The pioneering contributions of Maria da Conceição Tavares to the analysis of demand-led growth (Part II): Induced investment, autonomous investment, and technical change[1]

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Resumo

Este artigo aborda as contribuições de Maria da Conceição Tavares para a determinação dos componentes induzidos e autônomos do investimento privado no interior da abordagem do crescimento liderado pela demanda, bem como a forte influência que suas ideias exerceram sobre duas agendas de pesquisa atuais bastante distintas, propostas por alguns de seus ex-alunos. Uma delas está relacionada ao conceito de financeirização, segundo o qual o investimento privado acaba sendo considerado inteiramente autônomo. A outra é a agenda desenvolvida a partir do modelo de crescimento supermultiplicador sraffiano, no qual o investimento privado é considerado inteiramente induzido pela demanda.

Palavras-chave: Maria da Conceição Tavares; Crescimento liderado pela demanda; Investimento autônomo; Investimento induzido; Supermutiplicador sraffiano.

Abstract

This paper discusses Maria da Conceição Tavares' contributions to determining the induced and autonomous components of business investment within the demand-led growth approach, as well as the strong influence her ideas have had on two quite distinct current research agendas proposed by some of her former students. One is related to the concept of financialization, according to which business investment ends up being considered entirely autonomous. The other is the agenda developed from the Sraffian supermultiplier growth model, in which private investment is considered entirely demand-driven.

Keywords: Maria da Conceição Tavares; Demand-led growth; Autonomous investment; Induced investment; Sraffian supermultiplier.

Área 3: Método, Teorias Econômicas Heterodoxas e História Econômica

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1. Introduction

In our previous paper (Serrano, Carvalho, and Summa, 2026), that contains the Part I of our two parts study of Maria da Conceição Tavares main contributions to demand-led growth, we reviewed the development of her analytical framework for the study of the role of effective demand in the process of capital accumulation, from the early 1960s up to the late 1970s (under strong influence from Kalecki and Steindl from the early 1970s on). In Part I, we emphasized four of its key features of her analytical framework, namely, i) the view growth was demand-led instead of supply-constrained both in developed and also in developing economies (obviously often subjected to balance of payments constraints) in which she differed from Kalecki; ii) the rejection of any association between the long-run relevance of effective demand with any form of stagnationism; iii) the corresponding rejection of any necessary relation between distribution and capital accumulation; and iv) the key role played by non-capacity generating autonomous components of demand in her analyses of demand-led growth.

The present paper, that constitutes Part II of our study, will deal with two further important aspects of her contributions to demand-led growth, regarding Tavares' views on the determination of both the induced and autonomous components of business investment. Additionally, we will examine the very strong influence Tavares' contribution has had, even while we limit ourselves exclusively to the part of her work that is directly relevant to our specific topic of demand-led growth, on two rather different current research agendas put forward by some of her former students. One of these agendas is the one related to the concept of financialization, originally developed by Braga (1985), in which investment ends up being considered entirely autonomous and determined by financial considerations (Braga; 1993[2023]; 1997; 2000; Braga et al. 2017). And the other is our own agenda developed from the Sraffian supermultiplier demand-led growth model introduced by Serrano (1995a; 1995b), in which business investment is taken as entirely induced.

Tavares own views on induced investment reflected her concern with the importance of the dual character of investment which is currently a source of demand but later necessarily entails an increase of productive capacity. This concern regards both the analysis of the business cycle fluctuations and the long run trend of growth, as capacity generating investment must be seen as basically induced in the latter, longer run process. Moreover, in spite of her use of Kalecki's version of the principle of effective demand, Tavares took up Steindl's suggestion of treating the effect of effective demand on business investment as operating directly through the degree of capacity

utilization and some version of the capital stock adjustment principle, instead of indirectly through the effect of higher capacity utilization on the realized rate of profits as in Kalecki.

On the other hand, in what regards the autonomous component of investment, which for her was the component related to structural change and technical progress, her explanation was based on her particular interpretation of Hilferding's views of finance capital. This view on autonomous investment, present since Tavares (1971[1972]), is revisited and deepened in Tavares and Belluzzo (1980[2023]) and increasingly emphasized in her later works. Tavares considered that this type of innovative autonomous investment required an appropriate form of business organization into large private corporations, and a close connection between these large firms and large private banks that would provide long term credit to them.

This paper is organized as follows. In section 2 we discuss Tavares' analysis of the dual character of investment and induced investment from the 1960s to the late 1970s, as well as the analytical contributions of her student Mario Possas in the early 1980s. In section 3 we deal with her later more detailed discussion of finance capital after 1980 and how this provided the basis for her views on autonomous investment. We then move (in section 4) to discuss the very strong influence her work had on two rather different current research agendas put forward by some her former students since the mid-1990s mentioned above, namely the research agenda related to the concept of financialization, and the research agenda developed from the Sraffian supermultiplier demand-led growth model. This is followed by brief final remarks on Tavares' own views on investment and her legacy.

2. The dual character of investment and induced investment

We must start our discussion by making a distinction between the general capacity effect of investment, which concerns the effects of previous investment on the size of productive capacity, and the specific investment functions used that explain the causes of current investment decisions in the short run.

Because of the inevitable capacity effects of investment, it is clear that in the long run investment that increases productive capacities cannot keep growing for very long, much faster than its final market is growing, without becoming very unprofitable. That is why it is common (in the Keynesian business cycle literature since Kaldor, Harrod, Hicks, Domar and others) to treat capacity-creating business investment growth, in the aggregate for an economy or a sector, as being in the long run limited by the growth of "investment opportunities" or, in other words, ultimately induced by the growth of effective demand. Similarly, very similar considerations inevitably apply in terms of the relation between the growth of capacity and that of demand to both Marxist (Sweezy) or Kaleckian

analysis of accumulation using schemes of reproduction, in spite of many other differences, such as thinking primarily in terms of the growth of the mass of realized profits instead of the growth of output. In fact, it is this same fundamental problem of the structural sustainability of a particular path of capital accumulation that Tavares calls the "dynamic realization problem" (Tavares, 1974[1998], pp. 35-36. Our translation).[2]

The notions of induced and autonomous investment in this longer run structural sense is present in her work since Tavares (1964), and is taken up again in a kaleckian guise in her two theses (Tavares, 1974 [1998]; 1978[1998]). [3]

On the other hand, in terms of the short run decisions to invest, expected (instead of actual, as in the case of structural trends) demand is just one between many variables that are often seen as relevant for investment, and those variables frequently appear as different arguments in an investment function. And the (often sudden) changes in these demand expectations, as well as their gradual revision in the light of what has actually happened, play a central role on the dynamics of shorter run instability and cycles.

2.1 Tavares, Kalecki and Steindl

In this second, shorter run, sense, Tavares and Serra (1971) adopted the idea that the level of the actual degree of capacity utilization is an important determinant of investment, but with its influence operating through the current (and expected) levels of the realized rate of profits as in Kalecki's (1954) investment function. Soon after that, Tavares (1971[1972], p. 238) started to use Steindl's (1952) investment function, in which the deviation between the actual degree of capacity utilization and its normal or planned degree as a direct determinant of investment, independently from the rate of profits.[4]

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[2] A study of the relationship between Tavares' analysis based on Kalecki's schemes of reproduction and the classic debates on crises and the future of capitalism between German Social Democrats and Marxists in the early 1900s was done by Mazzuchelli (1983), a student of Tavares. In this book there is also a theoretical interpretation of the transition of capitalism into its monopolist (oligopolist) and financial phase, based on the particular interpretation of Marx put forward by Belluzzo (1975) that had a great influence on Tavares' views on Marx (whether capitalism is in a competitive or oligopolist phase does not really affect the determination of output by effective demand for her, so the discussion of these issues is beyond the purpose of this paper). The relationship between Marx and Kalecki's schemes of reproduction was studied in Miglioli (1979), a colleague of Tavares and student of Kalecki. An introduction to Kalecki's views on effective demand is found in Jobim (1979[1984]), another student of Tavares.

[3] Tavares (2010[2016], p. 366) mentions the influence of Rangel on her analysis of capital accumulation: "I was influenced by Furtado, on the one hand, by the theory of development, and by Rangel on the other hand, by the theory of capital accumulation". In Tavares (1972, p. 18. Oue translation.), she credits to Rangel pioneering ideas for the analysis of "idle capacity and overinvestment" in the Brazilian economy in the early 1960s.

[4] In a late July 1971 letter to Furtado, Tavares (Furtado, 2021) [says: "This semester I taught a course on Oligopolistic Accumulation at the Escolatina, in which I mainly worked with Steindl's *Maturity and Stagnation in American Capitalism*, and the old Hilferding (*Finance Capitalism*). I sought inspiration and greater analytical rigor in them to better describe the phenomenon of accumulation, concentration, and centralization of capital in an oligopolistic regime (…) Comparing what I learned this semester (including rereading the 'old' Marx, Rosa Luxemburg, and Kalecki) with the

In this short run context, Tavares (1974[1998], 1978[1998]) emphasizes the role of induced investment and accelerator effects for the dynamics of the cycle, relying mainly on Steindl. The latter is included in her toolkit "also for his theoretical effort to integrate microeconomic aspects with the macroeconomic character of accumulation theory" (Tavares, 1998[1974], p. 55. Our translation.). Specifically, she, as Steindl, recognizes the importance of "unwanted excess capacity" (when the actual degree of utilization falls short of the normal level) to investment. [5]

Tavares also considered that that Steindl's theory of investment was an improvement in relation to Kalecki's as it incorporated more explicitly the firms's debt ratios as determined by (Kalecki's own microeconomic) "principle of increasing risk" and credit rationing (Tavares, 1974[1998], pp. 58-59)[6].

Tavares (1974[1998],1978[1998]) also applies the above framework for the Brazilian economy, respectively, 1930-67 and 1967-77. This explanation is a refinement of the one provided in Tavares (1964) and Tavares and Serra (1971) in the sense that investment responds directly to the gap between the actual and normal degrees of capacity utilization. For Tavares (1974[1998], pp. 77-84) unplanned spare capacity was also the cause of fall in investment and the slowdown of the economy in 1962-66.

2.2 From Steindl to Possas

It is however, in the work Possas (1983), student of Tavares, that the analytical distinction of cyclical and trend-related aspects of investment based on Tavares' perspective reaches its maximum degree of rigor and completeness. Possas (1983; 1987), starting from Kalecki, and further developing the interpretation given in Possas and Baltar (1981) critically reexamines the notions of induced and autonomous investment and their relations with the business cycle and the trend.[7]

He then, besides proposing the incorporation of their theories into a multi-sectoral input-output framework, introduces a number of improvements in Kalecki's and Steindl's investment

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outlines that Serra and I traced last year, we realize that we didn't lack intuition, but how far we are from producing serious work!" (Our translation.). Here we find that she refers to learning from Steindl (and Hilferding) for "inspiration and more analytical rigor", to "rereading" Kalecki and to comparing what she learned "this semester" (in 1971) with what she did with Serra "last year" (1970). As Tavares and Serra (1971) was actually written in 1970, we consider that this letter confirms that the paper with Serra was based on Kalecki and that Steindl's (and Hilferding's, see section 3 below) contributions were incorporated only starting with Tavares (1971[1972]).

[5] Steindl (1964, p. 232) argued that a "variant which could be made of Kalecki's model. The negative feed-back which operates in this model acts via the rate of profit. One could imagine it to act, in an analogous way, via the degree of utilization. This requires only that the investment is made to depend not on the rate of profit on existing capital, but on the degree of utilisation of capacity".

[6] As further evidence of the influence of Steindl for Tavares' collective research project we may note the review of Steindl's main theses provided by Mazzucchelli (1974). Moreover, Luciano Coutinho, a colleague of Tavares, also wrote the foreword of the Brazilian edition of Steindl's "Maturity and stagnation" book in 1983.

[7] Tavares (1987, pp. 7-8) considered these contributions very important and in the preface Possas (1987) she says that supervising him was one of her most important intellectual achievements in her (quite long) career.

functions. The first is to clarify the role of credit finance and retained earnings as characterizing merely possible financial constraints on investment (Possas, 1987, p. 128), rather than direct determinants (as they appear in both Kalecki and Steindl). Indeed, Tavares (1978[1998], p. 42) when discussing Keynes chapter on the trade cycle (Keynes, Ch. 2, 1936) mentions that even very low interest rates would have no effect of stimulating investment if the existing capital stock is already perceived as being too large. She also refers to financial constraints on investment as not being usually binding for multinational corporations operating in Brazil (Tavares, 1974[1998], p. 84).

Another important improvement was showing that some variables in Steindl's investment function were, and there is no good reason to consider investment a direct function of both the realized rate of profits and the deviation of the degree of utilization from its normal level in the same investment function. More generally, Possas (1987, p. 110) criticizes any attempt to postulate a definite connection between the rate or share of profits and the induced component of investment.[8] The latter should be driven by a consistent version of the principle of adjustment of the stock of capital to demand, but he adds that a satisfactory version would have to include both the corrective aspect of the deviation of capacity utilization from its planned normal degree but also simultaneously a projection aspect. The latter component would incorporate firms' expected trend of demand growth (id., p. 121).

With these modifications, a single induced component of the investment function should be used for analysis of both cyclical fluctuations (which had no reason to be regular or stable) and of trend of demand-led growth. Further financial and especially technological considerations should be left to the autonomous component of investment. And the latter should take care of investment that led to technical progress and broadly defined structural change.

Moreover, Possas (id., pp. 264-265) criticizes Steindl (1952) for not proposing an adjustment mechanism of actual utilization to its normal or planned level, as in Steindl's theory there is an inadequate coexistence of a notion of normal degree of utilization with an endogenous actual degree of capacity utilization, that ends up having no clear tendency towards the latter norm.[9]

Finally, Possas (1987) extends his own model beyond the fix-price oligopolies to include sectors that have rigid short run supply and flexible prices and shows that investment in these sectors

[8] This is a further development of a point raised in Possas and Baltar (1981, p. 155).

[9] Note that this formal inconsistency does not really apply to Kalecki, as he does not have a concept or normal capacity utilization, which was introduced later by Steindl. That does not change the fact that it is also implausible for investment to be assumed to remain increasing steadily over the long run just because the realized rate of profits is constant, while existing capital equipment may have a very low actual degree of capacity utilization, as in Kalecki's theory. These problems are also present in the "neo-Steindlian" growth model developed by Amadeo (1986), another student of Tavares, in which the actual degree of utilization remains different from the normal even in the long run in a steadily growing economy. Possas (1987) considered that his own investment function, that includes an autonomous investment component, in principle compatible with a tendency of capacity to adjust to demand, something that was later questioned (see section 4.2 below).

ends up behaving very much like the fixed markup prices sectors in a longer run. The only difference is that in the former changes in effective demand tend to initially manifest themselves in market or demand prices higher or lower than the relevant sectoral supply prices, and only with some lag, capacity output increases or decreases responding to these discrepancies. This shows that in any type of market, outputs (and capacity) end up adjusting to effective demand (i.e., demand at the supply prices).[10]

3. Finance capital and autonomous investment

The notion of autonomous investment has always been present in Tavares work since the beginning. For Tavares (1964, p. 1) "autonomous investment accompanied by technological innovations," i.e., "the diversification and integration of internal productive capacity" is important, in addition to exports, as determinant of growth for advanced economies.

Autonomous investment is seen as important because of its effects on aggregate demand. The growth of autonomous investment is seen as being capable of imparting a positive demand-led growth trend to an economy, even if other autonomous components of demand were stationary, as in Kalecki (1954; 1968). But innovative autonomous investment made by large corporations is also seen by Tavares as strategic for development. In her view, it is the main vehicle for structural change, with positive consequences for the increase in the modernization of the productive structure and the increase in the efficiency and competitiveness of firms operating both in domestic and international markets (and hence helping to overcome balance-of-payments constraints).

While in Tavares (1964) the relative lack of autonomous investment is blamed on the rarity of "innovative-type" of entrepreneurs in Latin America, in Tavares (1971[1972]; 1974[1998]; 1978[1998]), more emphasis is given to the oligopolistic phase of capitalism, in which large corporations are those who are seen to drive autonomous investment. Tavares's own contribution in this regard was to attempt to explain this autonomous component of investment using her own interpretation of the notion of financial capital as introduced by Hilferding, in his classic book *Finance capital*, originally published in 1910.[11] Tavares (1971[1972])[12] explicitly based on her

[10] Possas (1987, pp. 247-53) demonstrates analytically this point that was already raised in Possas and Baltar (1981, pp. 116-118).

[11] Tavares, on several occasions, attributed to Rangel's influence both the concern with financial themes, (Tavares, 1986), and the reliance on Hilferding to address them. Tavares (2010[2016], pp. 365-366) stated that "for the analysis of the financial question (...) Rangel was the first to tell me to read Hilferding's *Finance capital*, which I didn't even know existed, because in my youth I only attended seminars on Marx, with philosophers and mathematicians." (Our translation.).

[12] Notice that her 1964 reference to Schumpeter refers to the individual innovating entrepreneurs from the 1939 book *Business Cycles*, and not (yet) to the large innovating corporations emphasized in his 1942 book *Capitalism, Socialism, and Democracy.* The later Schumpeter is closer to her later views on autonomous investment, with the important difference that Schumpeter downplays the role of credit for the investment of large corporations because he thought large

interpretation of Hilferding (1910[1981]) already argued that the actual purpose of financial development under capitalism was not to increase the domestic saving ratio or even to increase the aggregate investment share, but instead to develop financial capital.

Tavares (1971[1972], pp. 215-216) summarized this notion of financial capital as having three main functions, namely: (i) allowing the possibility of purely financial accumulation with the creation of "fictitious" capital, that is, of wealth through the creation of income yielding assets and speculative capital gains on them; (ii) promote the separation between the entrepreneur and the capitalist, with the first understood as the organizer of the production of the surplus, while the second was the owner of the property rights of the capital employed and was responsible for its allocation towards the most profitable alternative uses; and finally (iii) promote the association between industrial, commercial and banking capital under the command of financial capital, enabling "the possibility of promoting a greater centralization of capital in its most general form, of property rights and, therefore, of ultimate control over the overall process of accumulation" (id., p. 216. Our translation.).

Thus, while she admitted that financial capital could stay restricted to speculative activities, she argued that finance capital was strictly necessary for the process of centralization and concentration of capital that was at the origin of forms of capitalist organization in terms of big firms that had enough capital to undertake investment in modern techniques (that have large minimum efficient scales) and were able to be competitive also in the international markets. Therefore, autonomous investment was explained by the presence of financial capital geared to the productive innovative investment of big firms. Tavares (1971[1972]) argued that whether financial capital would take this innovative route or remain merely tied to speculation depends on institutional characteristics and on the policies of the nation states towards structuring such big innovative firms under national control. In this sense, she contrasted what she considered the successful case of Postwar Japan where the large and highly innovative *Keiretsu* conglomerates were instituted with the support of the State, and the comparative weakness, relatively small scale, and low capacity for innovation of Brazilian large firms (id., pp. 255-263).

In Tavares (1978[1998], Ch. 4), she returns to the theme of financial development, applying her theoretical vision to the Brazilian experience between 1964 and 1977. She identifies in advanced economies an "active function" of national financial system, i.e., "to manage and direct the accumulated volumes of money capital in order to support the movements of real accumulation, especially when it comes to advancing capital for large-scale projects with long gestation periods" (id., p. 141. Our translation.). Thus, "in this active dimension, the financial system acts as a driver

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firms did not need credit and could finance their investment largely by retained profits, while for Tavares long term credit is crucial for the centralization of capital and autonomous investment. This confirms that her views after 1971 are much closer to Hilferding than to Schumpeter.

(and, in certain cases, as a subject) of the process of monopolization of capital, accumulating the merger and intersection of large capitalist groups" (Tavares, 1978[1998], p. 143. Our translation.).

Both her interpretation of the role of financial capital in monopoly or oligopolistic financial capitalism and its influence on autonomous investment where further developed in Tavares and Belluzzo (1980[2023]). Against Sweezy's interpretation that Hilferding's analysis would be relevant only for the banks and associated cartels of the German case, Tavares and Belluzzo (1980[2023], p. 101] claim that besides this more specific analysis, Hilferding provides a proper characterizing of the general features of financial capital and its connection with modern oligopolistic capitalism. Defending this generality, the paper points out similar arguments found in John Hobson's book, *The evolution of modern capitalism* (Hobson (1926[1949]), whose foreword to the Brazilian edition of the book was written by Tavares (1983). In this book about the economy of USA, Hobson stresses the fundamental role of the "general financier" of owners who exerts dominance over productive activities of firms, i.e. "the class that controls credit becomes increasingly powerful, taking for itself – as profit – an increasing share of the industry's product." (Tavares, Belluzzo, 1980[2023], p. 103).

As to the determination of the autonomous component of investment, Tavares argues this point when analyzing the experience of the large American corporation, that innovative investment is dependent on financial capital, the process of massive concentration of capital in large conglomerates intimately connected to banks.

In Tavares and Belluzzo (1980[2023], pp. 104-108) it is further argued that the rise to global dominance of large U.S. multinational corporations is ultimately a consequence of its financial capital. This explains the U.S. superior technological and productive system, and the tendency of its capital to expand beyond its own borders.[13] This centrality of the large conglomerate company under the *aegis* of finance capital would be a relevant and common trait of countries with late industrialization such as the U.S., Germany, and Japan, which would come to have a prominent position in the monopolistic stage of capitalism inaugurated in the end of 19th century. The latter emerged in the wake of the 2nd Industrial Revolution when there was a brutal increase in the minimum scales of production and an even greater integration into the world market, both in terms of trade and of finance.

According to Tavares e Belluzzo (1980[2023], p. 105):

> [t]hat is why the hypothesis advocated in the contemporary debate ascribing the international preeminence of the large American company mainly to productive and technological aspects seems to us to be mistaken. The much-vaunted spread of American consumption patterns or the generalization of its technological "matrix" are both shadows of the hegemony of US big business, which ended up imposing simultaneously its 'manufacturing system' and its "financial system" worldwide. The latter

[13] For a very different view of the case of the U.S., emphasizing the role of technology and of State policies, and particularly those related to the military industrial complex, see Medeiros (2000; 2003).

> plays the dual role of unifying the global capital structure while allowing its differentiation through the specialization and differentiation of financial institutions.[14]

Additionally, in relation of emergence of "finance capital", Tavares e Belluzzo (1980[2023], p. 102) indicates another distinctive characteristic:

> [w]hat distinguishes this form of finance capital from those that preceded it historically is the universal and permanent nature of the processes of speculation and creation of fictitious capital, which were occasional and "abnormal" practices in the previous stage of "dispersed capitalism". The intrinsically speculative nature of business management in this form of "modern capitalism" is reflected by the growing importance of practices aimed at "fictionalizing" the value of existing capital, requiring the building of a huge and complex financial apparatus.

About to the importance given to finance capital in the explanation of autonomous investment, Tavares and Belluzzo (1980[2023], p. 104) also argue that after the changes in the world economy in the 1970s, which had entered a new phase of increasing instability, the role of "fictitious capital" – associated with the search for capital gains, unrelated with production – has been increasing. Thus, speculative financial activities were becoming more important relative to productive investment in the process of valorization of financial capital on an international scale, in a context in the amount of financial capital "cannot be reinvested in local circuits of capital reproduction, conditions are in place for the establishment of a global financial market, supported in its speculative movements by the main financial markets of the developed world" (id., p. 106), expansive process that "occurs without any supporting growth of international production, income or trade that has been clearly in crisis since the mid-decade." (id., p. 107). Thus, according to Tavares and Belluzzo (1980[2023], p. 107): "[t]he autonomization of finance capital, in the form of interest-bearing capital, takes on here proportions that would be hardly imaginable by Marx in his worst nightmares".

Later, Tavares (1992, pp. 40-43) by analyzing the successful technological modernization process in some advanced countries in the 1970s-80s, introduces her concept of "organized capitalist countries," which would apply to countries based on the articulation between private banks and

[14] Tavares's views on the centrality of innovative autonomous investment were subsequently applied in empirical studies by many of her students (Oliveira, 1985; Teixeira, 1983; Torres Filho, 1983). Oliveira (1985) extends the analytical perspective present in Cardoso de Mello (1975) to analyze comparative patterns of industrialization, starting with the original British industrialization, in the end of 18th and beginning of 19th century, and then examining late industrialization countries, particularly the United States, Germany, France, Russia, and Japan, throughout the 19th century. In turn, Torres Filho (1983) examines the Japanese experience of economic recovery and modernization between 1945-73, whereas Texeira (1983) studies the industrialization process in advanced capitalist countries between 1945-80, when the relevance of large corporations and their internationalization process increased, under the leadership of the United States.

industrial companies (Japan[15] and Germany) and those where credit from public banks prevailed (France, Italy, and South Korea).[16] According to Tavares:

> We call them countries with organized capitalism, as those in which the organic relationships among the state bureaucracy, banks, and large industrial firms have consistently played a central role in their historical development (…) These structural relationships have given rise to genuine "networks" that enable the reciprocal pressures between private economic agents and the state to occur in an orderly manner, thereby reconciling interests and fostering strategic consensus in industrial restructuring policies, while also allowing for the operational coordination of economic policy (Tavares, 1992, p. 41. Our translation.).

Thereby, autonomous investment here is explained by efforts of modernization led by large conglomerates and coordinated by the state, in the context of the third industrial revolution. In those countries, thanks to these elements, innovative autonomous investment prospers.

In contrast to this, Tavares argued many times (Tavares 1971[1972]; 1978[1998]; 1999; Miranda and Tavares, 1999) that the Brazilian developmental State failed to structure a national private sector[17] financial capital "worthy of its name" (Tavares, 1999, p. 465 and p. 476). This is because, according to her view, large conglomerates controlled by national financial capital capable of leading growth through innovation embodying autonomous investment were not developed. The local financial capital ended up focusing more on seeking speculative capital gains than in generating profits and promoting technical progress.[18]

Finally, Tavares and Melin (1998) argue that the already mentioned crisis in the 1970s also led to a process of "financial globalization", more unstable and intensifying the process of increasing importance of fictitious capital, to the detriment of productive investment, and international financial liberalization, "stemming from the imposition of neoliberal policies emanating from US economic authorities, subjecting the entire global economy to the predominance of a global financial logic at an unprecedented speed (…) (id., p. 41. Our translation.).

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[15] Note that already in Tavares (1971[1972], pp. 261-262), a similar characterization is adopted to refer to the Japanese case. In Tavares, Torres and Burlamaqui (1991), the Japanese economy is characterized and analyzed as a "successful case of organized capitalism" between 1945-89.

[16] According to Tavares (1992, pp. 40-41), the economic performance of countries with "organized capitalism" during this period was superior to that observed in the USA and Great Britain, countries "which advocated and universalized ultraliberal policies of adjustment and deregulation" (Our translation.).

[17] Note that Brazil still has a large state-owned development bank – Brazilian Development Bank (BNDES) – created in 1953, and the Brazilian developmental state created many large state-owned enterprises. Nevertheless, Tavares always insisted that a proper national financial capital for Brazil should be composed by private banks, combined with private innovative firms and explicitly criticized the idea of financial capital organized by state-owned banks and enterprises (1978[1998], p. 144, and also 1999, pp. 468-9). Note, however, that Tavares (1992) herself recognizes that public banks where successful in "organized capitalism" countries such as France, Italy and South Korea.

[18] According to Tavares, in Brazil, even after the financial reforms of the 1960s, the "active function" of the country's financial system as a "driver of the process of monopolization of capital," has not been "effectively developed by the financial system but rather relegated to the sphere of the State, where it is processed in a specific and incomplete way, while the function, the orbit of 'fictitious valuation,' has been developed" (Tavares (1978[1998], p. 171. Our translation.). On her views of the reasons why the Brazilian public development banks and funds were unable to fulfill the active role of financial capital, see Tavares (1978[1998], pp. 143-145).

4. Autonomous or induced investment?

In this section we illustrate the extent of the influence Tavares' work has in two currently very active and different research agendas, though limiting ourselves only to the part of them that is directly relevant to our specific topic of investment and demand-led growth. These are the agenda related to the concept of financialization, originally developed by Braga (1985), for whom investment would have become entirely autonomous (Braga, 1993[2023]; 1997; 2000; Braga et al. 2017) and our own agenda developed from the Sraffian supermultiplier demand-led growth model that considers that all investment should be considered entirely induced, as introduced by Serrano (1995a; 1995b).

4.1 With financialization all investment becomes autonomous

The term "financialization" was first mentioned by Braga (1990)[19] and developed in Braga (1993[2023]; 1997; 2000) and Braga et al. (2017). He builds on the interpretation of Marx and Keynes found especially in Tavares (1978[1998], Ch. 2) and Tavares and Belluzzo (1980[2023]), in which financial capital was typically represented by the predominance of transnational corporations in the period following the Second World War.[20] There, both international trade and international finance were heavily regulated. The breakdown, in the 1970s, of the institutional framework defined in the Bretton Woods Conference, would have established a new stage of capitalism (that supersedes monopoly capitalism) marked by commercial and financial liberalization in which fictitious speculative capital predominates.

The consequences of "financialization" are synthesized by Braga et al (2017, p. 830):

> [A]s a systemic pattern of wealth, establishes new ways of defining, managing and realizing the wealth, which **affects the spending decisions of the main economic actors**, impacts economic policies and thus the ups and downs of business cycles, as well as leading to crises. (**Our emphasis**).

And financialization is thought to radically alter the decisions of large corporations, particularly those organized as holding companies, to the point that now they would have a new "objective function" as follows:

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[19] Although Braga did not use the term "financialization", the main propositions were already present in Braga (1985, p. 374): "Valorization and competition operate under the dominance of a financial logic, which means – among other things – that centralized capitals manage simultaneously several types of assets ranging from productive assets to financial assets" (Our translation).

[20] For an analysis of how the concept of financial capital, in Tavares' work, is linked to this concept of financialization, see Braga (2010).

Fo = f(Zgs, Itp, X, Cgv, Fg)

> where Zgs = production and trade of goods and services; Itp = investment in technical progress, with the creation of new products, new processes, and new organizational forms; X = internationalization through trade; Cgv = internationalization through investment and, more specifically, breaking up the value chain among different countries; and Fg = general finance, which may have operational purposes when related to the core business; and non-operational, when not related to those activities, but focused on speculation and arbitrage in financial markets. (Braga et al., 2017, p. 836).

This pattern of wealth management significantly influenced economic dynamics, insofar as the value of financial wealth held by different economic actors began to increasingly influence spending decisions and, ultimately, effective demand. This would have "radicalized" the inherent characteristic of capitalism, namely, "the permanent tension between expansion and crisis," thereby increasing its instability, the recurrence of crises, and the need for state intervention to mitigate them.

Finally, regarding business investment in fixed capital, Braga (1993[2023], p. 267) points out that financialization introduces a complexity that renders most existing theories of investment obsolete:

> The capitalist dynamics in question is of a new nature, that is, the forms of movement of this crisis and its restructuring are new, so that most of the existing theoretical texts on the economic dynamics of capitalism are not relevant. Not the formal dynamics that derive from the thought of neoclassical synthesis, nor some Neo-kaleckian dynamics, nor other neo-Schumpeterian ones, all based on the repetitions of the cycle phases – short, medium, long.
>
> In fact, there is a structural instability marked by this logic of **financialization**, which is paradoxical in the various directions mentioned (Author's emphasis).

And what is of particular interest to us, Braga (2000) argues that the principle of the adjustment of the capital stock, as developed by Kalecki and Steindl and followed by Tavares (1974[1998]; 1978[1998]), and induced investment in general, also somehow ceases to be relevant due to the more complex nature of the determination of investment. In Braga (2000, p. 310) own words:

> **Note that the adjustment of the capital stock (related to planned idle capacity) should not be adopted as an a priori norm**, since its influence on investment decisions is conditioned by the calculation of the technical-financial strategy. The decline in the planned utilization rate, when using the firm/industry analytical cutoff, produces, according to Kalecki & Steindl, a fall in the investment rate and consequently a cyclical recessionary reversal or even a stagnationist trend. However, once this analytical cutoff is overcome, with the fall in the utilization rate in the firm/industry, corporations, or even large companies located in an industry, calculate investment diversification, innovations, creation of new markets, financial gains, etc. **Given these conditions in the economic calculation, it is no longer normalized by the adjustment of the capital stock, and the cyclical mechanics, the mechanical temporality, given by the parametric constraints on the investment function, regarding financial and technological decisions, among others, no longer apply**. **To put it another way, the mechanical adjustment of the capital stock is suppressed by this more complete and complex dynamic of capitalist calculation.** (Our emphasis and our translation.).

Thus, with "financialization", Braga argues that all investment is now autonomous and driven by these complex financial factors.[21]

4.2 All investment is induced in the Sraffian supermultiplier

The research agenda on the Sraffian supermultiplier demand-led growth model was introduced by another student of Tavares in Serrano (1995a; 1995b). In this model, distribution is an exogenous parameter, determined along classical lines, in the longer run all investment is induced, and the trend of growth is determined by the expansion of the autonomous components of demand that do not generate capacity for the private sector of the economy, such as autonomous capitalist consumption. The model allows the full compatibility between Kalecki's theory of effective demand and the Sraffa-Garegnani revival of the Classical Surplus approach. In this model there is no long run inverse relation between consumption and investment and also no necessary relation between distribution and accumulation, because capacity tends to adjust to demand.

In fact, there are only two substantive differences between the Kaleckian framework developed by Tavares in her two theses. The first is that, in the Sraffian supermultiplier, unlike in Kalecki or Steindl, there is indeed a tendency of capacity to adjust to demand and for the actual degree of capacity utilization to tend to its normal value. This adjustment of the capital stock, by its turn entails that it is the realized rate of profits (favored by Kalecki) that adjusts to the normal capacity utilization rate of profit (studied by the Sraffians). The model combines the classical inverse relation between the real wage and the general rate of profits and the kaleckian idea that the actual mass of profits is determined by capitalist's expenditures, through the endogenous adjustment of the capital stock.[22]

The second difference concerns the notion of autonomous investment driven by innovations. In the Sraffian supermultiplier, gross investment is a derived magnitude and is entirely determined by the technique to be used (technical capital-capacity ratios) and the peak levels of effective demand, expected to occur during the lifetime of still existing capacity and in the one being installed.

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[21] For a critical view of the way the international literature on financialization treats the determination of investment, see Medeiros and Amico (2017).

[22] The argument that Kalecki could be made fully compatible with the Sraffian theory of prices of production if capacity tend to adjust to demand but not a fully satisfactory model is presented in Serrano (1988) (who was also a student of Amadeo, and in this work was also strongly influenced by Possas). The idea that the presence of autonomous non capacity generating components in demand is a general necessary condition for avoiding Harrodian instability, thus allowing capacity to adjust to demand if investment is induced, appears in Serrano (1995b). A set of specific sufficient formal conditions for this dynamic adjustment of capacity to demand to occur in the context of a linear adjustment process, assuming a flexible accelerator mechanism, was provided by Fabio Freitas (a student of both Possas and Serrano) in Freitas and Serrano (2015).

Profitability constraints are already taken care of, as expected effective demand is precisely the demand at the price of production that covers production costs at the normal capacity utilization of the dominant technique and a rate of profit sufficient to cover both financial and opportunity costs of capital. Financial factors are seen as constraints, rather than as direct determinants of investment (Serrano, 2001)[23].

The reason why this description of the determinants of gross investment is so parsimonious is that if more variables deemed to determine investment are added, it is easy to see that what is being assumed is quite inconsistent, i.e., that firms will want to equip themselves with more capital goods than they themselves think they will need.

As a consequence, whether or not gross investment includes innovations, firms cannot be indifferent to the capacity effects of their own decisions. Therefore, all investment must depend on expected effective demand and thus all investment should be treated, in this sense, as induced.

It is true that proponents of autonomous investment since Kalecki also stress the importance of new markets, besides innovations. But a new market can only happen in the aggregate if there is either an increase in autonomous consumption rather than an increase in the marginal propensity to consume, or an increase in autonomous expenditure financed either by credit or by the monetization of accumulated wealth. This new market may well appear because of some product innovation, but this is not autonomous investment but autonomous consumption.

There are also business expenditures in research and development for new processes or products and also "sales efforts", expenses for marketing and product differentiations. But this expenditure is also clearly not investment in the sense that they are not represent direct purchases of newly produced means of production.

Of course, there is no reason to assume that the levels of expected demand of all investors are consistent in the aggregate or correct in any sense, particularly in an environment in which innovations are being introduced. Kalecki (1968) argued precisely that the firms that invest today steal market shares from the firm that invested yesterday. But Kalecki (and also Tavares and Possas) simply add this new "autonomous" investment of the successful innovator to total investment without considering that it will probably reduce the "induced" investment of the firms that lost market share and now necessarily have unplanned spare capacity.

It is true that there will always be some duplication of innovative efforts, and some investors trying to recover their market share by investing more, instead of less. But the idea that from these typically transient effects one can really generate a trend of sustained growth of aggregate investment

[23] Thus, in this view, credit may affect aggregate investment in short run situations, e.g., a major financial crisis where credit constraints are pervasive. But apart from these situations, credit constraints tend to be binding for smaller firms but usually not for many larger ones. Therefore, finance tends to be more relevant in determining which firms will invest, rather than to the determination of aggregate investment in a sector or in the economy (Serrano, 2001).

over time can only be obtained in a model in which the capacity effects of such additional investments are simply ignored. [24]

Besides these difficulties with the concept of autonomous investment, there is also the question of the consequences of investment that incorporates technical change on aggregate effective demand. Contrary to what is asserted by those who make recourse to autonomous investment, innovative investment may well lead to lower levels of aggregate demand and induced investment. For instance, process innovations that increase labor productivity will probably increase the profit share and reduce the multiplier and induced consumption. Another example would be capital-saving technical change, that would reduce the relevant capital-capacity output ratios and make the same levels of aggregate demand to induce less gross investment than before the innovation.

The upshot of all this is quite simple, whether or not gross investment includes innovations, firms cannot be indifferent to the capacity effects of their own decisions. Therefore, all investment must depend on expected effective demand and thus all investment should be treated, in this sense, as induced. This explains why in the Sraffian supermultiplier all gross investment is induced by the expected trend growth of demand, and sustained demand-led growth depends crucially on the expansion of non-capacity creating components of autonomous demand and on changes in the technical coefficients and in the determinants of the aggregate marginal propensity to consume (including, of course, income distribution).[25]

5. Final remarks: Tavares and autonomous and induced investment

As we have seen above, Tavares thought that after the 1970s financial capitalism was mutating into financial globalization or financialization as a new phase of capitalist development. Moreover, since the 1980s, Tavares worked mostly and assigned greater emphasis on the determinants of autonomous investment.[26] Tavares never embraced the Sraffian supermultiplier approach. But she also never abandoned the idea that the capacity effect of investment was relevant, nor stopped taking into

[24] Possas and Dweck (2011) through simulations, and Fagundes and Freitas (2018) and Nah and Lavoie (2019) by means of formal dynamic stability analysis recognize and confirm the results of Serrano (1995a) and Cesaratto et al. (2003) that increases in autonomous investment fail to generate a growth trend when the adjustment of capacity to demand is adequately modelled.

[25] Note that the point is not to deny that large firms may introduce more innovations, just that these innovative investments cannot be seen as independent of expected demand considerations and are generally not enough by themselves to generate a positive growth trend in the absence of increases in the autonomous and induced non capacity generating expenditures.

[26] This sharp contrast in focus from the induced to the autonomous component of investment in the work of Tavares and her associates at the Institute of Economics of State University of Campinas (IE-Unicamp) was so marked that led Serrano (2001) to identify these two phases as Unicamp I and Unicamp II. A similar trend happened at Institute of Economics of Federal University of Rio de Janeiro (IE-UFRJ) over the same period. However, since the 2010s through the influence of the supermultiplier research agenda, the influence of Tavares' work in her earlier phase has been increasing again both at IE-UFRJ (Freitas and Dweck, 2013; Summa, Petrini and Teixeira, 2024) and also at IE-Unicamp (Mandarino, Dos Santos, and Silva, 2020; Teixeira and Petrini, 2023; Andrade, Teixeira, and Braga, 2026).

account induced investment and thus the evolution of demand as one of the main determinants of business investment (Tavares, 1993, p. 84-85; Tavares and Metri, 2004[2020], p. 12; Tavares, 2010, p. 48) unlike what we find in the work of Braga on financialization. Indeed, in her last published work (Tavares, 2019) she states that "It is always public investment that invites the private sector to commit resources to productive activity, acting, in a sense, as the ultimate guarantor of demand" (Our translation.).

There was no intrinsic contradiction in her position of accepting the general idea of financialization but not rejecting that of induced investment. Modern large corporations are surely very much involved in many complex financial and speculative activities, often across different currencies. But that does not at all mean that, in what specifically regards decisions to acquire new fixed capital goods, capitalist firms will be indifferent to the need to consider the expected levels of effective demand during the lifetime of the equipment to be installed as a key element in such decisions. This is because the prospect of a large degree of unplanned capacity underutilization is something way too costly to be ignored, as many of us learned from Tavares' own work and courses. But in any case, the current research agenda initiated by Braga on both the broader aspects of financialization as a new phase of capitalism and their specific financial view of autonomous investment is very active nowadays both in Brazil and internationally, among heterodox economists.[27]

By its turn, the Sraffian supermultiplier literature, has increased substantially after the mid-2010s both in terms of theoretical and applied studies, in Brazil and also internationally. All of these studies are remarkably close to Tavares earlier works on demand-led growth.[28] The fact that both financialization and the supermultiplier, quite different current heterodox research agendas, have their origins directly in Maria da Conceição Tavares's works and teaching shows how relevant her thinking is today.

We conclude that these two agendas can correctly claim to be legitimate heirs of specific phases of her work. Tavares herself kept to her own original demand-led growth agenda, in which investment would always retain, even in her later works, both an autonomous and an induced component, throughout her long and amazingly rich intellectual trajectory.

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[27] In this regard, see the special issue of the IE-Unicamp journal, *Economia e Sociedade*, dedicated to this topic, highlighting Braga's pioneering analysis of "financialization" (Prates et al., 2017). For a review of the literature on financialization for the period 1992 and 2017, see Palludeto and Felipini (2019).

[28] See Serrano, Summa, and Freitas (2023) for a survey on recent theoretical and empirical developments in this agenda.

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