

Steindl's Analysis of Firm Growth and the
Tendency Toward Industry Concentration

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A recurring theme in Steindl's analysis of firm growth is the tendency toward industry concentration. His earliest writings examine the influence of risk on firm growth (Steindl (1941, (1945a) and (1945b)).¹ He then turns his attention to the influence of technical progress (Steindl (1976), and, finally, to the influence of random processes (Steindl (1965)). In each of these analyses there emerges a tendency toward the concentration of industry.

Steindl takes the concentration of industry to be an established fact of mature capitalism and sees his analysis as providing an explanation for this fact. The same analysis provides the basis for the behavior patterns attributed to oligopolistic firms. He then examines the implications of the oligopolistic pricing and investment behavior for macroeconomic performance (Steindl (1976), (1979) and (1989)). The analysis of firm growth thus provides the foundation for Steindl's understanding of mature capitalism. The present essay examines Steindl's analysis of firm growth and evaluates his explanation of industry concentration.

1. Risk

Steindl analyzes the impact of risk on the growth of firms in two papers in Oxford Economic Papers, Steindl (1941) and (1945a), and in his monograph, Small and Big Business. The return on investment in this analysis is uncertain, but the firm is assumed to be able to estimate the variance of the return (Steindl (1941, 43-44)). Entrepreneurs demand a risk premium on investments to compensate for exposure to bankruptcy and loss of control that comes with the variance in return. The risk premium rises more than proportionately with the variance in return. At any point in time there exists a limited range of investments that yield a sufficient risk premium and this determines the equilibrium level of investment for the firm (Steindl (1945a, 21-23)).

Steindl argues that there is a difference in the opportunities for risk and return facing small and large firms. Economies of scale tend to raise the return to large units of capital above that of small units of capital (Steindl (1945b, 13-18)). This advantage is somewhat offset by the difficulties

of expansion in an imperfectly competitive market, but is reinforced by a reduced cost of borrowing for larger firms (Steindl (1945b, 18-21).

Steindl argues that the firm has limited access to capital. In the first instance this limit is set by the private wealth of the entrepreneur. This may be supplemented by borrowing, but the corresponding rise in the gearing ratio increases the variance of the firm's rate of return and the risk premium required on investment (Steindl (1945b, 42-44). Share issuance in a joint stock company allows opportunity for increasing investment without very much additional risk, but this opportunity is only available to entrepreneurs whose personal wealth is above a certain level (Steindl (1945a, 42)). Thus, the concentration of personal wealth provides the basis for a scarcity of firms controlling large units of capital.²

The scarcity of firms controlling large units of capital ensures that the returns on those opportunities available only to large units of capital are not competed down to a normal rate of return. There is no such scarcity of firms controlling small units of capital. Entrepreneurs who control large units of capital are therefore able to earn differential rents (Steindl 1945a, 44).

Steindl assumes in the simplest case that firms expand their capital over time only through internal accumulation, ie. by saving and reinvesting profits earned in excess of interest payments and dividends. He further assumes that firms have an equal propensity to save (Steindl 1945a, 33). When large firms earn a higher rate of return than small firms, they grow relative to small firms through a faster rate of internal accumulation. This leads to relative concentration of industry in the absence of entry of new firms.

Alternatively, large firms use their advantageous position to choose a lower risk exposure than that of small firms (Steindl 1945a, 32-33). In this case the rate of disappearance of large firms due to bankruptcy will be less than that for small firms. The disappearance of small firms leads to absolute concentration of industry. Absolute concentration is further encouraged if the rate of profit for the whole economy is constant or declining. In this case, the rate of profit for small

entrepreneurs will definitely be falling leaving more of them exposed to bankruptcy (Steindl 1945a, 37-39).

The differential rents obtained by large units of capital provide the basis for a concentration of capital in the economy. Whether the concentration occurs in relative or absolute form depends on the trend in the profit rate for the economy as a whole. At the level of the individual industry there is a tendency for the rise in overall concentration to be reflected in a rise in industry concentration due to a preference by entrepreneurs to invest in their established business to achieve the economies of scale. The only limit suggested to the tendency toward a rise in industry concentration is that concentration leads to the imperfection of competition. With imperfect competition, if an entrepreneur wishes to increase its market share at the expense of a competitor 'he has to incur such advertisement expenditure, or to make such price cuts, as to draw some of the latter's customers over to himself' (Steindl (1945a, 35)). Presumably, concentration in the economy as a whole continues as firms are free to diversify into other industries.

2. Technical Progress

Steindl expands his analysis of firm growth to examine the influence of technical progress in Maturity and Stagnation in American Capitalism. He continues with the argument noted above that there is a general advantage to large firms due to economies of scale. This combines with improvements in productivity that occur at an uneven pace across firms in the same industry to yield differences in the level of production cost even among firms in the same size class. These differential costs are the basis for differential rents applying to firms within an industry (Steindl (1976, 37-40)). Steindl then analyzes the impact of the cost differences on firm growth and on the concentration of the industry.

Firms with differing levels of production cost can coexist in the same industry in Steindl's analysis due to imperfect competition. He argues that industrialists assume, probably correctly, that

the price elasticity of demand for the product of their industry is quite low, so that a reduction in price would not greatly expand sales. Furthermore, they are concerned that raising price would attract new entry into the industry. Thus, with imperfect competition there is a general tendency to price rigidity (Steindl (1976, 14-17).

When prices are rigid, cost-reducing innovations lead in the first instance to an increase in the gross profit margins of the innovating firms. If the level of excess capacity for the firms with lowest unit production cost is within acceptable limits, these 'progressive' firms have no incentive to cut prices. This allows high-cost firms to survive, even when these 'marginal' firms do not gain access to the cost-reducing technology.

Steindl maintains the argument from his analysis of risk that investment by firms is tied to their internal accumulation. The higher profits earned by progressive firms therefore lead to expansion of their productive capacity relative to marginal firms. Eventually, the progressive firms become the largest firms in the industry. If the number of marginal producers is constant, the industry is subject to relative concentration in the sense of a faster rate of growth and growing market share for the limited number of largest firms (Steindl (1976, 40-42).

When technical progress raises the profits of progressive firms, there is an increase in the rate of internal accumulation for the whole industry and a resulting increase in the rate of growth of industry capacity. Eventually, the rate of growth of industry capacity exceeds the exogenously given rate of expansion of industry demand, so that unplanned excess capacity emerges. Progressive firms initially react to this unplanned excess capacity by engaging in aggressive price or selling competition. The marginal firms can not match the aggressive competition due to their smaller gross profit margins, so that they are forced to cede market share to the progressive firms and in some cases become bankrupt and exit the industry. The decline in the number and size of the marginal firms results in the absolute concentration of industry in the sense that the total sales of small firms as a group decline at the same time as the total sales of large firms as a group rise

(Steindl (1976, 42-43).

3. Random Processes

Random influences are implicit in Steindl's analyses of the effects of both risk and technical progress on firm growth. Probabilistic returns to investment are the source of the risk that impacts unevenly on firms of different sizes. Also, different degrees of technological innovation across firms contribute to the cost differentials that are the basis for differences in rates of internal accumulation and growth. Yet, neither the analysis of risk nor the analysis of technical progress formally models the mechanics of random influences.

Formal models of random influences on firm growth are examined in Steindl's Random Processes and the Growth of Firms. Here, Steindl treats a firm's growth in any period as a random event. He assumes the random events for each firm are identically and independently distributed in each period, so that the movement of the distribution of firm size over time is modelled as a stochastic process. He then examines the properties of such models as providing insights into the distribution of firm sizes and the level of industry concentration.

Steindl's basic model of stochastic firm growth is a birth and death process. The abstraction Steindl uses in explaining this process is the firm as a population of customers (Steindl (1965, chapter 2)). Customers enter (are born) and leave (die) the firm's population of customers randomly in proportion to the firm's pre-existing population. For a firm of any given age there is a probability distribution of the number of customers. New firms are assumed to enter the market at a fixed rate, leading to a mixed distribution of firms of various ages and sizes. If the process has been going on for a long time, there is a steady state of the stochastic process provided the parameters of the birth and death process and the rate of entry of firms are within certain limits.

Steindl considers the factors that influence industry concentration in the steady state of the birth and death process of customers. He suggests that either a rise or a fall in the industry growth

rate, as given by the difference between the birth rate and death rate for customers, can increase concentration in a new steady state (Steindl (1965, 70)).³ While there may be offsetting changes in the rate of net entry of firms, he concludes that 'the tendency toward concentration is to some extent endemic' (Steindl (1965, 72)). This is particularly the case when concentration is measured by the share of the few largest firms. For this share continues to grow through time even when there is a steady state in the sense that the mean size of firms in the industry has a constant expected value.

4. Comments

A consistent theme in Steindl's analysis of firm growth is the importance of diversity among firms. Diversity in the analysis of risk arises from inequality in the distribution of the wealth of entrepreneurs. In his analysis of technical progress diversity arises from an uneven pattern of technological innovation and the existence of economies of scale. Finally, in the analysis of random processes diversity is the outcome of a stochastic process of customer allocation.

The centrality of diversity across firms distinguishes Steindl's work from that in the Marshallian tradition of the representative firm. The distinction is quite purposeful, as Small and Big Business opens with an attack on this Marshallian tradition (Steindl (1945b, Chapter 1)). Thus, the following evaluation of Steindl's contribution to the analysis of firm growth and industry concentration emphasizes his treatment of diversity among firms.

By formalizing his analysis of random events as the source of diversity in the process of firm growth, Steindl is able to distinguish the steady state for the distribution of firm size from the diffusion process leading to that steady state. Diffusion occurs as a movement from an initial state in which there may or may not be differences in size across firms to the steady state in which the distribution of firm size is stabilized. He argues that diffusion can lead to a rise in the inequality of firm size and an associated rise in measured industry concentration, but that analysis of the process

of diffusion does not provide an alternative to an economic theory of concentration (Steindl (1965, 69)).

An economic theory of concentration, according to Steindl, concerns either the forces determining the distribution of firm size in the steady state or the reasons why a steady state is not achieved. In the case of a formal model of a random process of firm growth, whether or not a steady state is achieved and the distribution of firm size associated with any such steady state are both determined by the value of parameters of the random process. There is no formal model of a random process in Steindl's analysis of firm growth based on risk or technical progress, but the analysis does focus on factors that influence the rate of growth of individual firms, the rate of entry of new firms and the rate of exit of marginal firms.

The distinction between the determinants of the distribution of firm size in the steady state and the determinants of the distribution in a diffusion process is relevant to the evaluation of the analysis of industry concentration based on each of the three approaches to firm growth used by Steindl. A first question is whether in each analysis he provides an economic theory of concentration as opposed to simply a description of diffusion occurring within a random process of firm growth. A second question is the extent to which each of the analyses provides a coherent basis for his proposition that there is a tendency toward increased concentration in capitalism.

a. Steindl's theory of industry concentration

The analysis of concentration with a change in the industry growth rate in the customer allocation model satisfies Steindl's requirement for an economic theory of concentration. There is a clear separation of the analysis of the impact of the industry growth rate on concentration in the steady state from the analysis of changes in measured concentration that occur in the process of diffusion associated with a change in the growth rate. Steindl uses a comparison of steady states when he evaluates the impact on concentration of changes in the industry growth rate as the

difference between the customer birth and death rates. The intermediate diffusion process is relevant to this comparison only to the extent that the associated changes in profitability and survival of firms may impact on the rate of entry of new firms in the new steady state.

Customer birth and death rates are exogenously determined and independent of the firm's size in the customer allocation model (Steindl (1965, 46-47)). This means that the rate of entry of new firms is the only parameter of the stochastic firm growth process than can adjust to ensure the existence of a steady state. The achievement of a steady-state solution to the random process both before and after the change in industry growth rate requires that the rate of entry of new firms adjust within certain limits.

Steindl's discussion of the influence of industry growth rate on the rate of entry of new firms focuses on the competitive environment facing new firms (Steindl (1965, 70-72)). Conditions are more promising for entry when the industry growth rate is higher and less promising when the industry growth rate is lower. These changes are in the right direction to allow existence of a steady state, but there is nothing in the discussion that ensures the changes will be sufficient to guarantee a steady state will be established.

Steindl acknowledges that the analysis of the growth of firms as a birth and death process for customers is limited because it 'cannot describe the competitive advance or decline of firms in detail *except as random changes*.' (Steindl (1965, 47)). The competitive environment only has an influence on the rate of entry of new firms as noted above. Neglect of competitive advance and decline of established firms removes variation in customer birth or death rates across firms as alternative method for obtaining a steady state for the stochastic process of firm growth.

Differential competitive strengths of firms are central to Steindl's analysis of risk and his analysis of technical progress. Favored firms grow in size relative to those in the disadvantaged group.⁴ This difference in relative growth rates combines with the net rate of exit or entry of firms to determine movement in the distribution of firm size and the level of measured concentration in

an industry in a manner similar to that in the analysis of stochastic firm growth.

In the analysis of risk the larger firms are the favored firms, while in the analysis of technical progress the favored firms become the larger firms because they have lower costs and higher rates of internal accumulation. Steindl argues that there is little or no entry into the group of favored firms.⁵ The result is that the expected size of firms in this group tends to increase over time. This increase in expected firm size applies to the whole industry when the number of small firms declines with exits exceeding entry in the process of absolute concentration.

Steindl argues that his analysis of the pattern of competition leading to absolute concentration with either risk or technical progress 'provides us with a theory of concentration' (Steindl (1976, 51). Yet, in this pattern of competition the expected size of firms grows without limit. When the expected size of firms grows without limit, there is no distinction between concentration that results from the process of diffusion and concentration that might occur in a steady state. Without this distinction being possible or an explanation for absence of a steady state, the conditions that Steindl requires for an economic theory of concentration in his discussion of formal models of random processes are not met.

An economic theory of concentration begins to emerge in Maturity and Stagnation in American Capitalism only when Steindl addresses the impact of increasing concentration on firm behavior.⁶ He argues that as the dominance of favored firms increases they come to recognize their interdependence and break the link between their rate of profit and their rate of growth. When the firms recognize their interdependence, they reduce their investment to match the rate of growth of market demand (Steindl (1976, 53-55)). The conditions for a steady state in the random process generating the distribution of firm size may then be met.⁷

Unfortunately, the shift in investment behavior that occurs with increasing dominance by favored firms is not well developed. Neither the level of concentration in the steady-state distribution of firm size nor the determinants of this distribution are explained. This means that

there is an inadequate basis for formalizing the analysis of technical progress along lines similar to Steindl's model of customer allocation. Thus, substantial work remains if Steindl's analysis is to be completed to yield an economic theory of concentration as opposed to a description of a diffusion process.

b. The tendency toward industry concentration

If Steindl's analysis does not provide an economic theory of concentration, what sense can be made of his proposition that there is a tendency toward the concentration of industry in capitalism? One response is that Steindl is referring to the diffusion associated with disequilibrium of a random process of firm growth. The process of absolute concentration that is part of the analysis of firm growth with both risk and technical progress represents such a disequilibrium process. However, this interpretation does not fit well with Steindl's use of the concept of industry maturity.

The analysis of Steindl's theory of concentration above suggests that there is a shift in investment behavior with maturity. Prior to maturity firms expand through internal accumulation, investing in their existing industry an amount proportional to their profit. After maturity, firms refrain from further expansion when their internal accumulation would otherwise result in undesired capacity.⁸

The shift in investment behavior with maturity obstructs the working of the tendency toward concentration. If favored firms refrain from expansion through internal accumulation, there is no longer a basis for their growth relative to firms that do not earn differential rents. The increasing dominance of favored firms associated with disequilibrium in the process of absolute concentration comes to an end.

The association of maturity with an end to disequilibrium fits a particular interpretation of the meaning of the tendency toward increasing concentration in capitalism. In this interpretation it

is the increase in industry concentration, following the process of absolute concentration that leads to maturity. Maturity and the tendency toward industry concentration don't coexist, rather they follow sequentially as part of a dynamic of the pattern of competition.

If the disequilibrium preceding maturity is characterized as diffusion in a random process, then achievement of maturity may be viewed as the outcome of the random process with constant parameters. Steindl implies that maturity is an irreversible condition that occurred in historical time, specifically in the period leading up to the Great Depression. There seems no reason why the random processes working on the growth of firms in various industries in the American economy or any other established industrial economy should have resulted in a substantial number of industries crossing the threshold to maturity in the period leading up to the Great Depression. Furthermore, if random processes continue to operate after maturity is achieved, concentration in a mature industry may occasionally drop below the critical level required for mature behavior causing a reversion of the maturation process.⁹

An alternative way in which the achievement of maturity may be viewed is that the historical evolution of the institutions of capitalism alters the parameters of the random process of firm growth. It would need to be shown that as capitalism evolves the parameters of the random process shift in such a way as to generate more inequality of firm size or a smaller number of firms. This may be due to the effects of differing levels of risk or innovation or changes in the differential advantages of large firms. Unfortunately, Steindl's analysis of risk and technical progress is not well enough developed to indicate the types of changes that would lead to higher concentration in the steady state.

5. Rethinking Steindl's Theory of Industry Concentration

What are the essential components of Steindl's analysis of industry concentration? Three candidates stand out from the above discussion as being present in each of Steindl's approaches to

the analysis of the growth of firms. These are diversity among firms, continuity in the firm's circumstances across time and the influence of the pattern of competition on the entry and exit of firms. In addition, the modification of firm behavior in response to the pattern of competition is a feature that occurs only in his analysis of firm growth with technical progress.

The role of diversity among firms in each of Steindl's three approaches to the analysis of firm growth is discussed above. Continuity over time in the firm's position is also recognized in each approach. Continuity in the analysis of risk and the analysis of technical progress is achieved through growth by means of internal accumulation, so that the size of the firm in any time period depends on both size and profitability in the previous period. Continuity in the customer allocation model is achieved through treating the firm's customers as each subject to an independent growth and death process, so that size in any time period depends on both prior size and a random shock that is proportional to prior size.

Diversity and continuity interact in each approach to produce a diffusion process in which relative concentration occurs without limit when the number of firms the industry is constant and the behavior of firms unaffected by increasing concentration. The pattern of competition provides the potential limiting force to the tendency toward industry concentration by either influencing the net rate of entry of firms into the industry or by influencing the behavior of firms already in the industry. Thus, the influence of the pattern of competition on the net rate of entry or the behavior of established firms can provide the mechanism for converting the analysis of a diffusion process into an economic theory of concentration that includes an explanation of the transition to a steady state.

As noted in the discussion of Steindl's theory of concentration above, the pattern of competition has a very restricted role in his analysis of firm growth as a random process. Firm behavior has no effect on the growth or decline of its own or its rivals' population of customers. Instead, Steindl relies on the industry growth rate influencing the rate at which new firms enter the

market to explain how a steady state distribution of firm sizes may be re-established following a change in the rate of industry growth. He acknowledges this limitation, but apparently is unable or unwilling to broaden the role of the pattern of competition in this analysis.

Steindl provides a somewhat broader role for the pattern of competition in limiting concentration in an industry in his analysis of firm growth with risk. Here, Steindl (1945a, 36-37) suggests that firms choose to diversify when the imperfection of competition limits the opportunity for further expansion within their original line of business. This brings the process of concentration within the industry to a halt, presumably before the industry has become a monopoly. However, there is no equivalent process operating at the level of the economy as a whole.¹⁰

The analysis in which Steindl most fully develops the role of the pattern of competition is that of technical progress as set out in Maturity and Stagnation in American Capitalism. There is a discussion of the prospects for diversification, but the conclusion is reached that the flow of funds into other industries is impeded (Steindl (1976, 54-55). Instead, the emphasis is on the shift in investment behavior as the pattern of competition in the industry shifts from competition to oligopoly. With oligopoly comes the possibility that funds will be accumulated without being invested in the expansion of productive capacity in any industry. This provides the basis for the tendency to stagnation in mature capitalism as developed in Part II of the treatise.

As noted above, the shift in investment behavior accompanying the change from competition to oligopoly in Steindl's analysis is not very fully developed. Also, when the link between concentration and maturity is interpreted as a sequence with increasing concentration leading to mature (oligopoly) behavior, ambiguity arises as to the timing of the emergence of maturity and the possibility of reversion to competition. Addressing these points provides a possible avenue for a reconstruction of Steindl's analysis that would meet the criteria he sets for an economic theory of concentration.

One way forward is to adopt the vision of the firm as a self-expanding unit of capital. This

would locate the change in firm behavior that occurs with maturity in the firm's inherent purpose. This is the approach pursued by Levine (1981) and Shapiro (1988). Both consider firms, particularly the progressive firms that earn differential rents in Steindl's analysis, to have broader horizons than a particular product market.

The broader horizon of the firm in the analysis of Levine and Shapiro extends beyond the type of diversification into other established lines of business that Steindl considers. In particular, they focus on new product development as a direction of expansion for a firm impeded by a limited market for established products in its original line of business. The opportunities for new product development are not limited by concentration at any level of aggregation. Indeed, these opportunities are not limited by aggregate demand of the Keynesian type. The development of new products can generate new wants that alter the propensity to consume in the economy. Also, the development of new products can lead to the premature obsolescence of existing capital stock, removing the shackles of a limited replacement demand for capital.

Suppose one accepts the broader horizon of the firm and considers the implications of new product development. What becomes of the economic theory of concentration? In particular, what happens to the notion of a tendency toward industry concentration as capitalism matures?

First, the concept of maturity becomes firm and industry specific. An individual firm shifts its behavior from expanding capacity in its original line of business to engaging in new product development as a response to the constraint on expansion imposed by a limited market for established products. This applies only in industries that have completed a process of absolute concentration and have become oligopolistic. Maturity applies to the bulk of the economy only by coincidence. Steindl may have become sympathetic to this position as he recognises the possible importance of technological long waves in the introduction to the reprinting of Maturity and Stagnation in American Capitalism (1976, xv-xvi).

Second, new product development provides the basis for a reversion from mature

oligopoly to competition. This is raised as a general possibility in the discussion above of how maturity might occur stochastically in a random process of firm growth when diffusion during disequilibrium results in concentration rising above a certain level. Continuation of the random process could then result in concentration falling below the critical level. Success in new product development is very much a random event, so the shift in behavior with maturity becomes the seed of the process that eventually can undermine maturity. The experience of the computer industry worldwide shows the possibility of reversion from mature oligopoly to competition following the development of personal computers as a new product.

Finally, the specificity of maturity and the prospects for reversion to competition provide an economic theory of concentration that is both dynamic and stochastic. Maturity and the accompanying oligopolistic behavior are a moment in a progression that neither starts nor ends with maturity. While the notion of a cycle is probably too regular to fit the likely evolution of the pattern of competition, the stochastic nature of the outcome of efforts on new product development are such as to always leave open the possibility of a competitive transformation in any mature industry. Indeed, the shift to maturity and associated shift to efforts on new product development increases the probability of significant innovations that would provide the basis for a reversion to competition.

6. Conclusions

Steindl's analysis of firm growth contrasts favorably with the static approach to the determination of firm size in neoclassical theory of the firm. The latter provides no explanation for the observed spread of firm size within industries, depending instead on the notion of a representative firm. Furthermore, there is no explanation for the growth of firms in the balance of economies and diseconomies of scale that determine the size of the representative firm.

The insights contained in Steindl's analysis provide a starting point for the development of

an economic theory of concentration. It is argued that his own analysis is inadequate to this purpose, but that modifications to his approach can be made that would yield such a theory. Suggestions are put forward for a theory in which maturity is a moment in a dynamic and stochastic pattern of competition.¹¹ While this theory might have revisionist implications for Steindl's analysis of a stagnationist tendency in mature capitalism, the overall thrust of the theory would seem to be compatible with the spirit of Steindl's seminal work.

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Endnotes

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1. All references to Steindl's work are to the original publication, except for Maturity and Stagnation in American Capitalism for which references are given from the more widely available 1976 edition. Many of the other papers cited here and below are reprinted in Steindl (1990).
 2. Steindl's argument concerning the relationship between the variance of return and the risk premium closely follows Kalecki's principle of increasing risk (Kalecki (1937)).
 3. Steindl argues that either a rise or fall in the industry growth can lead to increase in the mean size of firm. An increase in the growth rate without affecting entry leads the mean size of the firm to grow indefinitely. This movement is enhanced if there is a decrease in the mortality of firms with the increase in industry growth. In the case of a decline in industry growth, the mortality of firms rises leading to a decrease in the number of firms. Mean firm size rises if the net growth in the firm population declines more than industry growth.
 4. The higher growth rate for favored firms is due to their higher profit rate, which leads to a higher rate of internal accumulation.
 5. In his analysis of risk Steindl argues that entry into the favored group of large firms is restricted due to the scarcity of large units of capital. In his analysis of technical progress he argues that entry into the favored group of progressive firms is restricted because marginal firms can not raise the capital through internal accumulation or external finance to innovate.

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6. In the analysis of firm growth with risk, Steindl (1945a, 35-37) suggests that the tendency toward concentration in an industry may be limited by the imperfection of competition. However, the only suggested modification in the behavior of large firms resulting from this limitation is that they diversify into other lines of business. While concentration in the individual industry may abate, concentration for the economy as a whole continues.
 7. If the rate of growth of market demand is zero and the expected rate of growth of firm size is limited to the rate of growth of capacity, the expected size of progressive firms remains constant under the condition that their growth of capacity is equal to the growth of market demand. Steindl (1976, 50-51) argues that the rate of net entry of marginal firms adjusts to maintain a zero expected profit for each marginal firm. This implies that their expected size remains constant and that any disappearance of marginal firms is exactly offset by new entry.
 8. Shapiro (1988) argues that the shift in investment behavior occurs as an industry switches from being competitive to being oligopolistic. The role of the increase in concentration in a shift from competitive to oligopolistic behavior is consistent with conventional views on the role of market structure as a determinant of firm behavior. However, the conventional view generally only links pricing behavior, rather than both pricing and investment behavior, to different levels of concentration.
 9. Steindl acknowledges the possibility of innovation by a new entrant upsetting the steady state of a mature industry in a recent paper (see Steindl(1987)).
 10. The influence of the pattern of competition on the economy as a whole occurs through the average rate of profit in the economy. As the average profit rate falls the probability

of bankruptcy rises for firms of all sizes. The effect on small firms is particularly severe given their higher exposure to this risk, providing the basis for absolute concentration with a falling average profit rate. The only limit that Steindl suggests for the average profit rate is on the upside rather than the downside, leading him to the conclusion that 'the absolute concentration is an essential feature of capitalist development' (Steindl, 1945a, 39).

¹¹ The parallels and contrasts between Steindl's approach and that of Joseph Schumpeter are discussed in Bloch (2000b).