

Reception of Walras' Theory of Exchange and Theory of Production in Russia*

François Allisson

Abstract:

This paper evaluates the reception of Léon Walras' ideas in Russia before 1920. Despite an unfavourable institutional context, Walras was read by Russian economists. On the one hand, Bortkiewicz and Winiarski, who lived outside Russia and had the opportunity to meet and correspond with Walras, were first class readers and very good ambassadors for Walras' ideas, while on the other, the economists living in Russia were more selective in their readings. They restricted themselves to Walras' *Elements of Pure Economics*, in particular, its theory of exchange, while ignoring its theory of production. We introduce a cultural argument to explain their selective reading.

JEL classification numbers: B 13, B 19.

I Introduction

The diffusion and reception of Léon Walras' ideas in Russia is a rather neglected area of investigation. It has been recently and vividly recalled that prior to the prevalence of a Stalinist monolithic tradition, various strands of political economy were debated in Russia.¹⁾ Most of these theories came from abroad, but were adapted locally. The Ger-

man erudite treaties of the younger historical school, the English classical school (through Ricardo), Marx's *Capital* and the writings of the Austrian school were at the heart of economic debates where even Walras had a place.

This paper aims at determining the scope and nature of the reception of Walras' writings and ideas in Russia before the 1920s. Ours is the first systematic investigation

* An earlier version of this text (in French) was presented at the Sixth Conference of the International Walras Association: *The International Diffusion of Walras' Economics: Influence, Interpretations and Controversies*, in Kyoto, Japan, 11–13 September 2008. I am grateful to the participants at the conference and to Gentaro Seki, editor of the journal, for their helpful comments. The constant support of my colleagues at the *Centre d'études interdisciplinaires Walras–Pareto* at the University of Lausanne is gratefully acknowledged. I would like to thank Yuri Tulupenko for his assistance in getting access to the right people and documents during my investigations in various institutions of St. Petersburg, Russia. Contact: Francois.Allisson@unil.ch.

about the reception of Walras' *Elements of Pure Economics* in Russia and would enable us to answer a simple question: Was there a distinctive reading of Walras' *Elements* in Russia?

The first part of this research (the scope of reception) identifies the economists who read Walras in Russia prior to 1920. Available sources being fairly scarce outside Russia, we spent some months in St. Petersburg collecting materials on Russian economic thought during the period 1870–1920. Most of our evidence was in Russian and largely included published sources that were seldom republished let alone translated. When available, some unpublished sources were examined as well. Section II briefly presents these results, and also introduces sections III and IV. It gives a larger view of the first Russian readers of Walras in a historical context so as to provide an overall picture of the reception of his writings until 1920.

The second part of this research (the nature of reception) suggests an analysis of the Russian readings of Walras' *Elements of Pure Economics*. Section III discusses the theory of exchange, which was extensively debated in Russia. Section IV reviews the absence of comments on the theory of production, and offers an explanation for this singularity.

II First Russian Readers of Walras in Russia (1890–1919)

During the period 1890–1919, Léon Walras was not widely read in Russia. The heavy influence of various strands of Historicism in the period under consideration²⁾ is a major analytical element for the *a priori* rejection of the method used by Walras. Most econo-

mists were attracted by industrial and agrarian debates and by the fate of capitalism in Russia. The inductive method was perceived as more useful than pure abstractions to answer these important questions; in particular, the use of statistics within political economy was much more widespread than the application of mathematics to theoretical economics. Moreover, unlike statistics, but like in Western Europe, mathematics was not part of the syllabi of Law Faculties, where economics was taught.³⁾ For Shaposhnikov (cf. *infra*), the fact that 'Walras' works are similar in every respect, in form and in content, to mathematical treatises explains to a large extent why they are not yet estimated at their true value' (1912b). The mathematical symbols played against Walras as they played against V. K. Dmitriev (cf. *infra*), who looked for a publisher for years.⁴⁾ Lastly, Walras wrote in French, a language with which the Russian intelligentsia was no longer conversant at the end of the 19th century: German universities and academic literature were definitely favoured for stays abroad and serious analytical readings.

Despite this unfavourable context, Walras was read in Russia. His name first appeared in 1890 in a paper by Tugan-Baranovskij introducing marginalism in Russia in its Austrian version. This short appearance was nothing but a mention, and it obviously originated from secondary literature (Wieser's *Natural Value*).⁵⁾

One year later, the journal *Russian Thought* published an anonymous review of Walras' *Elements* (2nd ed., 1889). Its tone is harsh since the author, obviously under a Marxist orientation, rejects the marginal utility theory, the use of mathematics in eco-

nomics and Walras' broad definition of capital (which also includes people). Nevertheless, this review is the first instance of Walras' *magnum opus* being printed in the Russian language.⁶⁾

In 1897, Léon Winiarski⁷⁾ published a panegyric for the use of mathematics in economics in the newly founded *Scientific Review* of St. Petersburg.⁸⁾ Winiarski provides a non-technical and worthwhile exposition of Walras' *Elements of Pure Economics*. The paper is very favourable towards Walras' method and is a mere description of the successive steps leading to the general equilibrium theory (exchange, production, capital formation). Winiarski published numerous papers on Walras, but his 1897 'Mathematical method in political economy' is the only one to be published in Russian. Winiarski is probably Walras' most faithful proponent within Russian publications, but his paper seems to have gone unnoticed.

V. K. Dmitriev's⁹⁾ well known *Economic Essays* contains many references to Walras' *Elements* (1st ed.). In his first essay on Ricardo's theory of value, Dmitriev introduces in Russia, Walras' unfortunate criticism of Ricardo (Dmitriev 1904, 1976, 51–52), with the aim of overcoming it. In contrast, Dmitriev's third essay—on marginal utility—is more favourable towards Walras, and credits Walras of being 'the creator of marginal utility theory' at least 'in its developed form.'¹⁰⁾ Walras' exchange equations and maximum conditions are commented upon by Dmitriev in a spirit presenting Walras as a good economist, but certainly not as the greatest of mathematicians.

E. E. Slutsky¹¹⁾ refers to Walras' *Elements* (4th ed.) only in his 1910 master the-

sis.¹²⁾ This work, entitled *The Theory of Marginal Utility*, includes many discussions on subjects such as hedonism, psychical phenomena, decision theory, Austrian theory of value, budget constraint and the theory of markets. Slutsky analyses among other things the law of supply and demand and the theory of marginal utility on the basis of Walras' equations of exchange. In subsequent publications, Slutsky never came back to Walras. In 1910, as far as mathematical economics is concerned, Slutsky already drew on Pareto (*Manuel*), Cassel and Wicksell more than on Walras. By the end of the 1920s, Slutsky was already more inclined towards an econometric society and moved away from Walras' already dated contributions.¹³⁾

Thanks to N. N. Shaposhnikov,¹⁴⁾ Walras' theory finally entered in Russian encyclopaedias in 1912, more than twenty years after its first appearance in Russia (and long after Jevons and Menger). Shaposhnikov wrote an entry on Walras in the *Brockhaus-Efron* encyclopaedia, and a shorter one in *Granat* encyclopaedia.¹⁵⁾ Both present Walras favourably as the modern representative of the mathematical school in political economy and the creator of a complete, almost definitive, subjective theory of value. If Shaposhnikov is Dmitriev's best promoter in Russia, he is also much interested in Walras' *Elements* (4th ed.), to which he devotes the first chapter of his book *Theory of Value and Distribution* (1912 a).

In his first writings, the Bolshevik N. I. Bukharin¹⁶⁾ demonstrates a thorough knowledge of his main opponent, i.e. bourgeois economic theory. It is common knowledge that Bukharin concentrated his efforts against

Austrian subjectivism, but not exclusively. His *Economic Theory of the Leisure Class* (1914) mentions various writings of Walras.¹⁷⁾ He first became acquainted with Walras' works at the University of Moscow in the early 1910s at a seminar on value and distribution theories given by Shaposhnikov. He deepened his knowledge of Walras during his exile in Switzerland at Lausanne University Library (Bukharin 1914, 1927, 1).

The last reader of Walras in this period is unsurprisingly L. N. Jurovskij¹⁸⁾ who in 1919, wrote the *Essays on Price Theory* where Walras' *Elements* (4th ed.) plays a significant role. His *Essays* described the most modern discoveries in price theory and recounted its evolution from Ricardo to Walras.

A great Walras expert is missing from this account, mainly because his part in it is rather indirect. Nevertheless, Bortkiewicz¹⁹⁾ contributed to some extent to the diffusion of Walras' works in Russia. Although he never published any of his works on Walras (or on economics) in Russian, he may have been a bridge between Walras and Russia through his personal contacts. His lengthy correspondence with A. A. Chuprov (1874–1926), a Russian colleague living, as Bortkiewicz, in Germany, tells us that Bortkiewicz's home was always open to Russian statisticians and economists passing through Berlin. Chuprov himself indicates that he read Walras and Pareto on Bortkiewicz's advice.²⁰⁾ The correspondences with Slutsky, Chetverikov or Ptucha are replete with statistical discussions. More encouraging, the letters from Shaposhnikov—the author of the entries on Walras—show that he met Bortk-

iewicz almost on a yearly basis in Germany in the early 1910s, and that they frequently spoke about Walras.²¹⁾ Hence, Bortkiewicz was perceived in Russia not only as a Ricardian proofreader of Marx, but also as a first class connoisseur of Walras.

To sum up, there were a handful of first class economists who read Walras' *Elements* in Russia²²⁾: Dmitriev, Slutsky, Shaposhnikov, Bukharin, Jurovskij, Winiarski, Bortkiewicz and an anonymous author. The next section analyses their writings on Walras' theory of exchange.

III Towards an Understanding of Walras' Exchange Theory

1. Pure Economics and Mathematics

The theory of exchange is the stepping-stone of Walras' pure economics, which is itself a component of his tripartite vision of political economy. In Part I of his *Elements of Pure Economics*,²³⁾ Walras outlines the distinction between pure, applied and social economics as the threefold consequence of the scarcity of social wealth: exchangeability, reproducibility and appropriability. Pure economics is concerned with the theory of value in exchange, applied economics with the theory of industry and social economics with the theory of property and distribution (L. 3). As far as pure economics is concerned, the method is mathematical, since the value in exchange is a measurable magnitude (§30). For Walras, 'the mathematical method is not an *experimental* method; it is a *rational* method' drawing ideal types from real types, constructing a pure science without frictions 'which resembles the physico-mathematical sciences' (§30). The mathematical method

is even, as Walras once wrote to Bortkiewicz: the rigorous and definite form of the deductive method in pure economics.²⁴⁾

Few Russians were concerned by Walras' original tripartite vision. Even if he focused mostly on pure economics, Bortkiewicz shared by the end of the 1880s, the spirit of the Walrasian system: [your] system is inherent to my way of conceiving the economic world.²⁵⁾ He equally shared his social program²⁶⁾—namely the collective ownership of land and rent—which explains, for example, his sympathetic understanding of the Walrasian trilogy in his review of the *Études d'économie sociale* (Bortkiewicz 1898).

Winiarski read Walras' pure, applied and social economics, but hardly commented on the links between them. Winiarski relies, for his own developments, on Walras' pure economics, but with the intention of reaching wider conclusions in the field of social economics. More succinctly, the author of the anonymous review asserts that Walras limited his investigations to the scientific part of political economy (Anonymous 1891, 22, quoting lesson 2 of the *Elements*, on science vs. art). For his part, complaining that bourgeois economic theory 'relegates production to the background,' Bukharin erroneously confines Walras' treatment of production to applied economics only (Bukharin 1914, 1927, 55n). Jurovskij defines the role of pure theory within economic science: pure economics (which is not a natural science) is only useful as an auxiliary science helping to understand the logical structure of the working of a 'real-world' economy.

Besides these short comments (or, for Dmitriev, Slutsky and Shaposhnikov, the absence of comments), the status of pure eco-

nomics within the Walrasian system was not debated in Russia. The *Elements of Pure Economics* were extracted from this system, separated from its applied and social counterparts, to become an independent system of *pure*—the Russians used the word *theoretical*—economics.

Conversely, much ink has been spilled over the mathematical method used by Walras. Apart from the author of the anonymous review, for whom 'the diligent use of mathematical formulas doesn't spare Walras from a host of inconsistencies' (1891, 23), and Bukharin, for whom mathematics does not seem to be a major methodological issue,²⁷⁾ the mathematical method was what attracted the Russians to Walras.

In 1887, Bortkiewicz was complaining that Russia remained 'totally foreign to recent advance in the theory of [the economic] science.' This science was 'dominated by the preponderant influence of the German economic science' but Bortkiewicz remained confident in an upcoming reaction against historicism in Russia,²⁸⁾ which would introduce the mathematical method. Bortkiewicz was a partisan of this method, and he was eventually followed by a generation of Russian mathematical economists, Dmitriev, Slutsky and Shaposhnikov.

Winiarski completely embraces the mathematical method initiated by Cournot, and developed by Walras. His Russian paper begins with a very pedagogical, step-by-step apology for the use of this method in economics. In a very optimistic tone, he describes a three-stage theory of the evolution of knowledge:

The first stage is purely qualitative, the

second is already quantitative—mathematical—but not yet precise, and it is only at the third stage that knowledge becomes exact. Astronomy has already reached the third stage . . . Social sciences are still in the first stage of which only political economy starts entering into the second. (Winiarski 1897, 3)

Walras fully contributed to the transition to the second stage, and Winiarski without doubt hoped to push forward into the second step of his nomenclature.

Throughout his *Economic Essays* Dmitriev uses the mathematical method—sometimes even Walras' very notation—without exposing his motives.²⁹⁾ His only explicit statement about the mathematical method is found in a footnote of a review article entitled 'Value theory' published in 1908:

Under mathematical method, the use of mathematical tools *in order to prove* a proposition of economic theory should be understood: the use of algebraic *notation* and even of a full set of formulas for the expression of *conclusions, that are not obtained by the mathematical method*, but by the usual logical and literal methods, doesn't make a mathematical theory and is not a sufficient reason to include such work (quite numerous in Russia) to the works of the "mathematical school" in the established sense of the term. (Dmitriev 1908, 25)

Slutsky studied mathematics, and for him, its use within political economy seems like evidence. Shaposhnikov claims to be

part of the mathematical school (1912 a, ii), even if he uses symbols very parsimoniously. Eventually, Jurovskij's position contrasts with Winiarski's optimism:

Political economy deals with magnitudes and in this meaning is a mathematical science. Approving this statement does not yet mean subscribing to the following words of Walras, according to which in 19th century 'mathematical economics will rank with the mathematical sciences of astronomy and mechanics.' (Jurovskij 1919, 71)

From this general outlook, it appears that most Russians read Walras' *Elements* because of its mathematical content, and not in spite of it.

2. Rareté and the Theory of Exchange

The cornerstone of Walras' theory of exchange is his notion of *rareté* (scarcity), which Bukharin expertly tracked down to the writings of Auguste Walras, the father of Léon. *Rareté* should not be understood in its common sense, namely the status of what exists in a small amount of quantity, but in the specific, scientific sense as stated by Walras: In political economy, however abundant a thing may be, it is scarce whenever it is useful and limited in quantity (§22). This dual acceptance of the word was understood by Russians. They associated Walras' *rareté* with their '*predel'naja poleznost'* (which denotes marginal utility, and was introduced in the Russian language by the German *Grenznutzen*). The only exception to this rule was the author of the anonymous review, who rejects Walras' theory of value on the basis of

an empirical example, wherein the prices of some goods were not proportional to their worldwide available quantities (1891, 22). Obviously, *rareté* was taken here as only 'limited in quantity,' and not as something that is 'useful.'

One of the most specific features of Walras' theory of exchange, as compared to other marginalists theories, is his construction from the value in exchange to *rareté* and from the effect to the cause (and not *vice versa*): Walras starts from the (ideal) fact of exchange, then constructs the effective demand and offer curves, from which he derives the utility (or want) curves, in order to prove that the satisfaction of wants is maximum when exchange prices are proportionate to the *raretés*. In other words, the cause of value is scientifically derived, and not postulated, from Walras' ideal types of value in exchange.³⁰⁾ If this fact is clear for Bortkiewicz,³¹⁾ Winiarski or Dmitriev, it is not quite clear if this was always the case for Shaposhnikov, Jurovskij or even Slutsky.

Taken separately, these steps were understood by the Russian readers. For example, Jurovskij fully agreed with Walras that even if 'intensive utility, considered absolutely, is so elusive, since it has no direct or measurable relationship to space or time,' one just needs to 'assume that such a direct and measurable relationship does exist' (§74, quoted by Jurovskij 1919, 53). Jurovskij then supports the theorem of maximum utility (59), before presenting Walras' exchange equations and treatment of the law of supply and demand (80–86). His exposition follows a different order than Walras'. Slutsky's and Shaposhnikov's readings somehow present the same characteristics.³²⁾

Nevertheless, Russians retained that 'values in exchange are proportional to the *raretés*,' which they correctly associated with the 'last intensity of the last want satisfied' (Walras 1954, §100). This good level of understanding was facilitated by Walras' adequate use of well-defined terms, understandable to all: Bortkiewicz praises Walras' 'good choice of definition and economic concepts' (Bortkiewicz 1890, 80) while Jurovskij congratulates him for stressing the 'need for a definition of Political Economy' (title of §1 of the *Elements*, quoted by Jurovskij 1919, 3). The proofs of the theorem of the maximum of utility, for example, are tackled without problem by Dmitriev, Slutsky or Winiarski, whereas Bortkiewicz himself contributed to its formalisation. However, not all the technical details of Walras' demonstrations were understandable to all. Nevertheless, all understood that there exists a solution to an equation system as long as the number of unknowns is equal to the number of equations.

These values in exchange possess a particularity: they are *equilibrium* values. In order to complete the discussion on exchange and since the definitions of equilibrium are quite numerous, the next paragraphs detail some of the Russian interpretations of Walrasian economic equilibrium.

3. General Equilibrium and *Tâtonnement*

The notion of equilibrium—with general interdependence as a key feature—is inherent to Walras' conception of pure economics. The nature of his general economic equilibrium has been and is still subject to many speculations. Walras' own *Elements* under-

went some substantial modifications on this theme between the first (1874–77) and the fourth edition (1900).³³⁾ Many significant issues gave rise to controversial interpretations, which involve the inseparable notions of equilibrium and of *tâtonnement*: Is the equilibrium reached, if at all, by *tâtonnement*? Does the *tâtonnement* introduce dynamics in a static system, and so on. These questions are still debated today,³⁴⁾ and were already tackled by Walras and his contemporaries.

For Bortkiewicz, the question of exchange is addressed by Walras in purely static terms (1890, 86). The role he assigned to the *tâtonnement* is more ambiguous: on the one hand, it is ‘the way of resolution of the equations,’ namely, a technical problem coping with pure static economics; on the other, it is ‘not a problem of algebra,’ but a ‘real process, actually used on the market,’ depicting a necessary conceptual link between real market and the theory.

For Winiarski, Walras’ greatest merit was in producing the static equations of economic equilibrium. He hastened to add that ‘it remains to constitute dynamic economics,’ and that he was about to accomplish this task with his *Mécanique sociale* (Winiarski 1900, 1967, 293). Walras’ static equilibrium ‘is an ideal state towards which the forces acting on the market are constantly moving closer, without never perfectly reaching it’ (Winiarski 1897, 12). Winiarski describes the *tâtonnement* as a practical method used in the markets to solve a system of equations. It works as a ‘mechanism of the fall and the rise of price . . . until a single price is obtained for each good,’ and is ‘superior in precision to what the most ingenious mathema-

tician could do in his cabinet’ (12).

For Jurovskij, Walras’ greatest achievement was in embodying in a single theory, the general interdependence of economic variables. The notion of equilibrium is central in Jurovskij’s *Essays on Price Theory*; he tries to develop a typology of economic systems, starting from static equilibrium to dynamic equilibrium and cycle theory. Walras’ exchange equilibrium belongs to static equilibrium, while cycle theory belongs to the notion of disequilibrium. There is therefore room for a pure dynamic theory in Jurovskij’s typology. Static equilibrium studies the relation between supply and demand, while dynamic equilibrium incorporates the processes of production, distribution and accumulation of income. From this point of view, Jurovskij praises Walras’ (unfortunately unsuccessful) efforts to build a pure dynamic theory in his lessons 35 and 36 (on the continuous market and the progressive economy). In this context, the *tâtonnement* has nothing to do with theory, but with actual markets:

In a real market, the demand and the supply of participants are not precisely known; therefore, the approximation towards the equilibrium price happens by *tâtonnement*. (Jurovskij 1919, 145)

Jurovskij’s understanding of *tâtonnement* is far from original, but apart from Bortkiewicz and Winiarski, this notion was completely neglected by the Russians.

For Shaposhnikov, Walras’ greatest achievement is in solving the problem of value in its totality: Any theory which does not consider the relationship of dependency

between the prices of goods can not claim a scientific completeness (Shaposhnikov 1912a, 12). For Bukharin, 'Léon Walras' exchange equations . . . are static,' which is a fallacy, since they are unable to cope with social dynamics which are 'the most important problems of political economy' (Bukharin 1914, 1927, 60n). Dmitriev separates the real 'fluctuations' (the rise and fall of prices) from the theoretical 'equilibrium prices' (Dmitriev 1904, 1974, 145). Slutsky is only interested in the mathematical meaning of the equilibrium (Slutsky 1910, 369–71). The anonymous author does not even mention the word equilibrium.

Walras' theory of exchange was globally well received and understood by Russian economists. Its mathematical exposition did not put off its readers, and its status of pure economics smoothly fitted within their own various conception of economic science. The notion of *rareté* was correctly identified as the source of value in exchange. The general equilibrium was generally perceived as a static theory, and the *tâtonnement*, if discussed at all, was relegated to a realistic market process.

IV Walras' Impossible Theory of Production

This reading of Walras' exchange theory is not specific to Russian economists. On the contrary, Walras' theory of production stimulated a peculiar reading, more precisely a non-reading. In section IV.1, we split our readers into two groups: those living in Western Europe (Bortkiewicz and Winiarski, the 'Continental Russians') and those living in Russia. We show that the second

group shares a common non-reading of Walras' theory of production. Section IV.2 offers a cultural explanation for such 'insular reading.' Section IV.3 brings further evidences from the reactions to Walras' texts.

1. An Insular Reading: Russians vs. Continental Russians

Bortkiewicz's position is summarised in one statement: 'we believe that the mathematical theory of production is feasible, as the theory of exchange' (Bortkiewicz 1890, 83). Bortkiewicz correctly felt the imbrications of Walras' theories, as 'a fortunate mathematical division of the problem, which consists in seeking successively the equilibrium of exchange, the equilibrium of production and the equilibrium of capital formation' (80). Even if he had many hesitations with the theorem of maximum utility of new capital goods,³⁵ he agreed with Walras' static theory of production and understood, in particular, the secondary—and not causal—role played in it by the costs of production.

Winiarski equally understood the imbrications between exchange, production and capital formation theories—the exchange theory considers the number of goods as given, while the theory of production determines them while considering the amount of capital goods as given, the latter being determined in the theory of capital formation (Winiarski 1897, 13–17). Despite his reservations concerning the applied significance of the general equilibrium because of historical monopolies, Winiarski noticed that all contradictions encountered in Marx's theory disappear with Walras' general equilibrium theory: there are no differences between value, price and cost of production: they are the

same!' (Winiarski 1896, 1967, 95).

For our Continental Russians, Bortkiewicz and Winiarski, Walras' theories of exchange and production are logically connected. For the others, there is no theory of production at all. The author of the anonymous review rejects Walras' definition of capital and consequently does not even touch upon the theory of production. Bukharin notes that Walras treats the quantities of goods as given in his theory of exchange, and remarks that 'here again there is no thought of production' (Bukharin 1914, 1927, 56n). However, he seems to have forgotten to read Walras' theory of production. Slutsky mentions Lesson 20 of the *Elements* (Production equations) in a footnote as a curiosity (Slutsky 1910, 2006, 399). Dmitriev does not even mention Walras' theory of production in his *Economic Essays*.³⁶ Shaposhnikov, evoking the theory of exchange, comments:

The possibility of modifying, through production, the quantity of goods entering into the market does not bring a tangible change. The condition of proportionality between prices and *rareté* of goods remains. (Shaposhnikov 1912b)

Therefore, for Shaposhnikov, the production can be conceptualised in Walras' theory of exchange, only as a non-disturbing external device modifying a mathematical constant, but not as a theory of production. Jurovskij makes no mention of Walras' theory of production, apart from a description of the types of capital and income (Jurovskij 1919, 205).

While Bortkiewicz and Winiarski accepted Walras' theory of production, our Russian readers totally ignored it. We will

argue that the reason for this 'insular reading' is the cultural environment in which our Russian economists read Walras.

2. The Insular Culture: Ricardo, Marx and Tugan-Baranovskij

This insular culture is characterised on one side by a strong influence of the classical school (Ricardo and Marx) and on the other side by the emerging idea of synthesis in the theory of value, initiated by Tugan-Baranovskij. The works of Ricardo were lately introduced in Russia, through some German mediation, especially by Ziber's works in the 1870s and 1880s. For Scazzieri, 'the influence exerted by Ziber's interpretation of Ricardo might be a factor explaining the persistence of classical political economy in Russia' (Scazzieri 1987, 26). The success of Marx in Russia was as tremendous as unexpected: the translations of the three volumes of the *Capital* (1872, 1886 and 1895) attracted socialist as well as liberal thinkers, from both conservative and revolutionary sides. Marx's theory of value found many followers, although some Marxists (called 'Legal Marxists') were not satisfied with it. In both Ricardo and Marx, Russians attached a particular importance to the production considered as a process, during which, for instance, workers and peasants have to survive. When marginalism reached Russia, in the early 1890, it encountered a dominant 'classical theory of value' which was far from being abandoned or even under threat. This 'classical theory of value' was often conceived as a cost-of-production theory, but with some claims of belonging to a labour theory of value.

In the early 1890s, inspired by some Ger-

man philosophical currents and especially Neokantianism, Tugan-Baranovskij proposed a synthesis between the objective and the subjective factors of value, namely between the labour theory of value and the marginal utility theory. His idea was favourably received, since it did not involve the rejection of the 'classical theory of value,' the weaknesses of which were filled in by the marginal utility approach. If Tugan-Baranovskij's initial formula was rejected by some Russian economists, they later on offered their own variation of such a synthesis. In this context, the essence of the works of Walras' Russian readers becomes more evident.

Dmitriev's *Economic Essays* are presented by the author as nothing less than 'a complete theory of the general elements of value' (Dmitriev 1904, 1973, 213). In his first essay, he analysed and formalised Ricardo's theory of value and established the domain of validity of this theory. He turned to supply competition analysis in his second essay and to demand-side explanation in his third essay, in the many cases where the theory of Ricardo is not sufficient or even necessary. The articulation between the three essays was intended as 'an attempt at an organic synthesis of the labour theory of value and the theory of marginal utility,' as Dmitriev's subtitle announces. The degree of achievement of this synthesis—still debated today—is not of importance here. What matters is the room allowed to Walras, which effectively depends on the *intention* of synthesis, and not on its *achievement*.

Shaposhnikov deals with value theory in the first two chapters of his *Theory of Value and Distribution*. The first chapter 'The demand and the subjective evaluation' explains

what happens in the sphere of pure exchange, within Walras' version of the theory of marginal utility. The second chapter 'Costs of production and the supply' explains the sphere of production by way of Ricardo's cost-of-production theory. The two theories are presented separately. The classical school 'completely ignored the factors of the demand, which set market prices' and therefore, 'this gap was filled by marginalists' (Shaposhnikov 1912a, 5–6). In other words, the first chapter explains the determinants of the demand and the second, the determinants of the supply, without clearly explaining the interaction between the two.

Similarly, Slutsky tries to mathematically connect the equations of demand (following Walras' followers) with the equations of supply (following a Ricardo–Dmitriev–Bortkiewicz line).³⁷⁾ This attempt is a simple digression in Slutsky's work, which is more concerned by the development of the demand side. Eventually, echoing in a way Marshall's neoclassical synthesis, Jurovskij tries to co-ordinate a cost-of-production explanation for long run dynamic equilibrium prices with a marginal utility approach for the short run static equilibrium.³⁸⁾

These illustrations show that the spheres of exchange and production were largely separated: the first deals with a subjective theory of demand and the second, with an objective cost-of-production theory of supply. If this 'insular culture' is considered, we find that there is no oddity in seeing in Walras' work, only a theory of exchange dealing exclusively with subjective demand. But there is still another reason for which the Russians favoured a 'classical' theory of production, after having accepted Walras' theory

of exchange, and this reason is to be found in Walras' own writings.

3. The Last Straw: Walras' Unfortunate Criticism of Ricardo

There is a portion of Walras' *Elements* which immediately and almost systematically attracted the attention of Russian economists: lessons 38–40 (Part VII Critique of systems of pure economics) contain the expositions and refutations of the English theories of the price of products, rent, wages and interest. The circularity argument against the English school particularly attracted their attention:

Let P be the aggregate price received for the products of an enterprise; let S , I and F be respectively the wages, interest charges and rent laid out by the entrepreneurs, in the course of production, to pay for the services of personal faculties, capital and land. Let us recall now that, according to the English School, the selling price of products is determined by their costs of production, that is to say, it is equal to the cost of productive services employed. Thus, we have the equation

$$P = S + I + F$$

and P is determined for us. It remains only to determine S , I and F . Surely, if it is not the price of the products that determines the price of productive services, but the price of productive services that determines the price of products, we must be told what determines the price of the services. That is precisely what the English economists try to do. To this end, they construct a theory of rent according to which rent is not included in the expenses of production, thus changing the above equation

to

$$P = S + I.$$

Having done this, they determine S directly by the theory of wages. Then, finally, they tell us that 'the amount of interest or profit is the excess of the aggregate price received for the products over the wages expended on their production'; in other words, that it is determined by the equation

$$I = P - S.$$

It is clear now that the English economists are completely baffled by the problem of price determination; for it is impossible for I to determine P at the same time that P determines I . In the language of mathematics, one equation cannot be used to determine two unknowns. This objection is raised without any reference to our position on the manner in which the English School eliminates rent before setting out to determine wages. (Walras 1954, §368).

Dmitriev himself quotes this entire passage (1904, 1974, 51–52) with the aim of proving that this argument is not imputable to Ricardo.³⁹⁾ Under some assumptions, he succeeded in determining prices of production (P) that bypass Walras' criticism (50–80). The equations of Dmitriev were restated by Slutsky (1910, 2006, 376), Shaposhnikov (1912 a, 41–46) and Jurovskij (1919, 100), ruining in Russia Walras' criticism of Ricardo. Moreover, Shaposhnikov rejected the criticism of circularity with the idea that costs of production and the price of goods are mutually influencing each other, as in Walras' general equilibrium (Shaposhnikov 1912 a, 37–39). Jurovskij, for his part, was very interested in Walras' mathematical formulation of Ricardo's theory of rent (L. 39,

quoted by Jurovskij 1919, 103–05): far from seeing it as a critique of Ricardo, Jurovskij, on the contrary, sees here a link between the English school and the 'school of Walras.'

Far from acting as a scarecrow, Walras' criticism of the English school had the opposite effect on Russians. They remained convinced, against Walras, that the analysis of the sphere of production, in the line of Ricardo and/or Marx, had a solid future next to the analysis of the sphere of exchange, in the newer line of Walras.

V Conclusion

Russia provided Walras' *Elements of Pure Economics* with a fair number of readers prior to 1920, and in this regard, has nothing to envy from other European countries. These readers can be classified, according to the environment in which they evolved. Bortkiewicz and Winiarski found no contradictions in Walras' pure system as a whole, and in particular between his theory of exchange and theory of production. The anonymous author was from the beginning against Walras, and Bukharin was only marginally interested in Walras, his true nemeses being the Austrians.

A small group of economists—Dmitriev, Slutsky, Shaposhnikov and Jurovskij—offered a peculiar Russian reading of Walras' *Elements*. They adopted the theory of exchange absolutely, but completely neglected (or even rejected) the theory of production. They offered various systems, in which a central role was attributed to costs of production and the idea of a synthesis between objective and subjective factors. These Russians were not willing to accept Walras' pure theory in its entirety: his theory of exchange

was revolutionary, but fitted perfectly into their vision of pure economics. His theory of production was inconsistent with that vision. Hence, Russians gathered from Walras a general theory of exchange and not a theory of production.

François Allisson: Centre Walras–Pareto,
University of Lausanne, Switzerland

Notes

- 1) These excellent pieces of research on political economy in Tsarist Russia include Barnett (2004, 2005) and Zweynert (2002).
- 2) For an account of the impact of Historicism in Russia at the turn of nineteenth and twentieth centuries, see Barnett (2004b) and Sheptun (2005).
- 3) Karataev (1956, 209–10).
- 4) Shaposhnikov (1914, 1).
- 5) Tugan-Baranovskij (1890, 193).
- 6) Anonymous (1891).
- 7) Leon Winiarski (1865–1915), a Polish sociologist, was at that time based in Geneva. As a socialist, he was attracted by Marxism, but after the publication of the last volume of *Das Kapital*, he turned to Walras to find a more general explanation of the economy. Pupil and correspondent of Walras, Winiarski knew his (Walras) work well, which he taught in Geneva. He defended and used Walras' methods, but arrived at different conclusions, notably with regard to the necessary nationalisation of land *and* of capital. In his *Mécanique Sociale*, he tried to turn Walras' general *economic* equilibrium into a meta general equilibrium, including all disciplines of social sciences.
- 8) Winiarski (1897). The editors of the journal mention at the beginning of Winiarski's paper that their viewpoint is different from their contributor's.
- 9) Vladimir Karpovich Dmitriev (1868–1913) won the epithet of the first Russian

- mathematical-economist for his *Economic Essays* (1898, published his first essay on Ricardo; 1902, published his second essay on Cournot and third essay on marginal utility; 1904, published the three essays together). Dmitriev applied mathematics and statistics to economic theory brilliantly.
- 10) Dmitriev (1904, 1974, 182).
 - 11) Evgenij Evgen'evich Slutsky (1880–1948) was a famous Ukrainian economist and statistician. He worked in Kiev until 1926; then became consultant for Kondratiev's Institute of Conjuncture in Moscow. At the end of the 1920s he worked on other topics, such as sunspot periodicity and the probabilistic foundations of statistics (Barnett 2004a, 10).
 - 12) Slutsky (1910). This master thesis was awarded a gold medal. The manuscript is deposited at the National Library Vernadsky, in Kiev, Ukraine. The original is in Russian, but the only published edition is in Ukrainian (2006).
 - 13) See his correspondence with Ragnar Frisch, in Slutsky (1910, 2006).
 - 14) Nikolaj Nikolaevich Shaposhnikov (1878–1938) taught as *dozent*, then as professor of economics at the University of Moscow. Before the 1917 revolution, he published mainly on value and distribution theories, whereas after, while being a consultant in conjuncture at Gosplan and close collaborator to Kondratiev, his scientific interests moved towards more applied subjects (industrialization, tariff policy, monetary cycles, indices, etc). He became a victim of Stalin's 1938 Great Purges.
 - 15) Shaposhnikov (1912b) and Shaposhnikov (1912c).
 - 16) Nikolaj Ivanovich Bukharin (1888–1938) was a major theoretician of Bolshevism and promoter of the New Economic Policy (1921–1928). He too was a victim of Stalin's 1938 Great Purges.
 - 17) Bukharin never quotes Walras' *Elements of Pure Economics*, but instead the *Etudes d'économie sociale* (1896), the *Théorie mathématique de la richesse sociale* (1883) and the 'Principes d'une théorie mathématique de l'échange' (in *Journal des économistes*, 1874).
 - 18) Leonid Naumovich Jurovskij (1884–1938) wavered before the 1917 revolution between journalism and economics. As a journalist, he was correspondent for Muscovite newspapers in Siberia and China. As an economist—trained in Russia under Tugan-Baranovskij and Struve, and in Germany, under Brentano—he taught in Moscow. After the war, and a short time after joining the February 1917 provisional government (as chief statistician within the food supply ministry), Jurovskij was professor of economics and dean at Saratov University, where he wrote his *Essays on Price Theory*. From 1922, as instigator of the 1922–24 monetary reforms, in charge of monetary issues at the People's Commissariat of Finance (Narkomfin), consultant at the State Bank and professor of credit and banking, he actively took part in the New Economic Policy. Close to Kondratiev's Institute of Conjuncture and to Chajanov's Institute of Agriculture, and convinced that market signals were the best guides for planning, Jurovskij was convicted in 1930 of 'sabotage.' In 1938, Jurovskij, Bukharin and Shaposhnikov, three of Walras' readers, were shot with many others including Kondratiev and Chajanov. For his part, Slutsky stopped publishing in the field of economics.
 - 19) Ladislaus von Bortkiewicz (1868–1931), a statistician and an economist interested in highly-theoretical developments, started a correspondence with Walras as early as in 1887. As a result of this correspondence, the two men met twice (1889 and 1892), and Bortkiewicz published reviews of Walras'

- Elements* (1890, in French) and *Etudes d'économie sociale* (1898, in German). On the relations between Bortkiewicz and Walras, see Bridel (2008) and Marchionatti (2007).
- 20) Letter dated 10 March 1898. The correspondence between Bortkiewicz and A. A. Chuprov (211 letters between 1895 and 1926) was published by O. Sheynin, Berlin, 2005 (available at: http://www.sheynin.de/download/9_Perepiska.pdf).
- 21) Letter dated 12 July 1913. The letters sent to Bortkiewicz are kept in the Bortkiewicz Archives, Universitätsbibliothek, Manuskript und Musikabteilung, Kapsel 7 in Uppsala, Sweden. Sheynin published the letters from Chuprov and Slutsky. All remaining correspondences are unpublished.
- 22) The 4th edition was the most widely read in Russia. Only Bortkiewicz and Winiarski, who knew Walras personally, as well as Bukharin, who came to Lausanne after Walras' death, read a larger corpus than the *Elements*.
- 23) Henceforth, all quotations to Walras' *Elements* are taken from Jaffé's translation (Walras 1954), with references to Parts, lessons (L.) and paragraphs (§).
- 24) Letter from Walras to Bortkiewicz, 6.12.1887, in Jaffé (1965, l. 821)
- 25) Letter from Bortkiewicz to Walras, 13.09.1891, in Jaffé (1965, l. 1024).
- 26) Letter from Bortkiewicz to Walras, 12/24.04.1888, in Jaffé (1965, l. 829).
- 27) Bukharin was trained in mathematics and was easily able to read the works of the members of the so-called mathematical school, and sometimes, even used algebra himself when dealing with Marxian schemes of reproduction. To our knowledge he did not use the mathematical method as an argument for/against his opponents.
- 28) Letter from Bortkiewicz to Walras, 24.10/5.11.1887, in Jaffé (1965, l. 818).
- 29) Dmitriev alternatively quotes some authorities inclined towards mathematics in the epigraphs of his first essay: Leonardo da Vinci, Kant, Carey, Wundt, Slonimsky, Thünen and Cournot (Dmitriev 1904, 1974, 37).
- 30) See especially §§ 40 and 101 of the *Elements*.
- 31) Bortkiewicz even suggested some corrections to the *Elements* with regard to the utility curves and the conditions of the theorem of maximum utility of commodities.
- 32) See Slutsky (1910, 363–71 and 385–88) and Shaposhnikov (1912a, Ch. 1).
- 33) It is sufficient to read Jaffé's translator's notes (Walras 1954), or Mouchot's 'Histoire des différentes éditions des *Éléments d'économie politique pure*' (in Walras 1988) to be convinced of this evolution.
- 34) See the recent collections of Walrasian studies (Baranzini, Diemer and Mouchot 2004; Baranzini, Legris and Ragni 2009, forthcoming).
- 35) See Bridel (2008, 725–29).
- 36) To be precise, Dmitriev quotes a passage of lesson 22 (The principle of free competition), which is part of Walras' production theory, but only out of context, and in comparison with Cournot's and his own theory of competition (Dmitriev 1904, 1974, 149).
- 37) See Slutsky (1910, 2006, 394–405).
- 38) See Barnett (1994, 64–68).
- 39) See Kurz and Salvadori (2002).

References

- Allisson, F. 2009 (forthcoming). Les premiers lecteurs de Walras en Russie (1890–1919). In *Les Cahiers du Ceras*, HS 6.
- Anonymous. 1891. Review of *Éléments d'économie politique pure*, by Walras. 2nd edition, 1889. *Russkaja Mysl' (Russian Thought)* 22–24. French translation in Allisson (2009).
- Baranzini, R., A. Diemer and C. Mouchot, eds.

2004. *Études walrassiennes*. Paris: L'Harmattan.
- Baranzini, R., Legris, A. and L. Ragni, eds. 2009 (forthcoming). *Regards croisés sur Léon Walras*. Paris: L'Harmattan.
- Barnett, V. 1994. The economic thought of L. N. Yurovskii. *Coexistence* 31:63–77.
- . 2004a. *The Revolutionary Russian Economy, 1890–1940: Ideas, Debates and Alternatives*. London: Routledge.
- . 2004b. E. E. Slutsky: Mathematical Statistician, Economist, and Political Economist? *Journal of the History of Economic Thought* 26:5–18.
- . 2004c. Historical political economy in Russia, 1870–1913. *European Journal for the History of Economic Thought* 11: 231–53.
- . 2005. *A History of Russian Economic Thought*. London: Routledge.
- Bortkiewicz, L. von. 1890. Review of Léon Walras, *Éléments d'économie politique pure, ou Théorie de la richesse sociale*, 2e édition, Guillaumin et Cie, Paris. *Revue d'économie politique* 4:80–86. Reprinted in Bridel (1996).
- . 1898. Review of Walras, L. *Études d'économie sociale, 1896*. *Jahrbuch für Gesetzgebung, Verwaltung und Volkswirtschaft im Deutschen Reich* 22:1075–78.
- Bridel, P. 1996. *Le Chêne et l'architecte, un siècle de comptes rendus bibliographiques des Éléments d'économie politique pure de Léon Walras*. Genève: Droz.
- . 2008. Bortkiewicz et Walras. Notes sur une collaboration intellectuelle avortée. *Revue d'économie politique* 118:711–42.
- Bukharin, N. I. 1914. *Politicheskaja èkonomijarant'e (Economic Theory of the Leisure Class)*. Moscow. 1919. English edition, London: Martin Lawrence, 1927.
- Busino, G., ed. 1967. Léon Winiarski et la Mécanique Sociale. *Revue européenne des sciences sociales*.
- Dmitriev, V. K. 1904. *Èkonomicheskie ocherki (Economic Essays)*. Moscow: Rikhter. 1st essay published in 1898 (Moscow, University). 2nd and 3rd essays published in 1902 (Moscow, Rikhter). English edition by D. M. Nuti. London: Cambridge Univ. Press, 1974.
- . 1908. Teorija cennosti. Obzor literatury na russkom jazyke (Value theory. Review of the literature in Russian language). *Kriticheskoe obozrenie (Critical Review)* VII: 12–26.
- Jaffé, W. 1965. *Correspondence of Léon Walras and Related Papers*. Amsterdam: North Holland.
- Jurovskij, L. N. 1919. *Ocherki po teorii ceny (Essays on Price Theory)*. Saratov: University.
- Karataev, N. K. 1956. *Èkonomicheskie nauki v Moskovskom universitete. 1755–1955 (Economic Science at the University of Moscow. 1755–1955)*. Moscow: Izd. Moskovskogo Universiteta.
- Kurz, H. D. and N. Salvadori. 2002. One Theory or Two? Walras' Critique of Ricardo. *History of Political Economy* 34:365–98.
- Marchionatti, R. 2007. On the Application of Mathematics to Political Economy: The Edgeworth–Walras–Bortkiewicz Controversy, 1889–1891. *Cambridge Journal of Economics* 31:291–307.
- Scazzieri, R. 1987. Ziber on Ricardo. *Contributions to Political Economy* 6:25–44.
- Shaposhnikov, N. N. 1912a. *Teorija cennosti i raspredelenija (Theory of Value and Distribution)*. Moscow: Mysl'.
- . 1912b. Walras. In *Novyj Ènciklopedicheskij Slovar' Brokgauza i Èfrona (New Brockhaus-Efron Encyclopaedia)*, vol. 9. French translation in Allisson (2009).
- . 1912c. Walras. In *Ènciklopedicheskij Slovar' Granat (Granat Encyclopaedia)*, vol. 7.
- . 1914. *Pervyj russkij èkonomist-matematik*

- Vladimir Karpovich Dmitriev, *Doklad na zasedanii Obshchestva im. A. I. Chuprova, posvjashchennom pamjati Dmitrieva (The first Russian mathematical economist V. K. Dmitriev, lecture at the A. I. Chuprov Society, held in memory of Dmitriev)*. Moscow: Lissner and Sobko.
- Sheptun, A. 2005. The German Historical School and Russian Economic Thought. *Journal of Economic Studies* 32:349–72.
- Slutsky, E. E. 1910. Teorija predel'noj poleznosti (Theory of Marginal Utility). Master's thesis, University of Kiev. Manuscripts section, National Library Vernadsky, Kiev, F. I, No 44850. Ukrainian edition, Kiev, KNEU, 2006.
- Tugan-Baranovskij, M. I. 1890. Uchenie o predel'noj poleznosti khozjajstvennykh blag kak prichina ikh cennosti (Study on the marginal utility of economic goods as source of their value). *Juridicheskij Vestnik (Legal Herald)* XXII: 192–230.
- Walras, L. 1900. *Éléments d'économie politique pure. Théorie de la richesse sociale*. Lausanne et Paris: Rouge et Pichon.
- . 1954. *Elements of Pure Economics or the Theory of Social Wealth*. London: G. Allen & Unwin. Translated by William Jaffé.
- . 1988. *Éléments d'économie politique pure* (variorum ed.). Auguste et Léon Walras œuvres économiques complètes, vol. VIII, edited by C. Mouchot. Paris: Economica.
- Winiarski, L. 1896. Deux théories d'équilibre économique. *Revue internationale de sociologie* 4. Reprinted in Busino (1967:76–97).
- . 1897. Matematicheskij metod v politicheskoy ekonomii (The mathematical method in political economy). *Nauchnoe obozrenie (Scientific Review)* 4:1–24.
- . 1900. L'Enseignement de l'économie politique pure et de la mécanique sociale en Suisse. *Comptes rendus du Congrès international de l'enseignement des sciences sociales*, 30 juillet–3 août 1900. Reprinted in G. Busino (1967:291–95).
- Zweynert, J. 2002. *Eine Geschichte des ökonomischen Denkens in Russland. 1805–1905*. Marburg: Metropolis Verlag.