

Walras in Spain (1874–1936)

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Abstract:

This article focuses on the fate of Walras and Walrasian ideas in Spain, which should be contextualised within the coming of marginalism to Spain. Traditionally, it has been accepted that marginalism was almost forgotten by Spanish economists during the period of 1870 to 1936. This statement held on to the idea that Spanish economists did not contribute in almost any way to the theoretical heritage at the time. However, this interpretation is misleading in that Spanish economists were well informed about the advances of economic theory and that they applied them to solve the problems of Spain's economic backwardness. In particular, during the first third of the twentieth century, the main Spanish economists used a generic version of 'national equilibrium,' which was merely a simplified adaptation of the Walrasian notion of equilibrium to the Spanish economy, for grappling with the problems of economic development. Three economists in particular, Antonio Flores de Lemus, Romà Perpiñá Grau and more specifically Manuel de Torres, used this version to support different economic policies that were assumed to contend with economic backwardness. In doing so, they contributed to the introduction of marginalism, and in particular, Walrasian ideas into Spain.

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I The Reception of Marginalism in Spain

In order to understand the low impact that marginalism had in Spain, an analysis of the gradual extinction of the classical political economy and its gradual substitution by new approaches to economics is required. However, this process of replacing the classical political economy had certain peculiarities in Spain, which will be briefly described below.

The central decades of the nineteenth century were characterised by the rule of the so-called 'escuela economista'—economist school—whose members radically defended free trade and were highly influenced by such French economists as Bastiat or Molinari. The group reached its pinnacle during the 1860s and 1870s, when some members of the school served in government and influenced economic policy. Theoretically, however, the economist school was by no

means original—they strongly believed that Bastiat's works contained the answers to most economic problems (Lluch and Almenar 2000, 129–43).

Things worsened and the last quarter of the nineteenth century has unanimously been appraised as a period of deep decadence of political economy in Spain (Velarde 1974). On the other hand, the last members of the economist school like Carreras y González, Martín Rodríguez, Figuerola or Sanromá, gradually passed away and the liberal economic agenda was unable to successfully contend with the problems that arose from the economic crisis during the 1880s. Leaving aside the remarkable response of revolutionary working-class movements, the reformist reaction was basically comprised of three approaches: the conservative approach of some politicians who defended the interventionism of the State; the social-catholic alternative to the classical political economy and; the so-called Krausist economists. Social Catholicism was a heterogeneous movement that shared the acceptance of a moral framework inspired by the Church and the moderate interventionism of the State in social issues in common. The movement promoted the translation into Spanish of a wide range of works by Antoine, Hervé-Bazin, Le Play, Pesch, Toniolo and many other European social Catholics (Zabalza 2005). By contrast, Krausist economists were some kind of Spanish historicists that criticised classical political economy on two principles: its lack of ethical foundation and the narrow role attributed to State interventionism. They were inspired by Italian Civil Law experts or in some questions such as co-operative movement by Fawcett, and they

pleaded for competition that operates within a legal framework organised by the State. The State, however, also assumed social policy. Both Catholics and Krausists, however, did not entirely reject marginalism; they were simply not inclined to debate the latter (Malo 1998, 378, 459–515).¹⁾ As for the institutional development of the political economy in Spain, neither group contributed to the adoption of the neoclassical approach. The successive educational reformations, however, did result in placing the chairs for political economic at the faculties of Law; thus, the majority of Spanish economists held legal backgrounds, seemingly contributing to the disregard for marginalism. The prevalence of French economic literature—the main French journals at the time such as *Journal des économistes* or *L'économiste Français* were profusely read in Spain—that did not pay particular attention to economic theory and the professional dispersion of Spanish economists who devoted a considerable part of their time to politics, public debates and consulting, seems also to have been an impediment to the introduction of marginalism into Spain (Almenar 2000, 82; Laurent and Marco 1996).

The isolationism of the Spanish political economy began to come to an end when Antonio Flores de Lemus returned from Germany in 1903. Flores, together with Bernis and Zumalacárregui, carried out the first steps of the modernisation of Spanish economics in the first third of the twentieth century by promoting the gradual introduction of German neo-historicism and marginalism (Velarde 1990). Whilst Flores and Bernis were more connected to German neo-historicism without ignoring the analytical advances of

British marginalists such as Marshall or Edgeworth, Zumalacárregui seems to have been responsible for the introduction of marginalism and, in particular, the approach of the Lausanne School into Spain (Fuentes 2001, 345–429). However, the education on economics in the Spanish university seems to have ignored this reception, since marginalism, as far as we know, was only taught in some specific academic spheres. A second generation of economists advanced the efforts of this trio of pioneers. These economists did not produce any theoretical contribution to economics with the exception of Bernácer. However, some of them like Olariaga or Fernández Baños seem to have completely understood the meaning of neoclassical economics (Almenar 2001). However, the most worthwhile contributions of the Spanish to economic science were made in the applied fields. In particular, during the 1930s and on the trail of Flores, both Romà Perpiñá and Torres took the notion of general equilibrium as the analytical framework with which to address the Spanish backwardness as we will demonstrate below.

II Walras and General Equilibrium in Spanish Economic Literature (1874–1936)

The isolationist context described above did not promote a propitious climate for the expansion of Walrasian ideas in Spain. In fact, the Spanish economists only marginally mentioned Walras's contributions to economics.²⁾ The mentions, however, were mainly embedded within handbooks normally used to teach political economy at the faculties of Law, and thus, they merely pointed out that Walras belonged to the mathemati-

cal school of economics and that he defended bimetallism (Carreras y González 1881; Madrazo 1874; Olózaga and Salvá 1892–93; Piernas 1903, 94–95).

The most outstanding Krausist economists like Piernas Hurtado or Alvarez Buylla seem to have been well prepared to grasp the meaning of the marginal revolution, but they kept the debate grounded on a mere description of the principles of neoclassical economics, and in some cases such as Alvarez Buylla, they explicitly rejected the use of maths by Walras. In any case, they focused their attention on Austrian marginalists such as Menger or Böhm-Bawerk (Malo 1998). Other minor Krausist economists like Jiménez, following the Italian Loria, considered the contributions to mathematical economics and in particular those by Walras as entirely inaccurate (Perdices and Reeder 2003, 414–15). The members of the liberal economist school mentioned above seem to have perceived the significance of marginalism in general and Walras's contributions in particular. Figuerola, for example, praised in 1880 the mathematical contributions of Walras as they confirmed, according to him, the principles of free trade³⁾; and the economist and winner of the Nobel Prize for Literature José Echegaray declared in his memories to have a profound knowledge of Walras's work and to have planned a mathematical reinterpretation of the political economy, which actually never was completed (Cabrillo 2000, 486–87; Pascual 2000, 540–41).⁴⁾ Summing up, the works of the Spanish economists of the last third of the nineteenth century reveal that they had heard of Walras's contributions to mathematical economics but not to what extent they had understood them.⁵⁾

Flores's return to Spain at the beginning of the twentieth century brought about a change in the pattern of reception of economic ideas in Spain. As mentioned, he became fascinated by German neo-historicism but did not neglect marginalism.⁶ Indeed, he was aware of Marshall and Walras's contributions during his time in Germany as we will demonstrate below. However, Flores's main contribution to the spread of marginalism throughout Spain was, undoubtedly, the creation of a group of disciples such as Rodríguez Mata, Viñuales, Reventós, Alvarez or Castañeda who gradually adopted marginalism.

The historiography on the history of economic thought has considered Zumalacárregui as the first Spanish economist who adopted marginalism as the canonical paradigm of economics at the beginning of the twentieth century. After his graduation in Philosophy and Law at the University of Salamanca, he visited several European universities from 1900 to 1904. It seems that he stayed at the University of Lausanne at one point at the beginning of the century and he might have kept intellectual contact with Pareto. In fact, he claimed to be '... Pareto's disciple, whose doctrine I introduced into my first syllabus [in the Spanish university]... During a long time I was the only Spanish mathematical economist in the Spanish universities' (Zumalacárregui 1946, XXVII–XXVIII). Upon his return to Spain, it seems that he was impressed by the contributions of the Lausanne School and he decided to face the 'rough' task of reading Walras and Pareto, which convinced him of the need to improve his mathematical skills (Velarde 1990, 46). Later, at the end of the 1940s, he

wrote an intellectual biography of Pareto in which he stressed and explained the close connection between Walras and Pareto, regarding the representation of general equilibrium through the system of simultaneous equations (Zumalacárregui 1949, 40–49; 1951). He also declared that he evolved as an econometrician in response to the Pareto approach (Zumalacárregui 1953–55).

Based on these and other assertions made by Zumalacárregui during the 1940s and 1950s, most historians have assumed that Zumalacárregui introduced the general equilibrium theory into Spain (Perdices and Reeder 2003; Velarde 1990). Unfortunately we have no documentary evidence to contrast this hypothesis as he was not a prolific author. The teachings of Zumalacárregui, however, did not fall on deaf ears as he declared to have directed Castañeda and Torres, two of the most outstanding Spanish economists, toward the mathematical approach to economics (Zumalacárregui 1946, XI–XXXIX).

The 1920s and 1930s, however, seem to have been a period in which the reception of Walrasian ideas in Spain was more intense. There are indications about the reception of the Lausanne School approach in the schools of engineering. Rubio de Urquía examined a manuscript that contains the written notes taken in 1928 by a student of political economy at the School of Civil Engineering. Such lecture notes, according to Rubio de Urquía, evinced the influence of the Lausanne School (Rubio de Urquía 2001, 774). In fact, there are other indications that demonstrate that the schools of engineering were a way of introducing mathematical economics. This was the case for the analysis of the Spanish

tax system by the engineer Corbellá and the articles published in *Revista de Obras Públicas*—Journal of Public Works (Ramos and Martínez 2008; Zabalza 2004). Economics also took on a new dimension in the faculties of Law. Neoclassical orthodoxy and mathematical methods gradually prevailed in the so-called ‘Cursos especiales de estudios económicos, políticos y administrativos’—Special courses on Economics, Politics and Administration—developed within the Faculty of Law at the Central University (Madrid) during the 1930s (Velarde 2001b).⁷⁾ Walrasian ideas were also discovered through some translations of European handbooks like *Historia de las doctrinas económicas desde los fisiócratas hasta nuestros días*—The History of the Economic Doctrines from the Physiocrats to the Present Day—by Gide and Rist, which was translated into Spanish in 1927 and Cassel’s *Economía Social Teórica* (1933)—Theory of Social Economy.⁸⁾ Nevertheless, it should be stressed that the majority of the handbooks used in Spain at the time, like the four editions of Supino’s *Principios de Economía Política*—Principles of Political Economy—(1920, 1923, 1928, 1931) or other neo-historicist treatises like Kleinwachter (1925) or Weber (1935), did not pay particular attention to Walras’s contributions and took a critical view of marginalism (Zabalza 2001). Likewise, some Spanish economists, like Fernández Baños, who had been very influenced by the Italians Amoroso and Barone, produced two reports that summarised neoclassical economic theory and explained the evolution of general equilibrium theory from the static Walrasian model through the modern dynamic versions (Almenar 2001; Fer-

nández Baños 1925; 1929). The Italian intermediation in the coming of Walrasian ideas into Spain was crucial as we will demonstrate below with the case of Torres. In fact, the most explicit and complete explanation of the Walrasian model of general equilibrium in Spanish language must be found in Barone and Serpieri’s treatises (Barone 1942; Serpieri 1940). However, they were translated into Spanish in the 1940s; therefore, not within the period for analysis of this article. Finally, it should be remarked that the first Spanish version of *Éléments* by Segura was published in 1987, in the context of the introduction of *neo*-Walrasian models into Spain (Walras 1987).⁹⁾

III Walrasian Ideas and Applied Economic Analysis in Spain at the Beginning of the Twentieth Century

As mentioned, this article holds that some of the most outstanding Spanish economists used a certain notion of general equilibrium theory as the analytical framework to study the problems of development in the Spanish economy and, therefore, applied analysis became the method of penetration of Walrasian ideas—and marginalism—into Spain during the first third of the twentieth century. Since this way of introduction of ideas has been ignored by historians, the article contributes to a better assessment of the impact of neoclassicism in Spain during this period.

1. Antonio Flores de Lemus and the Introduction of the Notion of ‘National Economic Equilibrium’

Antonio Flores de Lemus was the first to introduce the notion of ‘national equilibrium’ of productions, which in fact, given the re-

gional specialisation of the Spanish economy, was simply the equilibrium of the Spanish regional economies. Broadly speaking, the Spanish economy was integrated by three sectors. The unproductive production of cereal and cattle raising located in the heart of the Iberian peninsula; mining, fisheries and irrigation agriculture which were productions devoted to the exportation of goods and mostly situated in the peninsula periphery; and industry located in the Basque country (North) and Catalonia (North East). All three, Flores, Perpiñá and Torres, assumed this structure as the premise of their respective economic analyses.

In 1928, when Flores was as a technical advisor of the Finance Department, he addressed the National Assembly of the Dictatorship and explicitly claimed the originality of this idea¹⁰:

There is not any work in the available [Spanish] economic literature that properly tackles this problem [the national economic equilibrium]. I was indeed working on this particular topic, when, unfortunately, the Minister of Public Finance appointed me as a government adviser and I left my scientific occupation. . . . (Flores de Lemus [1928] 1969, 522)

The notion of a 'national economic equilibrium' is by no means a peripheral piece of Flores's analysis. On the contrary, upon this idea he designed a model, which in fact was never explicitly formulated, that underlaid his diagnosis of the causes of the Spanish economic backwardness and his proposals of reformation.

It seems that Flores first heard about general equilibrium in Germany. According to the available evidence, he had contact with the Russian economist Bortkiewicz, who highly admired Walras and defended the French-Swiss economist from the criticism of British economists, and in particular, from Edgeworth's negative opinion (Bortkiewicz 1890). Unfortunately, we know very little about the intellectual relationship between Bortkiewicz and Flores apart from that he attended Bortkiewicz's lessons on maths and economics in Berlin, and that Bortkiewicz introduced Flores and Lexis. However, some of Flores's mentions on this matter, and in particular a quotation taken from Flores's writings in which he held that the model of general equilibrium was due to Swiss and British economists, have been considered a proof of Flores's lack of understanding of general equilibrium theory. However, as Velarde has suggested, the supposed incongruences of Flores is related to the criticism that Bortkiewicz made to Edgeworth on general equilibrium (Velarde 1990, 80–81).¹¹ In fact, a detailed analysis of Bortkiewicz's book review on the second edition of *Éléments d'économie politique pure* (1890) published in *Revue d'économie politique*, shows how the debate between the Russian economist and Edgeworth did not focus on general versus partial equilibrium, but on the dynamism of the Walrasian model, which was considered crucial by Edgeworth in order to introduce a greater realism (Marchionatti 2007). Therefore, Bortkiewicz did not call into question the acceptance by British economists of the general equilibrium approach, and Flores seems to be in agreement (Bortkiewicz 1890, 85–86).

Flores took the model of general equilibrium as a general analytical framework to analyse the Spanish economy. Furthermore, the notion of equilibrium was tinged through the introduction of qualitative characteristics of the Spanish economy, which demonstrates the predominance of his neo-historicism background. This approach is evident in the manuscript ‘Bibliographical Notes on Oldenburg-Berufzähligen: the Relationship between Agriculture and Industry in the German Empire’ that belongs to Flores’s personal archives and points out how ‘. . . the relationship of industry and agriculture depends on the equilibrium between their qualitative and quantitative elements’ (Flores de Lemus 1903).

The notion of a ‘national economic equilibrium’ was first exposed by Flores in the article ‘Spanien,’ which Ernst von Halle included in *Die Weltwirtschaft: Ein Jahr- und Lesebuch* (1906). Years later, Flores began to specify the pieces of such economic equilibrium. He pointed out that Spain was almost a closed economic system and economic equilibrium should be established among the national productions. Such equilibrium, however, should take into account that the ‘impulse of wealth’ emanates from the Spanish agriculture (Flores de Lemus [1929] 1976, 493–94).

Flores brought attention to what he called the problem of the burden of protection of the Spanish economy, which in fact was the design of commercial policy in order to establish the markets to be protected and the productions that should assume higher custom duties in foreign markets as a consequence of Spanish protectionism. To resolve the problem, Flores stated structural relation-

ships between different economic sectors based on the Walrasian general equilibrium. His address to the National Assembly of the Dictatorship is clear on this:

Perhaps, political economy is much indebted to the so-called theory of general equilibrium due to English and Swiss economists. They have stated that the economic relationships that Classical economists had considered as causal relationships are now taken as functional relationships, in which, the different terms are simultaneously cause and effect as it happens in mathematical equations. (Flores de Lemus [1928] 1969, 522)

The mention of the theory of general equilibrium aimed at stating the unity and interdependence of the Spanish economy and at reaching a political consensus on commercial policy. In particular, Flores suggested the protection of the unproductive crop agriculture and livestock markets and the industries of the Catalanian and Basque regions. By contrast, fisheries, mining and irrigation agriculture productions should assume the burden of protection, and thus, their products will face higher custom duties abroad. Flores justified his proposal pointing out that the climate and the existence of a subsoil rich in mineral deposits, which means the existence of a natural advantage, generated privileged incomes in productions such as mining—with the exception of coal mining—and irrigation agriculture, which according to Flores carried with them the responsibility of assuming the burden of protectionism.

Suggesting that the most efficient productions of the Spanish economy should as-

sume the costs of protection does not fit well, obviously, with the efficient allocation of resources that stems from the theory of general equilibrium. Rather, it has to do with the neo-historicist approach that characterises Flores's approximation of the problems in the Spanish economy. In particular, some elements arose pertaining to his ideological background such as the idea of national economic cohesion that requires the sacrifice of some productions for the sake of the general welfare of the Spanish economy as a whole. The following paragraph represents this idea:

... [G]iven the Spanish productive structure, the farmers that produce for exportation pay the cost of protecting Spanish markets through the reduction of their income with respect to a situation in which protectionism does not exist. However, the income—and thus the national welfare—jointly produced is higher under protectionism. Moreover, the Spanish industry would not survive without the protection of the government. (Flores de Lemus [1928] 1969, 520)

Summing up, Flores rhetorically invoked the Walrasian theory of general equilibrium when he addressed an audience that was not very interested in economics. Obviously, Flores did not design a mathematical model to state the precise relationships among the different producers and consumers, and therefore it is not worthwhile to assess his contribution in terms of theoretical models. However, as he himself pointed out, he introduced the crucial idea of interdependency of economic agents through quantities and prices. What is really meaningful is that he paved

the way to the most complete analysis by Perpiñá and Torres in the 1930s.

2. Romà Perpiñá: Structural Analysis and General Equilibrium

Romà Perpiñá was closely connected to the agricultural sectors of the Valencia region, which were specialised in irrigation agriculture and whose products were destined for exportation (Palafox 1993, XXXIX). His main work, *De economia hispana*, which was first published in German in 1935 at the University of Kiel where he resided for during a couple of years in the early 1930s, contains a complete model of the Spanish economy in which he used a basic notion of general equilibrium to demonstrate the connections between the different Spanish economic productions (XV).

Perpiñá, as well as Flores, roughly identified three main productive sectors. The first one was located in the centre of the Spanish peninsula and basically produced cereal and legumes. According to Perpiñá, these productions survived due to high custom duties that protected national markets from international concurrence and the intervention of the State that guaranteed a minimum price (Perpiñá [1936] 1982, 379). Industry, on the other hand, was mainly located in the regions of Catalonia and the Basque Country (East and North Spain, respectively) and had a growing cost structure that emanated from the high price of bread caused by grain protection; the high railway tariffs due to coal protection; the small size of the Spanish markets that prevents the industry from growing returns; and finally, the assumption of the risks of bad crops through the mechanism of channelling credit from industrial to

agricultural areas. Therefore, these linkages between industry and agriculture compelled the former to demand their own protection but also the protection of the latter. As a result, agriculture in the heart of the peninsula—whose production is subject to the law of diminishing returns—was not able to absorb the production of the industry in which the law of growing returns prevails. Finally, Perpiñá attributed to the agricultural sector devoted to the production of exportation goods located in some parts of the Spanish periphery and in particular in Valencia a crucial role:

The production of the agricultural sector of the Spanish periphery grows at the same pace than industry, and thus, it is able of absorbing the surplus of industrial production that the grain agriculture sector of the heart of the peninsula is not. The former, therefore, shapes the booms and depressions of industry inasmuch as it takes the surplus of industrial production up. (Perpiñá [1936] 1982, 390)

It is at this point that Perpiñá introduced the idea of equilibrium of the national productions. In previous contributions, Perpiñá had pointed out the following:

. . . [E]conomic welfare as a goal of economics is the consequence of economic equilibrium: equilibrium in production, equilibrium in trade, equilibrium between production and consumption. The disequilibrium in any part of the economic process pass on to the other parts, and welfare ebbs and flows, and the occasional or long crisis pops up. . . . The lifespan of the crisis

depends on the intensity of the original disequilibrium, the grade of transmission to the rest of the ‘economic organism’ and the difficulties of the economic system to reach a new equilibrium. (Perpiñá 1931)

Furthermore, Perpiñá points out the existence of a long-run mechanism that led towards the equilibrium of productive sectors. The question is whether the new equilibrium of the Spanish economy led to the reduction or augmentation of production and social welfare. According to him:

[The problems] to reach the equilibrium of the Spanish economy (which tends to re-establish the balance at a lower point of production) are the commercial barriers imposed by the great industrial countries to the main Spanish products. Some of these limitations seem to be reasonable given the reduction of purchasing power (crisis) of the industrial countries and the growing concurrence of countries that have better conditions of costs, but others are the result of economic policies like protectionism or the systems of colonial preferences of the European powers. (Perpiñá [1936] 1982, 379)

Leaving aside the interesting suggestions made by Perpiñá, he pointed out the structural nature of the crisis that demanded the shift of Spanish commercial policy. In fact, he strongly proposed a change in the structure of the Spanish economy through the promotion of the specialised production of exportation agricultural goods and industry, which were the most efficient Spanish productive sectors. Therefore, he proposed replacing the

autarchic commercial policy with a new model based on free competition and the removal of barriers to commerce (Perpiñá [1936] 1982, 407).

Summing up, Perpiñá's model was primarily based on the notion of the 'national equilibrium' of Spanish productions, which as seen, was remotely inspired by Walrasian ideas. As well as Flores, he used a generic and simple notion of general equilibrium in which economic agents make decisions using prices as data, and thus, the market operates within the context of the particular structure of the Spanish economy and its policy restrictions. Nevertheless, Perpiñá's commercial policy responds much more to the allocation of resources derived from the free operation of market forces, and according to him, the historicist solution provided by Flores to avoid dire economic and social consequences to the cereal sectors will contribute to hasten the decadence of the Spanish economy (Perpiñá [1932] 1982, 115–40, 131 and 134).

3. Manuel de Torres and the Italian Approach to General Equilibrium

Manuel de Torres, in contradistinction to Flores and Perpiñá, did not have a German background. His intellectual roots were founded in the rich Italian tradition of political economy and probably influenced by Zumalacárregui, for whom he was research assistant at the University of Valencia.

Again, in contrast to Perpiñá and Flores, Torres believed that agrarian activity was tied to a set of values that he believed were specific to agriculture; thus, different from urban life or industry.¹²⁾ Therefore, the Marxist capitalists-proletariats dialectic was sub-

stituted by the town-country dialectic (Torres 1933b). In this context, the conflict endures but moves to the sphere of the relationships between industrial and agricultural productions. However, what is remarkable from our point of view is that Torres focused on the analysis of the mechanism of prices as the conflict arose:

... [A]grarian working class also wished high wages; however, high wages demand high prices of agricultural products. Therefore, high prices of agrarian products concern equally to agrarian working class, farmers and agrarian owners. (Torres 1933b)

Nevertheless, Torres held that the high prices of agricultural products were not a real burden to industry. On the contrary, higher prices in agriculture increased the purchasing power of agriculture that eventually brought about the increase of the demand of industrial products (Torres 1933b). Consequently, Torres stressed the interconnections among the industrial and agrarian productions through the reciprocal demand and supply of products that also induced spillover effects on the labour markets.

Having assumed this normative background, Torres merged it into the model of equilibrium for Spanish agriculture, and in general, for Spanish productions that lay behind his writings during the 1930s. It seems that the generic notion of equilibrium of national productions, coined by Flores, had a certain influence on economists such as Torres or Perpiñá. However, to a greater degree than Flores and Perpiñá, Torres emphasised the crucial role played by prices in the

economic equilibrium of Spanish productions, and he explained how they specifically operated within Spanish agriculture. On the one hand, Torres was probably inspired by the method used by Serpieri, connecting the fluctuation of prices to the substitution of cultivations (Serpieri 1925, 203–04). Farmers, according to Torres, will intensify production to such an extent that their marginal cost equals marginal revenue in order to maximise profits, and thus, the fluctuations of prices have a consequential effect on the extension of the different cultivations, and in turn on the supply of agricultural goods (Torres 1933c, 247). Furthermore, he made the model more dynamic when he connected the fluctuations of prices in previous periods to the adjustment of current production (Torres 1935, 242). Torres extended this mechanism of interconnections of markets to the entirety of agrarian products whether they were raw materials, in-between products or final products: this was the case for grain, flour and bread. Despite this, it was not clearly formulated by him; a more detailed analysis of his writings demonstrates that Torres also interconnected goods with factors markets.

Once Torres's model was endowed with a mechanism of adjustment, he analysed the equilibrium of Spanish agricultural productions and assumed that the system had a solution for the equilibrium price. However, in its application, he moved away from the Walrasian model and adopted what he called the 'appropriate' level of prices—the level of prices for productions that guarantee, according to him, the maximum level of remuneration for agrarian products and equilibrium among them.¹³⁾ Consequently, the prosperity

of Spanish agriculture depends on this appropriate level of prices, which at the same time, shapes the rise of industry since Torres—following Flores's statement on this—believed that '... [in Spain] purchasing power comes from agriculture' (Flores de Lemus [1929] 1976, 493–94); Torres 1935).

Torres used the model of interdependency of Spanish productions through prices to analyse the manner in which international deflation in the 1930s spread throughout Spain, and how domestic key elements and institutional particularities contributed to worsening the economic crisis. Government, according to Torres, may contribute to successfully traversing an economic crisis by implementing economic measures that attempt to recover high levels of purchasing power in agriculture; specifically, the control of prices and rate of exchange policies to reinstate the equilibrium of agrarian productions. Finally, the recovery of equilibrium and not social policy is what would guarantee social stability in the countryside and industrial areas.

As mentioned, the influence of Walras on Torres's model took place through the intermediation of Italian economists who previously had interpreted and, in some cases, had applied the Walrasian model to analyse Italian agriculture. First, it should be remarked that Torres, probably inspired by Luigi Einaudi—the renowned Italian expert on Public Finance—perceived the general equilibrium theory as an excessively abstract theoretical construction. In fact, the group of economists at the *Laboratorio de Economía Política*—Jannacone, Prato and Sella—in Torino, led by Einaudi himself, assumed the

validity of theoretical models, but in practice, they adopted a positivist approach to analyse economic issues. Economic reality, for them, was best suited to the idea of organic development than to a system of equations that overemphasises the mechanical accounting for this reality. Nevertheless, Einaudi in particular, deemed the general equilibrium theory as a required benchmark for economic analysis (Gallegati 1984, 377–88). On this point, we have documentary evidence that Torres had profusely handled *Il contributo alla ricerca dell' ottima imposta* (1929), which symbolised, according to Gallegati, the use of general equilibrium theory as the theoretical framework by Einaudi (Beneyto and Torres 1933, 378; Gallegati 1984).

Einaudi also seems to have influenced Torres on the crucial role played by prices in the determination of equilibrium (Einaudi 1933). If Einaudi held that the economy hinged upon what he called 're prezzo' ('king price'), Torres declared that:

... [T]he hypothesis that I hold does not fit into the foundations of a liberal economic system but on the foundations of any exchange economy system in which prevails a minimum level of economic freedom, which includes consumption and labour choice freedom. The economic systems which assume such a basic principle share the feature that the whole system of equilibrium is shaped by prices, whichever were their further differences. (Torres 1935)

Therefore, both authors continued the Walras–Pareto tradition when they consider-

ed the prevalence of prices in the interdependency relationships of the economic variables. Moreover, they also admitted the ability of price control policies to achieve economic equilibrium in periods of emergency such as the economic instability of the 1920s, in which the mechanism of the market was not able to equal supply and demand. However, Torres's approach disagreed with Einaudi's on one crucial point. Whereas Einaudi held that price control policies led the economic system to an equilibrium analogous to the equilibrium that would have been reached by the operation of the market mechanism, Torres, by contrast, believed that the price of perfect competition was not desirable, at least in with respect to the Spanish economy, and thus, it should not coincide with the above mentioned appropriate level of prices reached through price control policies. Needless to say, the appropriate level of prices is not the result of the mechanism of the market, but rather the intervention of the State, which according to Torres must fix prices to a level whereby the economic goals of the nation may be fulfilled.

On this particular point, Torres's specific adaptation of the general equilibrium theory to the Spanish economy demonstrates the strong influence of some of the Italian corporatist economists, which had defined the national economic equilibrium as a position that they considered much more convenient from the point of view of its social utility—or more exactly, from the perspective of what they referred to as national economic goals—than the equilibrium of free competition (Perillo 1982). Therefore, the national economic equilibrium or the equilibrium of national productions defined by Torres for

the Spanish economy is basically what Italian corporatist economists called ‘corporatist equilibrium,’ which enclosed normative and extra-economic components (Torres 1935, 242).¹⁴⁾ Torres, however, did not drift away from the core elements of neo-classical epistemology such as the *homo oeconomicus* that assumes the principle of self-interest, which in the most radical versions of corporatism was replaced by what they referred to as ‘*homo corporativus*,’ which assumed national economic goals (Guidi 2000). By contrast, Torres believed that the interventionism of the State through price control policies was enough to move self-interest towards general interest—the latter being represented by the economic equilibrium that satisfies the national economic goals above described. Moreover, it is important to note the influence wielded by Serpieri upon Torres, who had taken Barone’s theory of equilibrium as a model, and, had applied it to the agrarian markets, making room for the interventionism of the State without shedding doubt on the free operation of the market and the role of private initiative.¹⁵⁾ As Schumpeter noted, such contributions led to his theoretically admitting that the interventionism of the State may improve the competitive mechanism of the market (Schumpeter 1985, 1075–77).

Some other features of Torres’s model confirm the Italian sources of approaching the problem of economic equilibrium; for example, the theory of ‘prezzi connessi’—connected prices—which was developed by some Italian economists like Pantaleoni or Fanno who grouped goods into the family of substitute goods in such a way that assumed an alternative midway between Walrasian and Marshallian versions of equilibri-

um (Bellanca 1994).¹⁶⁾ Finally, it should be said that Torres never pretended to tackle economic theory. It seems, nevertheless, that he accepted the existence of equilibrium. However, questions such as uniqueness, the ‘tâtonnement’ system or the stability of equilibrium, which demands a profound explanation given the introduction of the concept of national equilibrium, are not discussed in Torres’s writings.¹⁷⁾

IV Summary and Final Comments

The diffusion of Walras and Walrasian ideas in Spain is connected to the fate of marginalism. During the last third of the nineteenth century, there were no institutional, academic and scientific conditions for the reception of marginalism and only those economists with technical backgrounds such as Martín Rodríguez or Echegaray manifested an interest towards mathematical economics. Unfortunately, was not but mere interest that revealed that some Spanish economists had information about Walrasian general equilibrium. However, what it is actually paradoxical is the Walras’s social reformism was neglected by Spanish economists. Despite the fact other economists as Schäffle or Wagner, who were considered to be as too radicalised were, however, well-known in Spain and their ideas widely discussed in the writings of Spanish economists.¹⁸⁾

The turn-of-the-century created a better intellectual climate for the intellectual and institutional reception of foreign economic doctrines due mainly to the instruction of a group of disciples by Flores. The Walrasian general equilibrium theory, however, had its maximum real impact on applied economics since three of the main economists of the

first third of the twentieth century took a generic notion of national equilibrium as the framework in which to analyse some problems of the Spanish economy and suggest some final comments. Regardless of what the level of understanding of the Walrasian approach might have been, there is little doubt that Spanish economists did not ignore the general equilibrium theory. In addition, the international diffusion of economic ideas did not clear a direct pathway between the original ideas or authors and the eventual receptor. In fact, throughout this article, what we refer to as Walrasian ideas embraces the concepts that emanate originally from Walras but were taken from different intermediate sources. The Spanish case in particular demonstrates how Walrasian ideas infiltrated Spain through other economic traditions. Finally, Flores and Perpiñá symbolised how abstract theory was used in Spain to analyse the country's specific economic problems. They likely read the original works of and in particular Walras's *Éléments*. However, as demonstrated, we do not have enough information to state the extent by which they deepened the knowledge of Walrasian general equilibrium theory as they only used it to point out the interdependency of the Spanish productive sectors through the mechanism of prices, leaving aside the discussions on other aspects of the Walrasian model. On the other hand, they strongly believed in the existence of certain structural and institutional conditions that were different in Spain to those of other European countries, which implied that the theoretical background was merely a remote frame of reference to applied analysis. Even Torres who, according to his writings, demonstrated a wider and

more accurate use of the Walrasian model did not discuss the crucial aspects of general equilibrium.

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Notes

- 1) On the nature and possible connections of Krausist economist to other European historicist economist, see Velarde (2001) and Malo (1998).
- 2) By contrast, Leon's father's work, *Teoría de la riqueza social, ó resumen de los principios fundamentales de la Economía política*, had been immediately translated into Spanish in 1850 (and re-issued in 1857).
- 3) The mentions by Figuerola to Walras are always contextualised within the debate free trade vs. protectionism. In particular, he interpreted Walras as the economist who demonstrated through geometry and algebra the law of exchange, and thus, the positive consequences of the policy of free trade (Cabrillo 1991, XXXVI).
- 4) Martín Rodríguez, who was another outstanding member of the economist school, included Walras in the group of modern economists that continued in the direction spearheaded by Physiocrats and Smith. Some historians have pointed out that Rodríguez's mathematical background enabled him to understand and receive marginalism in general and Walras's contributions in particular. Furthermore, it has been defended that he held a definition of economic science comparable to Robbins's definition of economics (Iparraguirre 1975). In any case, we have not found evidence on the extent of his understanding of Walras's general equilibrium theory.
- 5) Jevons, Marshall and Fisher's works, however, were profusely translated into Spanish.

- 6) In 1920 he wrote a syllabus on political economy in which he included what he considered to be the most crucial literature on economics at the time. Walras's works were embedded within.
- 7) V. A. Álvarez said to have worked up an interest on economics after reading Pareto's *Manuel* in a library in Paris in 1917 (Sánchez 1991, 45).
- 8) It is known that Cassel's contribution was a simplified version of Walras's model as he did not incorporate the equations of consumer equilibrium. *La teoría monetaria y el ciclo económico*—Monetary Theory and the Trade Cycle—by F. Hayek was translated into Spanish by L. Olariaga in 1936.
- 9) The famous English version by Jaffé was not published until 1954. The Japanese version, on the other hand, was published in 1933 by J. Teduka (Misaki 2006, 169). See a catalogue of Walras's literature in French and other foreign languages in Walker (2006).
- 10) In 1923 Primo de Rivera successfully organised a *coup d'état* that inaugurated the authoritarian period of the Dictatorship that extended until 1930. The liberal parliament was replaced by the National Assembly, wherein political parties were substituted by representatives of the different economic and administrative interests.
- 11) Franco, who was Flores's disciple, prepared a report on the state of the art of economic theory in Spain, which was included in the collection published by Hans Mayer in 1927 in Germany (*Die Wirtschaftstheorie der Gegenwart*, Viena Julius Springer 1927). In this report, Franco stated that Flores believed that the Walrasian general theory was not able to clarify the problems with the solution of equilibrium since the system of equations remained indeterminate. However, as Martín Rodríguez has pointed out, Franco's remarks are imprecise, probably because Franco himself did not understand the problems of uniqueness of the system of simultaneous equations in the 1920s (Martín Rodríguez 2001, 435–36).
- 12) Torres branded agriculture as a 'way of life' following the Italian agrarian economist Arrigo Serpieri (1925; 1929). On the *paretian* origin of the 'way of life' term, see Bellia (1993, 69–81).
- 13) For a detailed description of Torres's model, see Zabalza (1995, 63–101).
- 14) See Faucci (1990) and Bellanca (1994) on the different approaches to economic equilibrium by Italian economists.
- 15) On this particular point, the parallelism with authors such as Alberto Breglia should be remarked, as he defended the intervention of prices to favour certain groups and characterised the corporatist market as an institution in which absolute freedom prevails on the demand side and prices are controlled on the supply side (Faucci 1990, 15; Breglia 1934, 392–93).
- 16) Conditions such as the Marshallian constancy of marginal utility of money are now applied to the equilibrium of the family of 'substitute goods.' See Bellanca (1994) on this and other features of the model of 'prezzi connessi'—connected prices.
- 17) On the different forms and interpretations of the 'tâtonnement' process contained in Walras's *Eléments*, see Bridel and Huck (2002) and Walker (2006, 259–87).
- 18) We have not found any mention in the Spanish economic literature of *Études d'économie sociale* or *Études d'économie politique appliquée* that is basically the normative part of Walras's work in which he tackled the social question. On this normative part of Walras's work, see Van Daal (2006, 51–67).

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