor, if one takes into account "… that he may discover some new uses for the field that I haven't yet thought of, but would find objectionable." In a well-functioning legal system, ownership of an asset normally implies that the courts will not interfere when an entrepreneur/owner discovers and captures new attributes of his asset. A consequence of this is that it is not normally required that the entrepreneur/owner enter into costly negotiation with those agents that are affected by his discovery. In this way, too, the dissipation of value is minimized. However, there is also an incentive effect of asset ownership. Specifically, asset ownership implies a legally recognized right to the income of that asset, including the right to income from discovered attributes. Thus, a function of ownership is the distinct incentive it provides for entrepreneurial discovery and appraisal, for those restructurings and reallocations of heterogeneous assets that are such an important part of the competitive market process.

CONCLUSIONS

An unhampered market economy is characterized by a massive ongoing reallocation of inputs and outputs. This process of

reallocation is a crucial factor in productivity growth: in turn, productivity growth is the key to sustaining and increasing wellbeing. Competitive dynamics are manifest in processes of new firms displacing faltering firms, successful firms growing at the expense of less successful firms, and firms finding new and better ways of doing what they are already doing. In sum, competitive dynamics, through the process of reallocation, are at the core of economic progress. Ownership is essential to these processes. To use the imagery introduced earlier, it is important not only in supplying the capital that fuels the process, but also in evaluating where fuel should be added and where de-fueling is more appropriate. Ownership is also important because it supplies more than fuel (i.e., resources besides capital). This imagery may obscure the fact that these processes are by no means automatic ones, but require the intervention of speculating, appraising entrepreneurs who take ownership in assets to realize their entrepreneurial ventures. As emphasized by Mises (1949), entrepreneurs exercise their ownership rights with varying competence. The purpose of the competitive process is to sort among entrepreneurial initiatives; indirectly, it thereby tests the ownership competencies of capitalist-entrepreneurs. In contrast, under state ownership this evolutionary mechanism does not exist.

What is superior ownership competence is only revealed by the market ex post. One may therefore argue that anything that survives the market test does so because it is rooted in superior ownership competence. This argument abstracts from the role of luck in the market process. And it implicitly suggests that we do not need to pay attention to what are the components and determinants of ownership competence. From a scientific point of view, these are, however, highly relevant questions. The fact is that existing social science research is virtually silent about them. They may, however, be fertile ground for applied Austrian economics research.

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