Search For A Definition: Samuelson's *Economics*

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Aiming at a definition of the discipline, Paul Samuelson included in the first pages of Economics a brief consideration of "What Economics is". This happened in 15 of the 19 versions of his epoch-making textbook, from the 5th edition in 1961 all the way to the last in 2010. The section included, not only a phrase suggested as definition, but also a previous list of alternative characterisations. Although dealing with a basic and foundational issue, the text was repeatedly revised, with continuous adjustments, throughout the several editions, targeting perfection. By considering them it is possible to follow the evolving thought of the great economist on the thorny issue of depicting the elementary nature of the economic science, and thus understand it a bit better.

Keywords: economics, definition, Samuelson, textbook, Econ 101

This paper briefly describes the evolution of the definitions of the economic science used in the several editions of the classical textbook *Economics* by Paul Samuelson. The effort, which lasted the best part of 50 years, from the 5th edition in 1961 to the 19th and last in 2010, represents one of the most consistent and influential attempts to establish "the" ultimate definition of this science.

Although it may be said to have failed, as even today there is no consensual description of the nature of this discipline, the twists and turns shown by the 15 versions summarize much of the previous work and show an interesting trajectory on the quest for an acceptable characterization of the science. This is revealed, not only in the different formulations which the book adopted, but also in the preparatory lists of alternative definitions which precedes them.

These procedures are relevant, first, due to the eminence of the author, one of the most influential economists of the 20th century but also for the role of the textbook, a serious candidate to basic reference in the field.

ECONOMICS IN THE JUNGLE OF DEFINITIONS

The lack of a consensual definition of the area of economic science is an undeniable fact, as is the acknowledgement that it doesn't bother most economists. The profession flourishes even if the logical structure of activity remains vague. This situation was expressed explicitly by Lionel Robbins in his famous methodological essay:

> "*The efforts of economists during the last hundred and fifty years have resulted in the establishment of a body of generalisations whose substantial accuracy and importance are open to question only by the ignorant or the perverse. But they have achieved no unanimity*

concerning the ultimate nature of the common subject-matter of these generalisations. (...) We all talk about the same things, but we have not yet agreed what it is we are talking about." (Robbins 1932, 1).

This was the situation in the early 1930s, but things have not improved much in the decades that ensued. It is undoubtedly true today that "Economists are far from unanimous about the definition of their subject", as stated in the first line of a recent survey on the issue (Backhouse and Medema 2009, 221). The lack of a consensual definition, although not much relevant for the health of the field, is indisputably an unfortunate situation, especially in the face of the debates around the scientific statute of economics.

The problem is not so much an absence of definitions, but their profusion. This multiplication is very ancient and was acknowledge from the start. It was present in two of the early landmarks of the methodology of political economy, the book by Nassau Senior in 1836 and John Stuart Mill's essay in 1944. Although including what each of the authors believed to be a final description of their science, both are, already then, forced to list several previous definitions different from their own (Senior 1836, 1-2, Mill 1844, 312). The conclusion is inescapable: the field is hopelessly entangled in different points of view about its own nature. Nevertheless, there were some powerful attempts to solve this conundrum.

The Textbook

One of the long-lasting efforts to establish a consensual definition is, without doubt, the one presented in the successive editions of the famous textbook *Economics*[1] by Paul Samuelson. This is an important episode, both by the significance of the author and book and the amount of energy dedicated to the endeavour.

The volume was, and remains, one of the most successful in the area. "Paul Samuelson's Economics ranks with the most successful textbooks ever published in the field, including the works of Adam Smith, David Ricardo, John Stuart Mill and Alfred Marshall." (Skousen 1997, 137). More significant, it aimed at being the central reference in the field. "Samuelson's rhetorical strategy seemed designed to give students the impression that the economics profession had achieved a monolithic belief structure." (Skousen 1997, 139). Maybe not an initial aim (Giraud 2014, Samuelson 1997), it soon became clear the purpose was daringly to establish the final word about economics. The author, who in his PhD thesis had presented the "foundations of economics analysis" (Samuelson 1947), was now writing the "canonical textbook" (Pearce and Hoover 1995, 184).

Almost as important as the sales, numbered in the millions, and the translations, in the dozens (Samuelson et al 1999, 356), were the multitude of clones. "Samuelson's textbook (…) became the prototype of future introductory economic books." (Colander and Landreth 1998, 70).

One of the indications that this canonical element was slow in emerging is the fact that, for the four initial versions, presented in 1948, 1951, 1955 and 1958, the introductory chapter was devoid of an attempt of definition. It must had become apparent to the author that, for a field to achieve scientific status and a textbook reach referential rank, the task had to be attempted.

The New Section

It all started in the 5th edition when the book was already 13 years old. That is when, in chapter one, one the most revised in the book although maintaining its general structure, appeared a new section intitled "What Economics is". The new piece, directly aimed at the concise description of the science, was nonetheless not very satisfying and objectively a bit strange.

It started by stating the fact that historically there are many definitions of economics, even illustrating it by presenting five of them. Then, after a three-paragraph discussion of the five items list, concluded dishearteningly: "no one definition of economics is precise, nor is one really needed". It seemed the final nail in the coffin of the definitional effort. But then, suddenly, is said: "However, an informative introductory description would be the following:" and ends, without any further explanation, by bestowing a new specimen to the zoo of the definitions of economics.

The new section was kept for the next 49 years, until the last 2010 edition. In the 11th version, in 1980, the part was significantly enlarged and subdivided, and this led to a new subsection explicitly intitled "Definitions", which in the 13th edition of 1989 became "Definitions of Economics", when the title of the higher section was revised to "What is Economics?" The 15th edition of 1995, while keeping the content, changed the title of the upper section to "Scarcity and efficiency: the twin themes of economics" and eliminated the title of the subsection "Definitions of Economics", which reappeared only in the last edition.

Such variations are related to the most remarkable element of this saga, which justifies this paper: the content of these few paragraphs on the definitions of economics was almost always revised from edition to edition. This is a very surprising attitude. It is usual for authors of textbooks to revise their work regularly; but, when doing these revisions, others normally overlook the initial introductory chapters, centring their attention on the substantial parts of their books. Here we have a famous author that almost always kept to the triannual timetable for the revisions of his introductory textbook[2] and, more remarkable, always made a point of tinkering with the initial chapter of the handbook, particularly in the section aimed at a definition of the science. This tradition was kept in the last eight editions, after 1985, when a co-author was added, William D. Nordhaus.

The historians are mostly interested in the why and the how these revisions were made. The production of reference textbooks is subject to lots of influences and interventions from critics, reviewers, editors and readers may have had some influence. But the changes, in themselves, are historically relevant, as we are dealing with a conceptual topic of science in a text intended as basic reference. When dealing with the most foundational element of the area, this high volatility of the defining element is an undoubtedly paradoxical characteristic. Essence is, by nature, permanent. It is reasonable to ascribe this turmoil to the extreme difficulty of the task of knowing that essence. But is also shows how highly Samuelson was committed to the quest and how self-demanding it was. This path, that thus shows its significance, is described in the next sections.

THE INITIAL LIST OF ALTERNATIVES

As said above, Samuelson's quest for the holy grail of the ultimate definition of economics consists of two parts. First there is a list of previous referential statements which, never identified by their source, aimed at the same purpose. Afterwards is presented the new proposal by the author. This section will briefly present the several tribulations suffered by the initial list in the subsequent editions, while section 3 will describe the evolution of Samuelson's own definition.

It is necessary to subdivide this section because, when devising the preparatory list of alternatives to his own suggestion, Samuelson used two different approaches. From the 5th to the 14th edition, covering the 30 years after 1961, the method was the quotation of the phrases by previous famous authors[3]. Then, for the last 20 years and five editions, instead of using declarations aimed at a description of the science, the preparatory list includes several subjects which occupy that study. We may say he started with a definition by essence but then turned to a definition by components.

The Authored Definitions

The five original definitions used in 1961, although never explicitly attributed, are easily ascribed to a few central references of the discipline. Nevertheless, they are not citations *verbatim*, always including clear manipulations by Samuelson, although pretending to be, and clearly being collected from the classics. Although quoted from established authors, their formulation evolves from edition to edition, sometimes significantly.

The Whately definition

The first definition, which kept the initial position during the nine editions where it was present, was: "1. Economics is the study of those activities that involve money and exchange transactions among people."

This concept is clearly related to the one suggested by Archbishop Richard Whately in the early 1830s (Whately 1831, 6). The approach, subsequently adopted also by other authors (e. g. Davenport 1913, 25, Buchanan 1964, 214), implied even a new name for the science: "The name I should have preferred as the most descriptive and on the whole least objectionable is that of CATALLACTIC*S,* or the 'Science of *Exchanges'*." (Whately loc. cit.).

The formulation was used until the 13th editions and had few alterations. Immediately on the second use, in the 6th, was inserted the specification ", with or without money,"; in the 9th was made the variation "Economics, or political economy"; in the 12th "exchange transactions" was replaced by "production and exchange", and in the 13th "among people" became "of goods".

The spotlight bestowed on this concept, by placing it in the initial position, is relevant, particularly because the wording will not be very influential for Samuelson's own proposal. Maybe this way the author wanted to stress its specificity: it is the only definition centred, not on substances, like wealth, nor activities, like production or life, or decisions and feelings, like choice and welfare, but on human interactions. The consequences can be drastic: conceived this way, there is no "economics of Robinson Crusoe".

The Robbins Definition

The second characterization is clearly an elaboration of the famous 1932 suggestion by Lionel Robbins[4]: "2. Economics is the study of how men choose to use scarce or limited productive resources (land, labour, capital goods such as machinery, and technical knowledge) to produce various commodities (such as wheat, beef, overcoats, concerts, roads, and yachts) and to distribute them to various members of society for their consumption." This is also the closest of the five preparatory sentences to Samuelson's definition, as will be described in section 3.

It is one of the two most used definitions, all the way to the 14th edition, and the most stable of them all. Besides some minor changes in writing[5] and in the lists of examples[6], the main alteration was the inclusion in the 12th edition, at the start of the sentence, the precision: "Economics is the science of choice. It studies…"[7] It was less stable in the location: the second place was kept for seven editions, but then moved to the third place in the 12th and 13th editions and to the fourth spot in the 14th edition.

The Marshall Definition

From the late 19th century it had become a tradition among economists to treat the first sentence of the first chapter of the classic *Principles of Economics* by Alfred Marshall as a definition of the field[8]. Samuelson honours that tradition, slightly enlarging the phrase: "3. Economics is the study of men in their ordinary business of life, earning and enjoying a living." The expression disappeared in the 12th edition, but until then was always in the third place and almost untouched, the only exception being the replacement, like in the previous definition, of "men" by "people", also in the 10th edition.

The Say Definition

A very similar tenure was enjoyed by a very similar item, the one we can relate to Jean-Baptiste Say's formulation[9]: "4. Economics is the study of how mankind goes about the business of organizing its consumption and production activities." It survived one more revision than Marshall's, until the 12th edition, always in the fourth place of the list. But like the previous one, it maintained the wording, with a single change, also in the 10th edition, substituting "human beings" in the place of "mankind".

The Senior/Mill Definition

The list of renowned definitions would be incomplete without the consecrated, although very simple, proposal by Nassau Senior (Senior 1836, 14), obviously inspired in the title of the originating treatise by Adam Smith (Smith 1776), and later developed by John Stuart Mill[10]: "5. Economics is the study of wealth."[11]

This, along with Robbins' phrase, was the only one kept until the 14th edition, in this case always in the fifth place of the list. Nevertheless, it suffered more changes, because in the 12th it was turned into "Economics is the study of money, interest rates, capital and wealth.", and in the next edition "interest rates" was replaced by "banking".

The Other Samuelson Definition

These five simple sentences, introduced in the 5th edition and used for almost 30 years, remained the bedrock of the proper definition, which Samuelson offers immediately afterwards, and which will be analysed in section 3. But before we ponder the alternative foundation for the list of definitions, moulded in economic themes, we must briefly consider another phrase which only appeared once, in the 14th edition, but there in the first spot.

The 2009 survey of definitions of economics in the *Journal of Economic Perspectives* notes that "Paul Samuelson (1948) did not offer a definition of the subject." (Backhouse and Medema 2009, 227). But it then refers as definitional the three famous questions at the start of chapter 2 of the book, used to characterize the "Problems of Economic Organization" (Samuelson 1948, 12-13)[12]. This concept by the author himself is present as an explicit definition in the same textbook only on this addition to the 1992 edition: "Economics asks what goods are produced, how these goods are produced, and for whom they are produced", thus confirming the hypothesis of the survey.

The remarkable aspect here is how late and how sparingly this definition was used. It appears 30 years and nine editions after the start of the definitional effort, and only once. The reason seems to be, of course, the competition of the established Samuelson definition. Besides, a list of what a science "asks" has clear limitations as a formal characterization.

This is the story of the early sentences collected by Samuelson as background for his own[13]. We may say this is the proper way to tackle the definitional issue, by trying to depict the essence of the question in a simple sentence. But, without any explanation, it was radically changed in 1995. Then, still calling them "definitions", the book presents some statements which are clearly not characterizations of the nature of the discipline, but merely descriptions of some of the problems the science treats. Admittedly, each of the topics does not exhausts the discipline, so it cannot be a proper definition. Nevertheless, because they are named as such and this new list occupies the same role in the logic of the section, we must consider them before analysing the final adopted definition.

Definitions Based on Subjects

Suddenly, in the 15th edition, the introduction to the list of preparatory statements was changed, from the previous mention of "Here are a few definitions", to a justification which, although with minor revisions, was kept until the end: "Over the last 30 years the study of economics has expanded to include a vast range of subjects. What are the major definitions of this growing subject?" [14].

Thus, we may say that, officially, the second approach lasted only five editions, half the length of the initial design. In fact, the transition is much more modulated, as it really started in the 9th edition. We may even take the 14th edition to present an intermediary model, as it still has the original introduction to the list, but this is now composed of three authored definitions and two subjects.

The "vast range of subjects" may be classified in eight topics, divided in three groups. The first, composed of economic growth, business cycle and international trade, includes the most mentioned topics, present in more than six editions. The second group, with four or five presences, includes financial markets, income distribution and government policy, while the last, with three or less presences has only two members: resource allocation and public budget.

Let's briefly review the formulation of these questions, which, although less used than the formal definitions, suffered many more changes.

Economic Growth

The first case of a subject being included among the definitions is the topic of economic development. From the 9th to the 11th edition there was, for the first time, a sixth member in the list of definitions, then still numbered: "6. Economics is the study of how to improve society." In the 11th the phrase becomes "6. Economics is the study of how to improve society and make humane civilization possible."

The topic disappeared for the next three editions, resurging in the 15th, now in the eight place (the only case where the list was so large) and in a clearly different form: "Economics looks at growth in developing countries, and proposes ways to encourage the efficient use of resources." The design was kept in the next four editions, for a total of seven attendances, but always changing the placement: it was seventh in the list on the 16th edition, sixth in the 17th and fifth in the 18th. In the final edition it was discarded.

Business Cycle

The most mentioned of the eight subjects is economics fluctuations, with eight presences. The 12th edition introduced in the second place of the list the following statement: “Economics analyses movements in the overall economy – trends in prices, output, and unemployment. Once such phenomena are understood, economics helps develop policies by which governments can affect the overall economy.” This macroeconomic element is the most troubled of all subjects, both in position and wording.

In what regards the location, it kept the second slot in the first three editions, but then moved to the sixth position in the 15th, fifth in the 16th, forth in the 17th and third in the last two editions.

The phrasing also altered every time. In the 13th edition the end was changed from “can affect the overall economy” to “can improve the performance of the economy”. The 14th edition added “and foreign trade” to the variables moved and replaced “phenomena” by “trends”.

In the 15th edition the whole phrase was changed to “Economics studies the upswings and downturns in unemployment and production that make up the business cycle, and develops government policies for improving economic growth.” The 16th replaced “upswings and downturns” by “swings”.

In the 17th edition again there was new version: “Economics studies the business cycle and examines how monetary policy can be used to moderate the swings in unemployment and inflation.”. This phrase was subsequently slightly changed, as in the 18th it became “Economics studies business cycles – the ups and downs of unemployment, and inflation – along with policies to moderate them.”; and finally: “Economics studies business cycles – the ups and downs of unemployment, and inflation – along with policies to moderate them.”

It is tempting to attribute this volatility in the formulation to the heated debates that, precisely in these years, were happening in the studies of economic fluctuations. Nevertheless, such explanation remains pure speculation.

International Trade

The other case of a subject with seven presences in the list of definitions is the reference to international relations. The first instance is in the fourth place of the 13th edition, when the topic was: “Economics is the study of commerce among nations. It helps explain why nations export some goods and import others, and analyzes the effects of putting economic barriers at national frontiers.” The phase was kept in the next edition, although now moved to the third place.

In its third appearance, on the 15th edition, the wording was much shortened to “Economics examines the patterns of trade among nations, and analyzes the impact of trade barriers.” This language was maintained in the next two editions, only replacing “examines” with “studies” in the 17th edition, but the position was raised one step each time, just like in subject of economic growth. The 18th edition elevated it another step, to the fourth place, and reduced the sentence to “Economics studies international trade and finance and the impacts of globalization”. In the final edition this was changed to “Economics studies international trade and finance and the impacts of globalization, and it particularly examines the thorny issues involved in opening up borders to free trade.”

Again, we have a very controversial subject which is very present in the list but suffering important modifications from edition to edition.

Financial Markets

The reference to the financial issues happened only five times, and in a much more stable position: it was second from the 15th to the 17th editions and first after that. The form was also less volatile. It started as “Economics explores the behavior of the financial markets, and analyzes how they allocate capital to the rest of the economy.” In the 17th it became “Economics explores the behavior of the financial markets, including interest rates and stock prices.” and the 19th added “exchange rates”, between “interest rates and stock prices”.

Income Distribution

The problem of inequality was one of the last to appear and suffered a small evolution in the list. The great restructuring of the 15th edition was the first time this question was assessed, located in the fourth place: "Economics examines the distribution of income, and suggests ways that the poor can be helped without harming the performance of the economy." In the next two editions the spot was moved to the third position, but the phrase was untouched.

The last two editions changed its place to the second slot, and the phrase was generalized to include international inequality: "Economics examines the reasons why some people or countries have high incomes while others are poor and suggests ways that incomes of the poor can be raised without harming the economy." In the last edition some minor adjustments were made[15], maintaining the meaning and form.

Government Policy

As was seen, several of the previous topics mentioned political interventions, either implicitly or explicitly. But in four of the editions there was an item directly presenting this theme. The first case was in the largest of lists, the 15th edition, where in the third spot appeared: "Economics analyzes the consequences of government regulation on market efficiency." The phrase was eliminated in the 16th edition but reappeared in the 17th, now in seventh and last position with a new formulation: "Economics asks how government policies can be used to pursue important goals such as rapid economic growth, efficient use of resources, full employment, price stability, and a fair distribution of income." The formulation was maintained in the next two editions but raising one spot in the list each time.

Resource Allocation

The first position of the 15th, 16th and 17th editions was occupied by a statement which could be related to the definition of Political Economy used by David Ricardo in his 1817 classic. There, in the preface, the great author states that the "principal problem in Political Economy" is the distribution of the "produce of the earth" among the factors of production (Ricardo 1817, 5). Samuelson presents this as: "Economics studies how the prices of labor, capital, and land are set in the economy, and how these prices are used to allocate resources." The only change to the phrase happened in the last of these three editions, were the sentence became: "Economics analyzes how a society's institutions and technology affect prices and the allocation of resources among different uses."

Public Budget

To complete the list, one must mention a topic referred only twice, certainly because in one of them it was somewhat a redundancy.

In the big list of the 15th edition, besides the allusion to government policy mentioned above, in the fifth place was included: "Economics looks at the impact of government spending, taxes, and budget deficits on growth." May be this was motivated by the big role taxation occupies in early treatise of Political Economy, like Smith or Ricardo books. The phrase moved to the fourth place in the next edition but was dropped afterwards.

This description of the preparatory list of definitions, somewhat morose including six statements and eight subjects, has the advantage of giving us the vision of one of the most privileged observers of the economic science of the 20th century on the perennial problem of the nature of his science. We may say this is how the golden era of neoclassical economics addressed the nature of its studies.

TABLE 1
DEFINITIONS USED ON THE SEVERAL EDITIONS OF ECONOMICS, WITH THEIR LOCATION

	1	2	3	4	5	6	7	8
5	Whately	Robbins	Marshall	Say	Senior	-	-	-
6	Whately	Robbins	Marshall	Say	Senior	-	-	-
7	Whately	Robbins	Marshall	Say	Senior	-	-	-
8	Whately	Robbins	Marshall	Say	Senior	-	-	-
9	Whately	Robbins	Marshall	Say	Senior	Growth	-	-
10	Whately	Robbins	Marshall	Say	Senior	Growth	-	-
11	Whately	Robbins	Marshall	Say	Senior	Growth	-	-
12	Whately	Cycles	Robbins	Say	Senior	-	-	-
13	Whately	Cycles	Robbins	Trade	Senior	-	-	-
14	Samuelson	Cycles	Trade	Robbins	Senior	-	-	-
15	Allocation	Finance	Policy	Poverty	Budget	Cycles	Trade	Growth
16	Allocation	Finance	Poverty	Budget	Cycles	Trade	Growth	-
17	Allocation	Finance	Poverty	Cycles	Trade	Growth	Policy	-
18	Finance	Poverty	Cycles	Trade	Growth	Policy	-	-
19	Finance	Poverty	Cycles	Trade	Policy	-	-	-

This inspection of both types of definitions used in the last 15 editions of the textbook may be summarized in Table 1. There we find the position of each of the 13 phrases in the lists used in the last 15 editions of the textbook, those including a definition of economics.

It is now clear that the value of this inspection comes, not only from the eminence of the author, but also from the fact that he clearly dedicated a lot of effort to the account, as shown by the minute and frequent corrections constantly being made throughout the versions. Probably no one has made such a long and thorough elaboration to justify a simple suggestion of definition. But was it simple?

SAMUELSON'S ORIGINAL DEFINITION

If the consideration of the preparatory list of characterizations provides a summary of the most relevant historical attempts to find a summary description of the discipline, the real value added, at least from the point of view of the author, is the new formulation introduced by the volume.

Why did Samuelson thought this innovation was needed? As mentioned above, the initial 5th edition presents no justification for this. But in the next volume there was an explanation: "Economists today generally agree on a definition like the following one:"

There is no evidence presented for this rather bold assumption but, whatever the economists of the time really agreed on, the rationalization was maintained for seven versions. Then, in the 13th edition the strategy was changed to a much more honest and instructive approach: "But if we boil down all these definitions, we would find a common theme like the following:" This was the phrase that, with minor changes[16], was used until the end.

Of course, the contentious element now is how is it possible to "boil down" such a diverse set of definitions into a single sentence. But at least the responsibility is explicitly assumed by the author, instead of invoking the consensus of an undetermined multitude. Another important element of this new presentation is that it acknowledges the new proposal as indebted to the previous phrases, the ones being boiled down.

In any case, this heartening conclusion is somewhat destroyed by the fact that the saving definition is almost always changed from one edition to the next. There are in total nine different alternatives in the fifteen editions. It is true the basic structure is maintained and most of the changes are minor. But for a statement that is supposed to be consensual, such a high volatility is troubling.

The pattern of the evolution is straightforward. The initial formulation of the 5th edition was kept in the 6th, but afterwards started a process of growth in size, adding each time further elements. The 45 words of the initial formulation, which easily made it the largest of all definitions in the book, except for the Robbins design, where successively increased, becoming 50 in the 7th, 8th, and 9th editions, and then 62 in the following three, an absolute record. This enormous paragraph was drastically reduced in the 12th edition to 43 words, and then halved to 20 in the 13th edition. This was the most durable of all the nine phrases, as it was kept until the 18th edition, with the last of the versions adding two words.

The Initial Definition

The first attempt by Paul Samuelson to define his field was the phrase: "Economics is the study of how men and society choose, with or without the use of money, to employ scarce productive resources to produce various commodities over time and distribute them for consumption, now and in the future, among various people and groups in society."[17]

It is easy to see the obvious family traits with the Robbins formula. The phrase is centred on the word "choice", and the motivation for it is clearly scarcity. The distinguishing features are the several qualifications introduced, some of which clearly come from other definitions. The "with or without the use of money" remembers the catallactic version, while Say's suggestion is present in the reference to production, distribution and consumption.

Besides this, Samuelson replaced the exemplification of commodities and resources which he included in the Robbins statement, by other specifications. The precision of "men and society" at the start, and "various people and groups in society"[18] results obviously from the distinction between microeconomics and macroeconomics, which was all the rage at the epoch. Also, a relevant aspect is the repeated mention to the role of time, not only in the item "over time", but also in the "now and in the future".

As said above, the general tone of the definition was maintained in the following editions. But the dissatisfaction of the author was clear by the first long process of revision, which lasted 21 years, from the 6th edition of 1965 until the 12th in 1985.

The Rise of a Definition

The original 1961 version was untouched in only one edition, as said. In the 7th, Samuelson added the expression "which could have alternative uses" after the mention of the "scarce productive resources"[19]. This is important because it includes the second element of choice. In fact, scarcity is not enough for the existence of a decision; there must also exist several alternatives for a selection to take place. Robbins had this all the time, but Samuelson only used it in six of his 15 editions.

The contribution of the 8th edition is minor, but strange. First the word "choose" was replaced by "end up choosing". The reason is not apparent, but this was kept until the 12th edition, when the original "choose" reappeared. The second alteration is the elimination of the expression "over time", certainly because the following element "now and in the future" made it redundant. It never reappeared.

The largest form was achieved in the 9th edition, with the addition of a new period at the end of the definition: "It analyzes the costs and benefits of improving patterns of resource allocation."[20] It is not obvious the reason for this extension of an already very large formula. The motive is probably the importance of the word "allocation" for economics, something which, as we saw, reappears in the seventh subject of the list above, the one connected to Ricardo.

The Fall of a Definition

The somewhat exaggerated size of the expression used, with minor changes, in the three editions, from the 9th to the 11th, was certainly the motivation for the drastic reduction effected in the 12th edition. This may be also attributed to the influence of the new co-author, William D. Nordhaus, in this 1985 edition. His arrival hadn't generated any relevant changes in the list of definitions, as the 12th was distinguished by stability[21], but here the change was sizeable by the reduction in size: "Economics is the study of how people and society choose to employ scarce resources that could have alternative uses in order to produce various commodities and to distribute them for consumption, now or in the future, among various persons and groups in society."

We could interpret this reduction as a return to the original version, as the similarities between the first and this seventh variety are clear. The only two differences are the omission of the elements "with or without the use of money" and "over time"; also, for the first time, the scarce resources stop being "productive"; the only addition is the already mentioned "that could have alternative uses".

But this strong diet of the definition was not enough. In the 13th edition the phrase was again cut, now to less than half its size, to a very simple sentence: "Economics is the study of how societies use scarce resources to produce valuable commodities and distribute them among different groups." The phrase seems reduced to its bare skeleton, omitting even some of the crucial defining elements of all the previous versions, like "choice", "time", "alternative", "consumption" and "allocation"; also disappeared is the interaction between people, groups and society.

A 20 words statement is still bigger than four of the five definitions in the original, the exception being, of course, the Robbins one[22]. And this, the poorest of all the Samuelson definitions, was also the most durable, being untouched from then 13th to the 18th edition[23]. In the last edition of 2010, again there are changes, although minor: "commodities" becomes "goods and services" and "people" became "individuals".

CONCLUSION

A definition is supposed to be a small sentence summarizing a large and complex entity. That is why it is relevant to consider the one-page long treatment of the issue of defining economics present in the several editions of the introductory textbook written by one of the most shinning stars of the golden period of neoclassical economics.

The result is somewhat dispiriting. First, the approach is clearly indicative of the haziness of the problem, always being forced to include a preparatory list of alternatives to support the new suggestion. Secondly, and more significant, there was a continuous tampering with the list, its members and the final proposal. All this reveals a kind of undefinition of the definition, which somewhat defeats the effort. As the book explicitly confesses in the second attempt, the 6th edition, in a form repeated through to the 12th: "It is always hard to compress into a few lines an exact description of a subject, one that will differentiate its boundaries from those of other disciplines and convey to the beginner all the things it is". The conclusion may thus be that economics is doomed to use the famous witticism by Jacob Viner: «Economics is what economists do»[24].

Does this condemn the result of Samuelson's venture to be merely negative? In fact, there are valuable benefits to be had from this herculean effort by a man self-appointed to the task of writing the canonical reference of a science. First, his review of historical definitions, the choice of the members and the precisions he added to the several alternatives, provide an interesting summary of this complex field. It is hard to imagine in future anybody repeating such a program, so this could be taken as probably the final appraisal of the attempts to define economics.

On the other hand, the reason which clearly directed the slimming down of the sentence in the last eight editions was the requirement of a limitation to "a few lines", considered mandatory for definitions. If we drop that prerequisite, it becomes possible to stick to the gigantic offer of the 11th edition in 1980.

This way we get a small text which contains lots of insights and pedagogical possibilities. Analysing all the component parts and weighing each word, so thoroughly and carefully chosen by Samuelson, it is possible to guide the beginner through a journey by the basic concepts of the discipline. After all, this is the chief purpose of any definition.

Consequently, the main conclusion of this long project should be: "Economics is the study of how people and society end up choosing, with or without the use of money, to employ scarce productive resources that could have alternative uses – to produce various commodities and distribute them for consumption, now or in the future, among various persons and groups in society. Economics analyzes the costs and benefits of improving patterns of resource use."

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ENDNOTES

1. The book, which was born in 1948 under the name Economics, an introductory analysis, changed title to Economics in the 8th edition of 1970. In the 10th edition the book had the "assistance in statistical updating" of Peter Temin, and in the 11th of William Samuelson, son of the author; after the 12th edition of 1985 it is co-authored by William D. Nordhaus. The discussions about the definitions, always placed in the first chapter of each edition, vary naturally in specific pages. The references below will thus be to pages 5-6 of the 5th edition, page 5 of the 6th, 4-5 of the 7th, 4 of the 8th, 3 of the 9th and 10th, 2 of the 11th, 3-4 of the 12th, 4-5 of the 13th, 3 of the 14th, 4 of 15th to 17th and 3-4 of 18th and 19th.
2. In the eighteen revisions there are only eight exception to the three years interval, five with four years intervals (in the 3rd, 11th, 13th, 16th and 18th editions), two with five years (12th and 19th) and one with only two years interval (17th).
3. In the first six lists, from the 5th to the 11th edition, the introductory remark was: "Here are a few such definitions:" In the 12th it became: "Here are a few popular definitions:" in the 13th "Here are a few that are commonly heard:", and finally in the 14th "Here are a few definitions of economics:". The list of definitions was numbered until the 11th edition.
4. "Economics is the science which studies human behavior as a relationship between ends and scarce means which have alternative uses." (Robbins 1932, 16).
5. Besides the elimination or introduction of "and" and "to" in several places, in the 10th edition "men" became "people", in the 11th "them" became "these goods" and in the 19th the ending was shortened to "goods for consumption."
6. The 6th edition added "bombers" to the list of commodities, before "yachts", which was replaced by "missiles" in the 12th, when the "yachts" (which in the 9th editions had moved up to the fourth place) disappeared and "capital goods such as machinery" was changed to "equipment". In the 14th "land" disappears from the resources and "beef" and "roads" from the commodities.
7. This is an obvious quotation of the Mundell definition "Economics is the science of choice." (Mundell 1968 ii).
8. "Political Economy or Economics is a study of mankind in the ordinary business of life" (Marshall 1890, 1).
9. "political economy, which unfolds the manner in which wealth is produced, distributed, and consumed." (Say 1803, 9).
10. "Political Economy, then, may be defined as follows; and the definition seems to be complete:— 'The science which traces the laws of such of the phenomena of society as arise from the combined operations of mankind for the production of wealth, in so far as those phenomena are not modified by the pursuit of any other object.'" (Mill 1844, 323).
11. The same definition was adopted in other landmarks of the science like Cairnes 1857, Keynes 1890 and Cannan 1888.
12. This three questions structure was inspired by Frank Knight's "Five Main Functions of an Economic System" presented in his classes at the University of Chicago, where Samuelson was a student in 1932, and later published in Knight 1993 p. 7-15. This source is acknowledged in a footnote on the second 1951 edition of the textbook (p. 14).
13. It may be said that, of the main definitions used in the first centuries of the science, there is only one who is not explicitly present in this survey by Samuelson, the one centred on human welfare, which was adopted by Pigou 1920 and Beveridge 1921, according to Robbins 1932, 1-2.
14. The 17th edition of 2001 changed "last 30 years" into "last half-century".
15. Becoming "The subject examines the reasons why some people or countries have high incomes while others are poor; it goes on to analyze ways that poverty can be reduced without harming the economy."

16. The element “like the following” was dropped immediately on 14th edition, and the 19th the “But,” was replaced by “However”.
17. The words “choose” (and “choosing” in and after the 8th edition) and “scarce” were italicized. This practice was kept until the 11th edition, were also “produce” and “distribute” were highlighted. All italics disappeared afterwards.
18. The initial “men” became “people” and the final “people” became “persons” from the 10th to the 12th editions.
19. The “which” was replaced by “that” from the 9th to the 12th editions.
20. The “allocation” became “use” in the 11th edition, the last to use this phrase, where also the initial “It” was replaced by “Economics”.
21. The only significant alteration being the replacement of the Marshall definition by the subject of business cycles.
22. This is only the case for the Samuelson’s version of the Robbins’ definition. The original version from the British professor of LSE, quoted above in note 5, is exactly 20 words long. This coincidence may have something in the way of an explanation for the cut.
23. The only exception is that the word “groups” at the end of the phrase was replaced by “people” in the 14th and following editions.
24. Quoted in Boulding 1941, 1.

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