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TRABAJO DE FIN DE GRADO

The Translation of an Economic Research Article: Documentation and Analysis

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ABSTRACT

The main objectives of this dissertation are the translation of a specialized research article in the field of economics from English into Spanish and the evaluation of the tools and documentary sources used to carry out this translation. The selected text is an excerpt from a research article published by the American Economic Association.

The present study is based on a theoretical framework underlying basic concepts such as the genre of the research article, economics, and specialized translation. Nevertheless, the analysis of the main translation problems reveals that most of them are of a terminological and phraseological character, which provides this study with an essentially practical nature. The use of several tools and sources of documentation allows to compare and/or verify the different possibilities that are considered when translating; the suggested solution to the translation problems raised is based on the selection of the most suitable resource for each problem.

Keywords: specialized translation, research article, economics, documentary sources, terminology.

RESUMEN

Este proyecto fin de grado tiene como objetivos principales la traducción del inglés al español de un artículo de investigación especializado en economía y la evaluación de la documentación y herramientas utilizadas para llevar a cabo este propósito. El texto seleccionado es un fragmento de un artículo de investigación publicado por la Asociación de Economía Americana.

El presente estudio se apoya sobre un marco teórico donde subyacen conceptos básicos tales como el género del artículo de investigación, la economía y la traducción especializada. Sin embargo, el análisis de las principales dificultades traductológicas pone de manifiesto que la mayoría de ellas son de carácter terminológico y fraseológico lo cual confiere al estudio un carácter eminentemente práctico. El uso de diversas herramientas y fuentes de documentación permite contrastar y/o verificar las diferentes alternativas consideradas en la traducción; la solución propuesta a los problemas traductológicos planteados está basada en la selección del recurso más apropiado para cada problema.

Palabras clave: traducción especializada, artículo de investigación, economía, fuentes documentales, terminología.

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1 INTRODUCTION

Advances in information and communication technologies have changed society very deeply and consequently, the world of translation. International human mobility has increased significantly in recent years, which has exponentially intensified the need for cross-border communication and translation. This fact, together with the globalization of the economy, is one of the aspects that has most influenced the translation of economics texts.

The present study aims to address the particularities of economic translation through the translation of a research article specialized in economics and the subsequent analysis of the main difficulties encountered. The nature of the present paper is essentially practical, even though it is supported by a theoretical background developed by leading professionals from diverse areas of knowledge.

The aim of the present study is basically to analyze the problems involved in translating a text specialized in economics considering the available tools for this purpose. In this context, documentation work along with knowledge on the field are crucial aspects to accomplish this work. Aspects such as specific terminology and phraseology of economics are the cornerstone of this study, being aware that the use of suitable documentation in the translation process definitely influences the outcome of the translation. Thus, I have assessed the different tools and documentary sources that are available to the translator specialized in economics issues, in order to use the ones that provide the best approach to the translation problem addressed. I have consulted different dictionaries, both monolingual and bilingual, specialized and non-specialized economics dictionaries, general and specialized corpora, computer-assisted translator tools, and particularly, parallel texts which have been especially valuable in performing this study. Finally, I describe some of the most frequent problems that a translator encounters when undertaking the translation of a text specialized in economics from English into Spanish.

The text selected for this purpose is “The Pricing of Pharmaceuticals” which is an excerpt of the research article “Pharmaceuticals in U.S. Health Care: Determinants of Quantity and Price” published by the Journal of Economic Perspectives. This journal is published by the American Economic Association which promotes economic research through its printings.

2 THEORETICAL BACKGROUND

2.1 Genre and Specialized Languages

A main issue for the study of the translation of economics texts is to become aware of the concept of Language for Specific Purposes (LSP); this concept allows a first approach to the characteristics of specialized texts. Many are the definitions that have been emerging from the hand of different authors over time. This concept arises from the need to differentiate the use of common language from its specialized use as Cabré (1993, 151) shows below:

> A general and a specialized text on the same subject show significant linguistic coincidences that reveal that they have been constructed from a common system, but also important differences, the code that unifies them is the common language; the one that diversifies them, the one of the precise specialized language, both codes are therefore in a relationship of intersection.

Scientific advances that take place in the different areas of knowledge spread their progress through LSP; it is thus clear that such expertise can be transmitted through language, or in other words, language is the medium that science uses for its expansion. Halliday and Martin (1993, 13) go even further by stating that "the evolution of science was, we would maintain, the evolution of scientific grammar […] we mean the grammatical resources of the natural languages by which science came to be construed."

The text selected for this study is a research article which is aimed at experts in the economics area. It uses a specialized language as can be seen through the terminology and phraseology specific to the field of economics that appear in the text. Likewise, advances in this field enable new terms to be coined that are incorporated into specialized language in the form of neologisms, anglicisms, etc., as discussed below.

It is worth noting the approach provided by Hoffmann (1987) on this issue; he states that LSP could certainly be considered as sub-languages since they are subsystems of general language focused on certain spheres of communication. As far as the study of sublanguages is concerned, Hoffmann (1987, 298) addresses this topic following three criteria to classify sub-languages: "the intention of the author of the text, the purpose of the language, and its content/subject/topic." According to this taxonomy, any text could be classified within one of the fields of human activity or area of communication, and hence within one of the different sub-languages. In short, listing all the sub-languages is an almost endless task as the author himself also acknowledges: "they (LSP or sublanguages) are practically as numerous as the domains of specialized human activity which are constantly being added to by scientific and technological progress." Hoffmann (1987, 298)

Another essential notion in the field of specialized translation is the concept of genre. Some authors have addressed this concept; Bathia (1997, 181) proposes the following definition: "genres are essentially defined in terms of the use of language in conventionalized communicative settings." It is precisely this communicative environment that gives rise to the classification of the multiple genres. Nevertheless, there is no agreement on a standard classification of the different genres by experts in the field; Swales (1990, 287), who treats further the issue of genre analysis, claims that "genres are the properties of discourse communities." On a preliminary basis, he describes the concept of discourse community as a group of individuals who share common goals, have their own mechanisms of intercommunication, with one or more genres, a specific lexis, and a suitable degree of relevant content and discoursal expertise. This idea is thus the key to his definition of genre:

> Genre is defined as a class of communicative events which has a shared set of communicative purposes that are recognized by the parent discourse community, established constraints on contributions in terms of their content, positioning and form, and nomenclature for genres that is determined by the discourse community. (Swales 1990, 287)

The text object of my study belongs to the genre of the research article; the author, an expert in economics, addresses his communicative discourse to sector related professionals through a specific lexis with the purpose of objectively disseminating his findings about the economic aspects underlying the pharmaceutical industry in the United States.

Attending to the professional and academic genres, Alcaraz (2014) establishes three different areas: those belonging to the academic world among which the scientific-technical research article and the abstract stand out, those belonging to the business world, and finally the professional law texts. According to this classification, the text selected to carry out this study belongs to the field of scientific-technical research articles, although it is true that business world language can also be found. Therefore, this text clearly evidences that different genres may sometimes overlap each other.

2.2 The Language of Economics Texts.

The language of economics as a LSP fulfills an important communicative function; this language uses syntactic and textual resources that provide information as objectively as possible. This argument is supported by Cabré (1993, 225) who concludes that the most common function of specialized texts is the referential one which appears in all communicative processes. The difficulty involved when interpreting economics texts is explained by the limitations of applying rigorous scientific methodology. Economists test their hypotheses in an ideal world and judge how they affect each other, then, their findings are applied to the real world. Thus, economics texts move between the ideal world and reality in order to convey ideas and information. (Hewings 1990, 32-40) The idealized world of economics entails a greater degree of complexity since in terms of language, it is necessary to decode economics language and deal with the genre of economics texts. Therefore, the nature of the abstract language used in economics requires the support of certain figures such as the use of passive voice, metaphors, and personifications among others (Henderson and Hewings 1990, 43) as discussed below.

From the different approaches to this issue, it can be deduced that economics language has not an exclusively scientific character. Within the language of economic discourse there is a combination of features of general language and LSP as explained above, which gives it a hybrid nature. Due to this feature of the economic discourse, English economics vocabulary consists of technical, semi-technical, and general vocabulary. Technical vocabulary includes unique terms to the area of expertise, semi-technical vocabulary is made up of lexical units that have some meanings in general language and others in specialized language, and lastly, general language which consists of those lexical units belonging to the general language that are widely used in economics language. (Fraile 2007, 42)

As far as the concept of economy is concerned, there is no unanimous definition of this concept, which could have different approaches depending on the socio-cultural trends of the moment. The *American Behavioral Scientist* (1986) proposes two sets of definitions of economics; the first group led by Smith describes economics as “the science of wealth”, this concept is related to the idea of wealth or well-being whereas the second is related to the concept of scarcity. This latter group associates the concept of economy with the idea of doing the best with the limited resources available. In the same vein, McConnell (1960, 23) suggests the following concept of economy:

> Economics can be defined as the social science concerned with the problem of using or administering scared resources (the means of producing) so as to attain the greatest of maximum fulfillment of our unlimited wants (the goal of producing).

The research article selected for this study fulfills the communicative function of economic texts as it objectively shows a great growth of sales in the pharmaceutical industry and its high profitability. Additionally, aspects such as the cost structure of pharmaceuticals, patent protection, market structure, and marketing environment involved in the functioning of the pharmaceutical industry are expressed through technical, semi-technical and general vocabulary typical of economics texts.

2.3 The Translation of Economics Texts

The development of the scientific and technical discourse has its roots in the scientific revolution during the 17th century in England. As Bennet (2011, 190) proposes: “scientific and technical texts […] were exported to other cultures through a process of *calquing* due in part to spontaneous imitation and in part to the imposition of the host culture.” While it is true that the spread of scientific discourse enables the flow of knowledge around the world, the own language is challenged by the lack of alternative ways of transmitting knowledge.

The concept of translation has received considerable critical attention. Many are the authors who have handled this issue by providing multiple and valuable insights. On the basis of the eternal debate between literal and free translation of the source language into the target language, Newmark (1988, 46) observes that “free translation reproduces the matter without the manner, or the content without the form of the original” whereas in literal translation “the SL[1] grammatical constructions are converted to their nearest TL[2] equivalents but the lexical words are again translated singly, out of context.”

As for the translation of the text under study, I have usually carried out a semantic translation in short sentences, specific words or terms, and in those cases where both languages share the same grammatical structures. However, this type of translation is not always possible. I have chosen a communicative and freer translation for longer sentences or those structures which can be used differently in both languages such as passive voice and nominal constructions, but I have always relied on a suitable documentation.

By drawing on the concept of specialized languages, Suau-Jiménez (2010) concludes that they arise from the need of professional and academic disciplines to communicate their advances and knowledge; consequently, specialized translation is always linked to an academic or professional activity such as economic-business, scientific-technical, legal, advertising, etc., and therefore to the specialized languages. Suau-Jiménez (2010, 12) understands specialized translation as: “the translation of texts that are not fiction or literary, but that respond to the need of professionals in an academic or professional field to communicate.” To round out this point, Newmark (1988) divides texts into three categories: literary, institutional, and scientific (this latter includes science and technology). The translation of the research article considering in my study would thus suit the framework of specialized translation in the field of economic-business translation.

2.4 The Communicative Setting

Researches such as that conducted by Alexander (1999, 1468) have shown that “the register of economics can and perhaps needs to be distinguished with respect to its intended audiences. This will invariably mean asking about the type of texts we are interested in.” This topic is also treated by Pearson (1998) who proposes a classification

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[1] Source language
[2] Target language

for the different types of communicative settings considering the audience: expert-expert communication, expert to initiates, relative expert to the uninitiated, and teacher-pupil communication. Depending on the audience, authors use terms with a greater or lesser degree of specialization. Generally, a translator does not usually have the same level of knowledge as a professional scientific researcher. For this reason, it is very important that the translator acquires certain knowledge about the subject and content of the text to be translated, especially aspects such as terminology, concepts, and academic vocabulary.

As stated above, the text subject of this study is a research article specialized in economics which requires previous knowledge about the issue concerned since it has a high degree of complexity. Olohan (2016, 137) claims that "research articles are written by specialists, for specialists, and their linguistic and textual choices usually mean that non-specialist readers will feel excluded in the first instance." Within an expert-expert communication setting, experts use a highly specialized jargon: "it is assumed that author and reader share a common language and when certain words or phrases are used, each understands what is meant." (Pearson 1998, 36)

3 MATERIALS AND METHODOLOGY

The methodology and procedures described mainly by Newmark (1988) and Guix and Minett (2019) in their seminal works have been followed when translating the text under study. Concerning the general methodology of the analysis, I have used those described by Baker (1992), Suau (2010), and Pizarro (2010) among other authors.

As previously noted, the research article I have selected to accomplish my study is: "Pharmaceuticals in U.S. Health Care: Determinants of Quantity and Price" which has been written by Ernst R. Berndt, Professor of Applied Economics at the MIT Sloan School of Management (Institute of Technology of Massachusetts). It consists of 10 836 words and it is divided into two main sections: "Pharmaceutical Expenditure Growth in Context" and "The Pricing of Pharmaceuticals". The latter, which has 1 487 words, is the one I have selected to be translated and analyzed in the present study. The article focuses on the economics underlying the U.S. pharmaceutical industry and the factors that influence the pricing of medicines in view of its significant sales growth. It was written in American English and published in 2002. The source text-target text pair is included in the final annex. The different problems found during the translation are highlighted in different colours; these difficulties are further explained in section 5 of the present study.

The Journal of Economic Perspectives (JEP) is a journal published since 1987 by the American Economic Association (AEA), an organization which encourages the promotion of economic research. The JEP endeavors to establish a connection between economics research journals and the general interest press although it is indeed significantly closer to the former than to the latter. Throughout its publications, this journal attempts to provide economic analysis on state policy matters and spread the exchange of ideas among the fields of thinking. The JEP examines the material submitted by qualified academic researchers; proposals addressing an economic specialty are carefully assessed by journal editors and only those that fulfil the editorial criteria will be published. Moreover, articles appearing in the journal provide the opportunity to cutting-edge economic thinking and serve as inspiration for future research.

4 EVALUATION OF DOCUMENTARY SOURCES AND TOOLS

The selection of documentation sources depends on the translation problem involved; this choice must be made carefully since the outcome of the translation is usually determined by the use made of documentation in the translation process. Nowadays, there is a huge amount of information in the media, especially on the Internet which is an essential tool in the translation field. In their article, Alonso and Calvo (2015, 141) mention the study made by Byrne (2012, 15) where he reveals the important connection between technology and translation:

> With the appearance of computer-assisted translation tools we could imagine and even fear that advances in information technology would impact dramatically on the world of translation, but it is ultimately generic technologies, particularly the Internet, that will have the greatest impact.

The increasing development of telecommunications facilitates access to the Internet, however, not everything is acceptable on the web since, any computer user can produce content and share information that, in many cases, might be erroneous or incomplete. Several authors address this issue by providing various criteria to determine to what extent the information on the Internet is reliable. Petre (2017) states different categorization methods to group the criteria for the evaluation of information considering that the most relevant criteria are content and context. Content quality criteria of the resource refers to the assessment of the information it contains whereas context deals with the origin and website security. As a result, within the area of content, the most relevant recommended features as specific indicators are validity, currency, accuracy, authority, uniqueness, and objectivity among others. Moreover, within the area of context, recommended features as relevant indicators are provenance and relationship to other resources.

Furthermore, Chadwick, Franz, and Laverty (2001, 54-57) refer the study conducted by Kirk (1996) where five criteria commonly used to assess not only information published on the web but also printed documentation can be seen: authorship, publishing body, point of view or bias, accuracy or verifiability, and timeliness. According to the mentioned study, “these same five criteria can be applied to documents published on the web, albeit with more difficulty. The joint assessment of all these criteria is what allows the translator to choose one or another documentary source.” The criteria that I have considered for the selection of documentary sources are mainly a combination of the two approaches mentioned above. I consider aspects such as authorship, accuracy, objectivity, and the publishing body to be the most relevant criteria for determining the validity of documentary sources in my study.

Once the criteria concerning evaluation of information are known, the following section deals with the different tools and documentary sources needed to carry out the translation of specialized texts. Within the many different tools, it is worth mentioning that electronic bilingual dictionaries are one of most helpful resources. Nesi (2000, 1) explains the definition in her work: “the term electronic dictionary (or ED) can be used to refer to any reference material stored in electronic form that gives information about the spelling, meaning, or use of words.”

One of the biggest advantages of using the electronic format is that it allows a wide navigation, a deep browsing, and numerous searches. On the other hand, although printed version of dictionaries can also be found in electronic format or on the Internet and they are of good quality due to exhaustive revisions before publication, the great disadvantage is that they become obsolete relatively quickly and access could sometimes hinder the task when time is scarce. To perform this study, I have used many sources of documentation such as monolingual, bilingual and specialized dictionaries. Despite the great variety of dictionaries, I have also used parallel texts, terminological databases, corpora, and useful metasearch-engines dictionaries.

Considering that the aim of this study is the translation of an economics text with a high degree of specialization, it is clear that specialized dictionaries have been very helpful to carry out this work. The *Diccionario técnico inglés-español económico-financiero-actuarial* (edited by Netbiblo) includes around 50,000 economic-financial terms and expressions and their translations from English into Spanish. It also includes a list of abbreviations and the most employed acronyms in business environment. Metasearch-engine dictionaries, such as *Onelook*, https://onelook.com, are also a valuable asset. It searches through multiple registered dictionaries and presents a relation with the results grouped according to different areas of knowledge: general dictionaries, business, science, art, etc. As for business online dictionaries, some of the most outstanding are: *Accounting, Business Studies and Economics Dictionary*, *BusinessDictionary.com*, and *The Free Dictionary*. This latter also includes other tools such as thesaurus, financial dictionaries, acronyms, idioms, encyclopedia, and other specialized dictionaries.

Moreover, non-specialized bilingual electronic dictionaries such as *WordReference, Cambridge Dictionary*, and *Merriam-Webster´s Dictionary* have been used because, apart from the words collected from general language, they also enable to find semi-technical vocabulary, as long as they do not have a high degree of specialization. In addition, these tools show many synonyms thereby avoiding repetition of some words or terms.

Monolingual dictionaries have been very useful for general lexicon, especially the *RAE* and the *Diccionario panhispánico de dudas* both available on the web. Furthermore, the meaning of the terms that appear in these dictionaries are reduced to their most common use since they are not specialized dictionaries. Regarding the search for terms which appear in the source text (ST), *Merriam Webster's Dictionary* has been the most accessed monolingual dictionary since it allows to perceive the different acceptations or entries, in other words, the different nuances of significance of each term according to context. For instance, the definition of "drug", which repeatedly appears in the ST, shows three different meanings depending on the field of application. *Cambridge Dictionary* is also another frequently used source. Lastly, the *synonyms-antonyms Wordreference Dictionary* is another helpful tool in the search for synonyms which enables greater fluidity to the TT.

Parallel texts are an essential source of information and especially helpful in the translation process when certain terms cannot be found using other tools such as specialized dictionaries, databases, or machine translators. Hartmann (1980, 96) defines parallel texts as "those that are not translationally equivalent, but functionally similar in situational context and rhetorical structure […] from any pair or multiple of languages." Subsequently, Hartmann (1996, 950) redefines parallel texts as "comparable instances of discourse from pairs or multiples languages", with particular emphasis on the idea of "paired text". In addition, Bolaños (2007, 235) points out in his paper how Göpferisch (1999, 184) supports the same notion of parallel text:

> Parallel texts are here understood as texts in different languages which were produced originally in a given language, ideally by competent native speakers. They are not translations from each other but deal with a very similar topic and coincide in their communicative function, i.e. belong to the same text type.

Parallel texts are a great asset in understanding the differences in the diverse text dimensions: pragmatic, semantic, syntactic, and semiotic. Furthermore, they enable to make use of any similarities found in the text and transfer some features from the ST to the TT as Bolaños (2007, 235-236) points out in his study. In selecting parallel texts, it is important to bear in mind some aspects to make a proper choice: all the parallel texts must belong to the same genre, deal with a similar topic, contain resembling terminology, and have alike structure. Moreover, the date of publication of the texts should ideally be as close as possible. The challenge lies in recognizing whether the ST and the selected parallel texts share the characteristics that I just mentioned.

The text I have selected for the study of the specialized economics translation is an excerpt of a research article published by the American Economic Association which deals with the economic aspects involved in determining the price of medicines. The specialized economic language is present throughout the research article although it is true that medical language can also be found especially regarding pharmaceuticals. As far as medical language is concerned, the terms used are not highly specialized but are rather halfway between the term designation and general language. For this study, not all consulted texts are suitable as parallel texts; they must share certain characteristics with the ST and finding them is not always an easy task. The ST and the selected parallel texts belong to the same genre; they are research articles which contain specialized terminology. As for the issue, most of them deal with the same topic although some specialized economic texts of a more general nature have been consulted because they are very helpful in certain translation aspects. In terms of general structure, the parallel texts consulted follow alike structure of the ST; however, it is important to consider that the translation task of my study is focused on a certain section of the research article and not on the whole text. Besides, the parallel texts consulted are written in similar time periods although some of them are slightly more current texts; a list of these parallel texts can be found in the section on additional sources.

The concept of parallel text considered in Translation Theory differs from the one used in Corpus Linguistics in several important ways. Danielsson and Ridings (1996, 1) define parallel corpus as "a text in one language that has been translated into one or more other languages. All of these taken together are called "parallel texts", since they, ideally, contain the same information in parallel with each other." Consequently, a parallel corpus is composed of the source texts and its translations. By contrast, a comparable corpus is defined as "collections of individual monolingual corpora which use the same or similar sampling procedures and categories for each language but contain completely different texts" (McEnery and Wilson 1996, 57). Thus, a comparable corpus does not include translations, since it is made up of original texts both Spanish and English which share similar features.

Moving on now to consider two important tools which are regularly consulted in the field of translation: corpora and terminological databases. Sinclair (2004, 12) concludes that "a corpus is a collection of pieces of language text in electronic form, selected according to external criteria to represent, as far as possible, a language or language variety as a source of data for linguistic research." I have consulted several corpora to carry out this study such as the Corpus of Contemporary American English (COCA), which is probably the most widely used corpus of English and it is composed of more than 600 million words. Besides, this corpus allows access to other corpora such as The British National Corpus (BNC), iWeb: The Intelligent Web-based Corpus, and News on the Web (NOW) among others, which means that with a single query, it is possible to browse on the most consulted online corpora of English. It should also be noted that after a web search, I have not found any free specialized corpus in the field of economics. As for terminological databases, UNTERM (The United Nations Terminology Database) and IATE (Interactive Terminology for Europe) have been the most used. These databases have been mainly used in the terminology search that appears in specialized texts, not for general language. Thus, with each search carried out, different results are obtained depending on the field of knowledge to which the concept belongs. Moreover, it is possible to find additional information such as definitions, references, reliability of the concepts and sources, synonyms, abbreviations, examples, etc. Even though the RAE has a corpus available through its website known as CORPES XXI, I have not used any Spanish corpus since for doubts concerning Spanish language, the *Diccionario panhispánico de dudas* is the one I have consulted.

To conclude this section, it is worth mentioning that computer-assisted translation software such as Trados or MemoQ facilitates largely the task of translation. These programs store texts and their translations electronically making up that way the translation memories; the program segments the texts so that, it can offer different translation possibilities in subsequent translations. Nevertheless, these memories are empty when buying the program and must be fed by adding texts and their translations. The greater the number of pairs of texts entered, the greater the number of suggested translations. Despite their usefulness, I have not used any of them since it is not worth feeding the memories for a single text and it also takes time to learn its functioning which it is quite laborious especially at the beginning. However, there is also the option of using free software; tools such as OmegaT or DeepL, a machine translator that relies on the Linguee database, are available on the web. Although they are a helpful resource for translation difficulties related to general language, this is not the case for the translation of terminology that is, apart from that, the main stumbling block of this study and which also requires the use of other tools as mentioned above.

5 DISCUSSION OF TRANSLATION PROBLEMS

There are many authors who describe their own approaches to the task of translating a specialized text. Baker (1992) brings together translation problems from the simplest level starting her study at “the equivalence at word level” and exploring the meaning of single words and expressions. Then, “the equivalence above word level” where she considers what happens when words start combining with other words to form stretches of language. Afterwards, the study continues with grammatical equivalence (number, gender, person, voice, etc.) textual equivalence (cohesion), and pragmatic equivalence (coherence). Guix and Minett (2019) adopt a deductive approach which ranges from the most general to the most particular analysis: syntactic structures, morphological elements, punctuation, and text interpretation. They developed some translation strategies focusing their analysis on certain aspects such as: loans, calques, literal translation, transposition, modulation, equivalence, adaptation, expansion, reduction, and compensation. De la Cruz Cabanillas (2008) explains her contrastive study at different levels: phonographic, grammatical, lexical, semantic, sociolinguistic, and pragmatic.

Hence, the translation of a specialized text can be approached from different perspectives. I have decided to organize the translation difficulties with regard to the following aspects: morphology, terminology, syntax, and non-verbal level. Considering the features of the ST and the target text (TT), the emphasis lies on terminological aspects since this is a fundamental aspect of specialized language.

5.1 Terminology

The section below describes the terminological aspects found in the research article object of study. Nkwenti-Azeh (1998) approaches the issue of terminology from three different perspectives; firstly, terminology is used to refer to a particular theory explaining the relationships between concepts and terms, secondly, it is the activity of collecting, describing, and presenting terms, and finally, terminology is the vocabulary of a special subject field. This concept is particularly important for specialized languages; its relevance lies in the fact that it is closely related to phraseology since terms are associated to form combinations of words.

With respect to specialized text on economics, the difficulties encountered in this text are not only related to general language, but also to problems concerning the specific terminology and phraseology of economics. Economics language includes technical vocabulary such as terms and compound terms, thus, the use of a terminology extractor such as TermoStat is a great support. The application of this tool lists the terms that appear in the research article, their frequency of use, the context in which they can be found, and the syntax patterns that follow these terms. Some of the patterns identified through the terminology extractor mentioned above are: "therapeutic class" [2.0][3], "marginal cost" [2.2], and "short run" [6.1] which follow the Adj+N pattern. "Patent protection" [2.0], "R&D cost" [3.0], and "marketing intensity" [10.0] that follow the N+N pattern. "Product life cycle" [3.0], "prescription drug firms" [5.0], and "valuation patients place" [12.0] follow N+N+N pattern. As mentioned above, terms are associated to form word combinations and the syntactic patterns they follow become more complex, hindering translation, as evidenced by some instances in the ST: "context of short-run pricing decisions" [3.2] (N+Prep+Adj+N+N), "impacts of double marginalization-upstream market power" [6.2] (N+Prep+Adj+N+N+N), and "traditional accounting measures of cost" [6.3] (Adj+N+N+Prep+N) among other instances.

5.1.1 Terminological difficulties

One of the main difficulties arises with the translation of the term "R&D costs" [3.0]. Initially, it could be translated such as "costes de I+D". Nevertheless, following the established guidelines contained in the Spanish General Accounting Plan, the account used to charge these expenses is called "gastos en I+D del ejercicio" (account 620). Consequently, I consider this latter translation to be more appropriate since it should be noted the difference between "cost" and "expense" according to the Spanish General Accounting Plan. This distinction may not be evident in general language, since the cost is in fact an expense for the company, but from an accounting perspective, it is convenient to establish the difference between both. Mora (2008, 63) defines "cost" as the value of the various means used to achieve or obtain something, which includes the value of the resources used in the production process until the product is finished. Nevertheless, the "expense" is not directly linked to the production process. The moment in which the

[3] The use of square brackets indicates the paragraph from which the examples are taken.

expense becomes part of the production process of the company is what determines the difference between "expense" and "cost" (Ortega 1999, 32). Consequently, I have decided to translate it by "gasto en I+D" instead of "coste de I+D" even though the term "expense" exists in English despite the author does not make use of it. This might be due to the fact that the controversy generated by the distinction of the two concepts is a matter that lacks interest due to the pragmatism of the great majority of the American doctrine. (Ortega 1999, 32) For this reason, the translation of this term can be misleading and may be considered as a *false friend* due to the difference between the two terms as shown above. "False friends are words or expressions which have the same form in two or more languages but convey different meanings." (Baker 1992, 25). Similarly, the constructions "costs of clinical development" [3.1] and "development costs" [5.2] have been translated by "gastos" rather than "costes" based on the same reasons as explained above. By the same argument, they could also be considered as false friends.

The following table shows how these terms have been translated:

Par.[4]	Source Text	Target Text
3.1	R&D costs	gastos en I+D
3.1	costs of clinical development	gastos de desarrollo clínico
5.2	development costs	gastos en desarrollo

"Therapeutic class" [2.0] is another term which is worth analyzing; it would be more intuitive at first to translate this term by "clase terapeútica", borrowing from English the word "class". However, a detailed analysis shows that, according to Law Insider dictionary, "therapeutic class" means the fourth level grouping of drugs determined by the anatomical therapeutic chemical (ATC) classification system, as published by the World Health Organization (WHO) Collaborating Centre for Drug Statistics Methodology (and, as of the Effective Date, by IMS International, Inc.) This term refers to the therapeutic category to which the drugs belong. Nonetheless, the *Agencia Española del Medicamento y Productos Sanitarios* (AEMPS) establishes the ATC classification of medicines by groups and subgroups; thus, following the same

[4] This column indicates the paragraph from which the examples are taken.

designation, I will use the term "grupo terapeútico" instead of "clase terapeútica", because this is the terminology used by a Spanish major institution. Similarly to the previous situation, I also consider it as a *false friend* even though the word "clase" initially proposed for its translation is a synonym of the word "grupo"; however, a specialized text requires an accurate translation of the economic terms.

A fourth term worthy of study is "marketing efforts" [4]; this term was initially translated as "esfuerzos de marketing", a more literal translation but it could also be intended as "estrategias de marketing" as both terms are closely related. Schnaars (1998, 19) trying to define this term, points out that "the idea is to identify the firm's strengths and weaknesses and then design a strategy that matches those strengths against market opportunities and a competitor's weakness". Although there is no general agreement on the definition of "marketing strategy", this concept indicates the actions that a company carries out to achieve certain commercial objectives such as attracting more customers, encouraging sales, etc. In this respect, the efforts targeted towards achieving these objectives are marketing efforts. The relationship between the two terms is closely linked since referring to one implies the other. Thus, I decided to use the term "esfuerzos de marketing" to avoid misunderstandings; after all, if the author had meant "marketing strategies", he would have used that term.

Another term that entails some difficulty is "royalty rate" [6.1]. Different sources have been consulted in order to find the equivalent term in Spanish; according to *Lexico Dictionary*, the term "rate" has two different meanings, the first one is "a measure, quantity, or frequency, typically one measured against some other quantity or measure" and the second is "a fixed price paid or charged for something, especially goods or services." The two concepts differ in that one refers to a percentage, while the other involves a fixed amount. Moreover, the term "rate of royalty" is translated as "importe del canon" in the *Diccionario Técnico Inglés-Español Económico-Financiero-Actuarial*. Meanwhile, *The Bilingual Cambridge Dictionary* shows different meanings, one of the entries is "tarifa", and Sabino (1991) also proposes the translation of the term "rate" by "tasa" in his *Diccionario de Economía y Finanzas*. In short, there are three different terms that could fit into the translation: "tarifa", "importe", and "tasa". Considering the context of the research article, I decided to translate "royalty rate" for "tasa por canon" [6.1] since the ST refers to percentages for licensed-in products. Besides, this term is also found in many parallel texts used in Spanish public institutions.

To undertake the translation of “payers” [11], I consulted the *Merriam-Webster Dictionary* which shows two distinct definitions for this term; on one hand, “payer” is the one that pays, and on the other hand, “payer” is the person by whom a bill or note has been or should be paid. Considering the context in which this term appears, the phrase “payer’s marginal valuations of drugs” [11] refers to the customer's assessment of a particular product or service. For companies, it is very important to know how customers value their products or services; they invest resources in the analysis of different techniques to measure this assessment. It is evident that, in the pharmaceutical industry context, the final customer is the patient; for this reason, I have chosen “paciente” as the equivalent of “payer”. This table summarizes how these terms have been translated:

Par.	Source Text	Target Text
2.2	therapeutic class	grupo terapeútico
4	marketing efforts	esfuerzos de marketing
6.1	royalty rate	tasa por canon
11	payer	paciente

5.1.2 Loans and Neologisms

Nowadays, the influence of English as a language of global communication is more than evident and, in the particular case of economic sphere, this is reflected through the introduction of new words. Orts and Sánchez (2009, 136) consider that “this incorporation is swift and immediate, even more than in other *loan-prone* areas […] due to the ever-changing, neological character of this type of discourse.” On the other hand, Newmark (1988, 81) explains that the process of transferring a SL word to a TL word is a transference thus becoming a “loan word”. In my study, one of the most significant loans with respect to the field of economics is “marketing” [3.1]. This term has completely replaced the Spanish term “mercadotecnia” that appears in the RAE, which has become totally disused since “marketing” is in fact a coined loan. “Marketing mix” [10.1] in the area of economics and “software” [5.2] in the technological field are other loans which are widely used and accepted by the RAE. In fact, these English loans have been introduced into Spanish without any adaptation.

Another term that appears in the ST that can be considered as a neologism is “sunk cost” [3.2]. There is no agreement on the translation of this term; González (2001) argues that there are two possible equivalents which have been used in different translated texts: “coste hundido” and “coste irrecuperable”. As González (2001) explains, the term “costes hundidos” has been used as the equivalent of “stranded costs” in the translation of many texts, while it is true that there is another term for translating “stranded costs” as the *European Commission* suggests: “costes de transición a la competencia”. Though “stranded costs” is a neologism that only appears in the electrical field, to avoid possible misunderstandings, the *Cervantes Institute* encourages the use of “coste irrecuperable” as the equivalent of “sunk cost”.

Moreover, some loans have appeared in the ST that come from dead languages such as Latin, namely “ratio” [7, 10.1] and “post” [9.2, 9.3]. This latter functions as a prefix meaning “after”; which implies that “postlaunch” [9.2] is translated as “post lanzamiento” and “postpatent” [9.3] as “una vez que la patente”. The term “Ratio” remains unchanged in the TT since Spanish also collects the same loan that comes from Latin.

Par.	Source Text	Target Text
3.1	marketing	marketing
10.1	marketing mix	marketing mix
3.2	sunk cost	coste irrecuperable
7	ratio	ratio
9.2	postlaunch	post lanzamiento

5.1.3 Complex Nominal Groups

The study of the complex nominal groups leads to a further linguistic level. In Spanish, nominal groups are simpler and shorter than in English where there are many premodifiers that do not exist in Spanish. There are several complex nominal groups in the ST that are worth considering; the first of them is "differentiated product oligopoly framework" [2.1]. The question posed lies in the concept of "differentiated". An oligopoly is one of the four basic models in which the market is structured whereby the number of producers is very restricted, and which sells products that can be identical or differentiated (Krugman and Wells 2006). Consequently, there are two types of oligopoly: the concentrated and the differentiated. The concentrated oligopoly deals with identical products while the differentiated oligopoly focuses on differentiated products. "Differentiated product oligopoly framework" raises the question of whether products are differentiated or whether it is the market that is differentiated, in other words, the adjective "differentiated"M qualifies the product? Or the market? There are ergo two suitable approaches, one would be to translate it by "contexto de oligopolio diferenciado"; besides this, "modelo de oligopolio con producto diferenciado" would be the second option. This latter is the one I have selected in the translation since, after doing a slight research based mainly on the search for parallel texts such as Moral's (2004) and some economics books, I reached the conclusion that "modelo de oligopolio con producto diferenciado" clearly expresses that the "oligopoly" is one of the four basic models of market structure and within this, the type of product to which it refers is the "differentiated" (Krugman and Wells 2006), so I consider that the information is clearly described.

In addition to the above, "oligopolistic differentiated products" [2.3] is also a matter that is connected. On this point, I consider two different approaches to translation: "productos diferenciados del mercado oligopolístico" on the one hand and "oligopolio diferenciado" on the other. Among the two options, I decided to include the latter in the TT because economy experts understand that "oligopolio diferenciado" means an oligopolistic market with differentiated products. This complex nominal group makes the reading a little more fluid and the idea to be conveyed is expressed in a clearer way.

Another very interesting complex nominal group for the study is found in the following sentence [6.2]: "double marginalization-upstream market power of the licensor combined with downstream market power of the licensee." The translation of this complex nominal group requires some knowledge about certain economic parameters as shown below. The nominal group "double marginalization-upstream market power" follows this pattern: Adj+N+N+N. In this case, the noun "power" is preceded by a number of pre-modifiers which makes the translation difficult because in Spanish, this type of constructions cannot be used for the translation of these complex nominal groups; a literal translation cannot be made. In order to carry out the translation, I have considered a higher linguistic level, that of the sentence, since semantically there is a contrast between two opposing concepts. Apart from searching a bilingual English-Spanish dictionary, I have also required the support of a parallel text that deals with the concepts of "market power", "upstream market" and "downstream market" (Baches 2017, 236). This text also clarifies that the downstream market is the "selling market" while the upstream market is the "buying market". I have not included these explanations in the translation as it is an expert-to-expert text so the reader should be able to understand it. The proposed translation would hence read as follows: "doble marginalización tanto por parte del poder de mercado ascendente del licenciante como del descendente del licenciatario." Thus, this description given in the ST acquires its meaning since it refers to a concept that must be interpreted as a whole and that in economics is called "vertical restraints"; for this reason, some knowledge of economics is needed to understand these concepts as stated above.

Another complex nominal group that requires special consideration is "optimal profit maximizing price" [2.2]. There are two ways of approaching the translation of this term; one of them is attending to how English nominal groups are translated into Spanish. As noted by Lavid, Arús, and Zamorano-Mansilla in section 6.6 (2010), "the majority of elements within the nominal group are remarkable similar in the position they occupied in both languages, as well as the order they take in the hierarchy of qualification." As Spanish enables greater freedom of word order than English, the resulting translation could be: "precio máximo que optimiza el beneficio". Nevertheless, considering that profit maximization is a basic concept in economic theory, the main objective of business performance is to achieve the maximum benefit; all actions are aimed towards the optimization of resources for maximum benefit. (Estallo and Giner 2007) Using this approach, the second option "precio óptimo que maximiza el beneficio" would be the translation that best fits this concept and that is why I have decided to include it in the TT.

Par.	Source text	Target text
2.1	Differentiated product oligopoly framework	Modelo de oligopolio con producto diferenciado
2.2	Optimal profit maximizing price	Precio óptimo que maximiza el beneficio
2.3	Oligopolistic differentiated products	Oligopolio diferenciado
6.2	Double marginalization-upstream market power	Doble marginalización por parte del poder de mercado ascendente
6.2	Downstream market power	Poder de mercado descendente

5.2 Nominal Constructions

Another aspect worth noting is the use of nominal constructions which is quite frequent in English, however, in Spanish verbal construction is more commonly used; accordingly, when translating from English to Spanish it should be pointed out that actions are better expressed with verbs and not with nominal constructions so as to achieve a more fluent translation. Some of these situations can be observed in the research article:

Par.	Source Text	Target Text
2.0	Face competition	Rivalizar
2.3	Have patent protection	Estar protegidos por una patente
12.2	This demand […] creates incentives	Incentiva

5.3 Passive Voice

The passive voice is a grammatical structure used to emphasize the action performed rather than the agent who performs the action. In general, the passive voice is used when the action of the verb or its object is of greater interest than the agent or when the latter is not known. (Guix and Minett, 2019) Regarding technical texts, passive voice is used with greater frequency in these kind of writings because of its impersonal character and its objective view of the facts. (Vázquez-Ayora, 1977) The use of the passive voice in English is more common than in Spanish. The fact is that Spanish language tends to avoid passive voice by using different resources: reflexive passive, active impersonal voice, active voice with non-pronominal subject, and active impersonal voice with the third person plural. (Pizarro 2010) In the translation of the ST, I have mainly used the reflexive passive voice; the following table shows some illustrative examples found in the research article although, it is not an exhaustive list as it would be too extensive and the instances would be similar:

Par.	Source text	Target text
7	Should be interpreted carefully.	Debe interpretarse con cautela.
8.1	The free samples could have been sold at full retail price.	Las muestras gratuitas se hayan vendido al precio total al por menor.
11	Marginal revenue reflects how a particular drug is valued in the marketplace	El ingreso marginal refleja cómo se valora un determinado medicamento en el mercado.

However, the use of the passive voice should not be banished from Spanish; the passive voice is also an intrinsic aspect of the Spanish language although its use is not as frequent as in English. In the translation process, two basic aspects have to be considered: firstly, the frequency of use must be reduced and secondly, at what point it must be done since not all the passive voices can be changed into active ones. (Vázquez-Ayora, 1977) I have decided to keep the passive voice in certain cases as shown in the following table:

Ex	Source Text	Target Text
2.1	The market structure is more appropriately depicted by the differentiated product oligopoly framework	La estructura del mercado queda representada a través de un modelo de oligopolio con producto diferenciado.
3.0	A study released in November 2001 by the Tufts Center for the Study of Drug Development.	Un estudio publicado en noviembre de 2001 por el Centro Tufts para el Estudio y Desarrollo de Medicamentos.
3.2	Once a drug is developed and ready to be marketed	Una vez desarrollado el medicamento y preparado para su comercialización
4	For a drug that has already been developed and approved for marketing by the FDA	En el caso de los medicamentos desarrollados y autorizados por la FDA para su comercialización

5.4 Sentences

Juxtaposition and coordination (parataxis) are used more often in English than in Spanish. (Pizarro 2010) However, what predominates in the Spanish language is the use of subordination (hypotaxis). In other words, English tends to have shorter and simpler sentences than Spanish, which prefers hypotaxis. This means that if the structure of the source language remains unchanged, the translation result will not be adapted to the natural use of the target language. Hence, I have chosen the use of hypotaxis to adequate the structure of the ST to the frequency of use in Spanish. In respect of the text in question, many examples could be found such as:

Par.	Source Text	Target Text
1	The pricing of pharmaceuticals is complex and controversial. Nonetheless, basic economic theory provides many instructive insights.	La fijación del precio de los medicamentos es un asunto complejo y polémico, no obstante, la teoría económica básica proporciona múltiples e interesantes puntos de vista.
12	A great deal of heterogeneity exists in the valuations patients place on drugs. Patients vary in their medical and functional responsiveness to a medication.	Existe una gran disparidad en cuanto a la valoración que los pacientes hacen sobre los medicamentos ya que la capacidad de respuesta a los tratamientos es diferente según el paciente.

5.5 Figures of Speech

5.5.1 Metaphors

In specialized economics texts, a certain degree of difficulty can be observed when dealing with figurative language from a semantic point of view, especially when translating metaphors. According to Newmark (1988, 104) “metaphor incidentally demonstrates a resemblance, a common semantic area between two or more or less similar things.”

Regarding the economic field, many authors have made a classification of the conceptual metaphors of the economy based on the semantic field to which the metaphorical term belongs. Kövecses (2010, 4) tries to shed some light on this issue through his notion of conceptual metaphor:

> A conceptual metaphor consists of two conceptual domains, in which one domain is understood in terms of another […] The conceptual domain from which we draw metaphorical expressions to understand another conceptual domain is called source domain, while the conceptual domain that is understood this way is the target domain. […]

The ways in which a translated text achieves an equivalent effect may differ as several authors indicate; Munday (2013, 75) mentions that "it is more important for a metaphor to be retained in the translation of an expressive text than in an informative TT, where translation of its semantic value alone will be sufficient." Regardless, the translation of whichever text should first preserve the semantic equivalence. Meanwhile, Newmark (1988, 113) claims that "the translation of any metaphor is the epitome of ail translation" since, unless a literal translation, "it always offers choices in the direction either of sense or of an image." In the translation scope, Kövecses (2010, 25) devotes special attention to the economics field; he even states that "economy is usually comprehended via metaphor." This author classifies metaphors applying the notion of conceptual metaphor and identifying the most frequent source domains along with the most common target domains.

Considering the source domain classification made by Kövecses (2010), "movement and direction" is one of the source domains that is worth noting since it has been identified in the ST. Kövecses (2010, 22) claims that "when movement involves a change of location, it is associated with direction: forward and backward, up and down." Some of this kind of expressions can be found in the ST: "double marginalization-*upstream* market power of the licensor" [6.2] and "combined with *downstream* market power of the licensee." [6.2]. The expressions *upstream* and *downstream* are used to describe the meaning of business relationships between a parent company and its subsidiaries. (Fuertes 2006) I decided to make a literal translation in order to maintain the metaphors *ascendente* and *descendente* in the TT. The "liquid" source domain is another Kövecses' source domains identified in the ST: "buying power *emanates* not so much from …" [13.0], this metaphor has been kept in the TT: "El poder adquisitivo no *emana* tanto de …" [13.0]

As regards the economics discourse, the research on the terminological metaphor carried out by Fuertes (2006) shows different kinds of metaphors; "the economy is an organism" is one of the most outstanding concepts as economic activity is compared to what happens to a human being when he or she plays sport, suffers illness, and experiences tensions of various kinds. According to Fuertes (2006), it is possible to gather a series of lexical elements belonging to the same semantic field; "the military metaphor" resembles economic activities to military operations. The supremacy from one side over the other which usually exists in confrontations can be observed in my study through some examples: "market *power*" [6.2] which has been translated as "*poder* de mercado" and also "the transfer price must exclude the possible *impacts* of…" [6.2] which has been translated as "el precio de cesión interna debería excluir los posibles *efectos* de…". In this case, even though I could have used the term "impacto" which also exists in Spanish, I have not kept this metaphor in the TT to mitigate the war language but without losing the essence of the message intended to convey.

To understand the idea of economy as a competition, Fuertes (2006) includes in his study the idea of "the sport metaphor"; this type compares economic activities to sports competitions. As for my study, some metaphors can be found in the ST which equate economy with sports; particularly, metaphorical language highlights the importance of research and development as can be shown here: "most branded drugs *face competition* from other brands" [2.0]; this expression has been translated as "la mayoría de estos medicamentos *compiten* con otras marcas." [2.0] As far as these last two types of metaphors is concerned, it is worth mentioning that the boundary that separates competitions and fights, in some cases, is very thin. This table provides a summary of these metaphors:

Par.	Source Text	Target Text
2.0	most branded drugs *face competition*[5] from other brands"	la mayoría de estos medicamentos *compiten* con otras marcas
6.2	*upstream* market	mercado ascendente
6.2	*downstream* market	mercado descendente
6.2	market *power*	poder de mercado
6.2	the possible *impacts* of	los posibles *efectos* de
13.0	buying power *emanates* not so much from	El poder adquisitivo no *emana* tanto de

[5] Emphasis mine

5.5.2 Personifications

A significant analysis of the personification is presented by Kovecses (2010, 39) who concludes that "personification is a form of ontological metaphor; in personification, human qualities are given to nonhuman entities." A broader perspective has been adopted by Lakoff and Johnson (2003, 33) who argue that "personification allows us to comprehend a wide variety of experiences with nonhuman entities in terms of human motivations, characteristics, and activities." In other words, they enable people to understand the phenomena of the world in human terms. As regards economics sphere, the economy is credited with the qualities of the human being and, in consequence, the functioning of the economy resembles that of the human body. Many personifications can be distinguished in the ST, in fact it is the most common figure. Furthermore, it should be noted that the use of personifications is also widespread in the Spanish language, so I have chosen to keep this resource as shown below through some examples:

Par.	Source Text	Target Text
2.0	patent *life*[6]	periodo de vigencia de la patente
3.0	*A study* released in November 2001 by the Tufts Center for the Study of Drug Development *estimates* that on average	Un estudio publicado en noviembre de 2001 por el Centro Tufts para el Estudio y Desarrollo de Medicamentos estima que
3.0	*bring* a new drug *to* market	lanzar un nuevo medicamento al mercado
3.0	*the stage* of the product *life cycle*	la etapa del ciclo de vida del producto
9.3	since postpatent *expiration*	una vez que la patente ha caducado
13.1	*creates* considerable buying power	genera una situación de gran poder adquisitivo

6 CONCLUSION

The aim of this study is the translation of an economic research article and the identification of the main problems considering the documentation required to achieve this purpose. The analysis of the different sources of documentation when carrying out

[6] Emphasis mine

this study reveals that some of most useful have been *Merriam Webster's Dictionary* and particularly, *Onelook*, the metasearch-engine dictionary since it allows multiple searches among different dictionaries. Regarding the translation of specialized terminology, both terminological databases and specialized dictionaries have also been valuable tools. *The Free Dictionary* along with *BusinessDictionary.com* have been the most consulted specialized dictionaries due to the large number of entries. Apart from this, the terminological databases IATE and UNTERM have been especially useful for translating specialized terminology. Concerning corpora, the Corpus of Contemporary American English (COCA) is one of the most used corpora of English since it contains a huge number of words from different genres including academic texts. Additionally, the consulted parallel texts have been an essential source because they are original texts written in Spanish by experts in economics who naturally use the terminology and phraseology specific to this field; for this reason, I consider them a reliable resource in specialized translation as they facilitate a fluent translation.

As previously mentioned, specialized texts arise from the need of professionals to communicate their knowledge as Suau-Jiménez (2010) stated in her study. In this vein, Ernst R. Berndt communicates his findings about the U.S. pharmaceutical industry through his research article, which corresponds to the idea proposed by Suau-Jiménez. As far as translation work is concerned, the translation difficulties arise from the specific terminology and phraseology of economics, owing to the economic-business nature of the text as pointed out by Newmark (1988). It is interesting to note the high density of terminology; most terms are of an economic nature, although some terms from the pharmaceutical field can also be found, giving the text a hybrid character. This can be illustrated by certain terms such as "R&D costs" [3.1] and "therapeutic class" [2.2] which are translated by "gastos en I+D" and "grupo terapeútico", respectively. Complex nominal groups also require special attention; the large number of pre-modifiers that occasionally employs English grammar further complicates the translation work. An example of this is "optimal profit maximizing price" [2.2] which enables different translation possibilities since Spanish allows greater freedom of word order than English.

Other problems addressed when translating this research article have been aspects such as loans, neologisms, and the use of passive voice. As explained earlier, passive voice is used more frequently in English than in Spanish, since the latter generally uses other types of constructions in order to avoid passive voice. In the translation process, I have used active voice in the TT but also passive constructions because Spanish economics texts use passive voice due to its impersonal character. In addition to this, as in most specialized economic texts, the text under study uses figures of speech (metaphors and personifications) that I have tried to mostly remain in the TT. These figures are of a universal nature and the essence of the meaning is the same in both languages which allows for a literal translation of metaphors and personifications.

All in all, the translation of an economic research article entails the typical problem of translating specialized texts. One of the main difficulties lies in the identification of the structure of the genre being translated, but also in the differentiating elements of this type of texts which are mainly based on terminology and phraseology. In addition to this, documentation work plays a fundamental role since the selection of suitable tools is what determines the outcome of the translation.

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8 ANNEX

	The Pricing of Pharmaceuticals	La fijación del precio de los medicamentos
1	The pricing of pharmaceuticals is complex and controversial. Nonetheless, basic economic theory provides many instructive insights. A useful starting point is to distinguish between prescription drugs that are patent-protected from those whose patent protection has expired.	La fijación del precio de los medicamentos es un asunto complejo y polémico, no obstante, la teoría económica básica proporciona múltiples e interesantes perspectivas. Un buen punto de partida es la distinción entre los medicamentos con receta protegidos por una patente de aquellos cuya patente prescrito.
2.0	For branded drugs, patent protection implies that the innovating firm has rights to market exclusivity for a limited time period; in many cases, an effective patent life is between 12 and 15 years, although this range can vary substantially according to the amount of time needed for FDA regulatory approval and other factors. Market exclusivity for a certain brand of a prescription pharmaceutical drug does not usually generate a pure monopoly situation, because most branded drugs face competition from other brands within a given therapeutic class.	Para los medicamentos de marca, la protección mediante patente significa que la empresa innovadora tiene derecho a la exclusividad del mercado por un tiempo limitado. La patente, en muchas ocasiones, tiene un periodo de vigencia de entre 12 y 15 años, aunque este margen puede variar considerablemente dependiendo del tiempo que la *Administración de Alimentos y Medicamentos de Estados Unidos* (FDA) necesite para la autorización reglamentaria, entre otros factores. La exclusividad del mercado para una determinada marca de medicamentos con receta no suele provocar una situación de monopolio puro ya que la mayoría de estos medicamentos rivalizan con otras marcas dentro de un mismo grupo terapéutico.
2.1	Within many therapeutic classes of drugs, a number of possible substitute medications exist, and in such cases, the market structure	Dentro de los numerosos grupos terapéuticos de medicamentos, se encuentran una serie de posibles fármacos sustitutivos; en estos casos, la estructura del mercado queda

	is more appropriately depicted by the differentiated product oligopoly framework.	representada a través de un modelo de oligopolio con producto diferenciado.
2.2	In such a setting, it is useful to envisage the optimal profit maximizing price as equaling marginal cost plus a positive margin, where the margin depends on benefits and attributes (including prices) the firm's own drug relative to other drugs in the therapeutic class, on attributes of nondrug therapies, patient heterogeneity and other demand-side considerations.	En dicho contexto, es importante tener en cuenta que el precio óptimo que maximiza el beneficio debe igualarse al coste marginal más un margen positivo. Dicho margen depende de los beneficios y características del medicamento de esta firma (incluido el precio) en comparación con otros medicamentos de su mismo grupo terapéutico, de las propiedades de las terapias no farmacológicas, de la heterogeneidad de los pacientes y demás aspectos relacionados con la demanda.
2.3	Since branded pharmaceuticals often have patent protection and oligopolistic differentiated products, one should expect this margin of price over marginal cost to be positive. But how large? What counts as marginal cost?	Puesto que los medicamentos de marca suelen estar protegidos por una patente y por un oligopolio diferenciado, cabe esperar que dicho margen de precios sobre el coste marginal sea positivo, pero ¿cuánto más? ¿qué se considera como coste marginal?
3.0	**The Cost Structure of Pharmaceuticals** What one includes within marginal costs depends critically on the time period, as well as on the stage of the product life cycle. For pharmaceutical firms, R&D costs are very large and are increasing rapidly. A study released in November 2001 by the Tufts Center for the Study of Drug Development ((http://www.tufts.edu/med/ csdd)) estimates that on average, it now costs about $802 million and takes 12 years to bring a new	**La estructura de costes de los medicamentos** Lo que se incluye dentro del coste marginal depende fundamentalmente del tiempo, así como de la etapa del ciclo de vida del producto. Para las empresas farmacéuticas, los gastos en I+D son cuantiosos y aumentan muy deprisa. Un estudio publicado en noviembre de 2001 por el Centro Tufts para el Estudio y Desarrollo de Medicamentos ((http://www.tufts.edu/med/ csdd)) estima que, de media, cuesta alrededor de 802

	drug to market, including prepatent application R&D.	millones de dólares y se tarda 12 años en lanzar un medicamento nuevo al mercado, incluida la solicitud provisional de la patente en proyectos de I+D.
3.1	This $802 million is more than twice the $350 million estimated a decade earlier, and large part reflects increased costs of clinical development rather than basic R&D. In the long run, R&D costs are variable. Indeed, R&D costs are important choice variables affected by a variety of long-term expectations, including expectations concerning the future pricing and marketing environment.	Estos 802 millones de dólares suponen más del doble de los 350 millones estimados en la década anterior y reflejan en gran medida un mayor incremento de los gastos de desarrollo clínico que de los gastos básicos en I+D. A largo plazo, los gastos en I+D son variables; en realidad, dichos gastos son una importante variable de elección condicionada por diversas expectativas a largo plazo incluidas las relativas al precio futuro y al entorno de marketing.
3.2	Once a drug is developed and ready to be marketed, however, these R&D costs become fixed or sunk. In the context of short-run pricing decisions, fixed or sunk R&D costs are essentially irrelevant.	Sin embargo, una vez que se ha desarrollado el medicamento y está preparado para su comercialización, estos gastos en I+D se transforman en costes fijos o irrecuperables. En el contexto de las decisiones sobre precios a corto plazo, dichos costes, bien sean fijos o irrecuperables, son prácticamente irrelevantes.
4	For a drug that has already been developed and approved for marketing by the FDA, measures of marginal cost could include four categories: i) administrative activities; ii) production and manufacturing; iii) licensing royalties and fees, when the drug is licensed in; and iv) marketing efforts and other selling costs.	En el caso de los medicamentos que han sido desarrollados y autorizados por la FDA para su comercialización, las medidas del coste marginal podrían incluir cuatro categorías: 1) actividades administrativas 2) producción y fabricación 3) derechos de patente y cánones, siempre que el medicamento esté bajo licencia y 4) esfuerzos de marketing, entre otros costes de venta.

5.0	With respect to administrative activities, there are no important differences here between prescription drug firms and other multiproduct firms.	En lo referente a las actividades administrativas, no existen diferencias significativas entre las empresas de medicamentos con receta y otras empresas de producción múltiple.
5.1	In terms of production costs, once manufacturing plants are constructed and a drug has been developed, for many prescription drugs, the marginal costs of producing an additional tablet or capsule are very small-nickels, not dollars-although for some few pharmaceuticals, vaccines and, more commonly, biotech products, even short-run marginal production costs can be substantial relative to long-run costs.	En términos de costes de producción, una vez construida la planta de fabricación y desarrollado el medicamento, los costes marginales de producir un comprimido o cápsula adicional para gran parte de medicamentos con receta son unos cuantos centavos, ni siquiera dólares. Sin embargo, en algunos medicamentos, vacunas, pero sobre todo en productos biotecnológicos, incluso los costes marginales de producción a corto plazo pueden ser significativos respecto a los costes a largo plazo.
5.2	As with prepackaged software, short-run marginal production costs of pharmaceuticals are typically very small relative to long-run development costs, but for pharmaceuticals, the latter appear to have increased more sharply in recent years.	Al igual que ocurre con el software prefabricado, los costes marginales de producción a corto plazo de los productos farmacéuticos suelen ser muy pequeños en comparación con los gastos de desarrollo a largo plazo. Sin embargo, en el caso de los productos farmacéuticos, dichos gastos parecen haber aumentado de forma brusca en los últimos años.
6.0	By contrast, when a pharmaceutical firm markets a drug that is licensed rather than is self-discovered or self-developed, licensing fees can be substantial. Reported royalty rates of 10-20 percent of revenues for licensed-in products are not unusual, depending in part on the point in the	En cambio, cuando una empresa farmacéutica comercializa un medicamento bajo patente en lugar de desarrollar sus propios estudios o investigaciones, los cánones por licencia pueden ser muy elevados. Con cierta frecuencia, se han registrado tasas por canon de un 10 a un 20

	development process at which the product was originally licensed, and on cost-sharing arrangements during the discovery/ development process.	por ciento sobre los ingresos procedentes de dichos medicamentos; este margen depende del punto del proceso de desarrollo en el que se obtuvo la patente, así como de los acuerdos de participación en los gastos durante el proceso de desarrollo o investigación.
6.1	But for some products, the royalty rate can be even larger. Harris (2002), for example, reports that Merck receives a 32 percent royalty from net wholesale revenues of the sale of Prilosec by Astra Zeneca. From the vantage of the licensee, such licensing costs are variable, not fixed, even in the short run.	Para algunos productos, la tasa por canon puede ser incluso mayor. Por ejemplo, Harris (2002) declara que Merck recibe un canon del 32 % de los ingresos netos al por mayor por la venta de Prilosec de Astra Zeneca. Desde el punto de vista del licenciatario, los costes de la licencia no son fijos, sino variables incluso a corto plazo.
6.2	It is worth noting that from an economic point of view, one could envisage a firm selling its own-discovered/own-developed drug to itself and charging itself a licensing fee (transfer price). In such cases, the existence of this opportunity cost could be viewed as a variable cost, although a proper assessment of the transfer price must exclude the possible impacts of double marginalization-upstream market power of the licensor combined with downstream market power of the licensee.	Merece la pena destacar que, desde un punto de vista económico, podría darse el caso en el que una empresa se vendiera a sí misma un medicamento desarrollado o investigado por ella misma cobrándose un canon de licencia (precio de cesión interna). En dichos casos, la existencia de este coste de oportunidad podría considerarse como un coste variable, aunque una valoración adecuada del precio de cesión interna debería excluir los posibles efectos de una doble marginalización tanto por parte del poder de mercado ascendente del licenciante como del descendente del licenciatario.
6.3	This opportunity cost of licensing is but one more example of divergences between economic and traditional accounting measures of cost.	Este coste de oportunidad de concesión de la licencia es solo un ejemplo más de las divergencias entre las medidas económicas y las tradicionales de la contabilidad de costes.

7	With respect to marketing costs, as noted earlier, the prescription drug industry's aggregate marketing to sales ratio has been relatively stable in the last five years, at roughly 15 percent. However, this 15 percent figure should be interpreted carefully.	Respecto a los costes de marketing, tal y como se señaló anteriormente, el ratio agregado entre marketing y ventas en la industria de los medicamentos con receta se ha mantenido relativamente estable en los últimos cinco años, alrededor de un 15 por ciento, aunque dicha cifra debe interpretarse con cautela.
8.0	One concern is that free samples account for about half of total (physician plus consumer-oriented) marketing efforts (Rosenthal et al., 2002a). But this cost calculation is based on valuing the free samples left physicians at their average retail price, not at the firm's marginal production costs.	Una de las preocupaciones es que las muestras gratuitas representan cerca de la mitad de los esfuerzos de marketing (orientados a médicos y a pacientes) (Rosenthal et al., 2002a), pero este cálculo del coste se basa en valorar las muestras a su precio promedio de venta al por menor, no al coste marginal de producción del laboratorio.
8.1	Unless all the free samples could have been sold at full retail price, this convention of how to account for costs of free samples substantially overstates the marketing costs of pharmaceutical firms.	A menos que todas las muestras gratuitas se pudieran haber vendido al precio total al por menor, este acuerdo sobre cómo contabilizar los costes de las muestras gratuitas sobreestima considerablemente los costes de marketing de las empresas farmacéuticas.
9.0	Second, since marketing efforts are long-lived, marketing intensities vary dramatically over the product life cycle. In the first year following a new product launch, marketing expenditures are frequently greater than revenues for that product (Grabowski, Vernon and DiMasi, 2002).	En segundo lugar, dado que los esfuerzos de marketing son muy duraderos, la intensidad del marketing varía de forma drástica a lo largo del ciclo de vida del producto. Durante el primer año del lanzamiento de un nuevo producto, los gastos de marketing suelen ser superiores a los ingresos por dicho producto. (Grabowski, Vernon and DiMasi, 2002)
9.1	Such marketing efforts can be viewed as investments that pay benefits over time. In years following product launch, however,	Tales esfuerzos de marketing se pueden considerar como una inversión para obtener un beneficio con el tiempo. Sin embargo, en

	these launch marketing costs become fixed costs.	los años posteriores al lanzamiento del producto, dichos costes de marketing se convierten en fijos.
9.2	During these postlaunch years, marketing intensities typically are much lower than in the launch year, although they may spike in certain circumstances, like following the publication of favorable findings in a medical journal, after the firm obtains FDA approval for marketing a new dosage of the product (for example, once a day versus twice a day), or obtains FDA approval for another medical condition.	Durante este periodo de post lanzamiento, la intensidad del marketing suele ser mucho menor que durante el primer año. Sin embargo, dicha intensidad puede aumentar bajo determinadas circunstancias como, por ejemplo, después de la publicación de resultados favorables en una revista médica, o bien cuando el laboratorio obtiene el consentimiento de la FDA para comercializar una nueva dosis del fármaco (por ejemplo, una vez al día en lugar de dos) o también cuando obtiene la aprobación de la FDA para tratar cualquier otra patología.
9.3	As patent expiration approaches, marketing efforts usually decline sharply, and following patent expiration, they are close to nil, since postpatent expiration benefits from any advertising induced utilization of the drug would be appropriated primarily by generic firms, rather than by the innovator brand (Berndt, Kyle and Ling, 2002).	A medida que se acerca el vencimiento de la patente, los esfuerzos de marketing suelen disminuir drásticamente y después del vencimiento son casi nulos, ya que, una vez que la patente ha caducado, los beneficios procedentes de la publicidad del medicamento serían captados sobre todo por empresas genéricas y no por la marca innovadora. (Berndt, Kyle and Ling, 2002)
10.0	Third, the durability of marketing effects, and the typical pattern of marketing intensity over the product life cycle, implies that while expectations concerning potential marketing costs and their sales impacts are important when making long-run decisions on whether to continue with R&D efforts for a drug in the pipeline, in the short run, only a portion	En tercer lugar, la duración de los efectos del marketing junto con el patrón típico de la intensidad del marketing a lo largo del ciclo de vida del producto supone que, mientras que las expectativas relativas a los posibles costes de marketing y su repercusión en las ventas son importantes a la hora de tomar decisiones a largo plazo sobre si continuar o

	of marketing costs are variable, and a very substantial portion are properly viewed as fixed.	no con los esfuerzos de I+D de un medicamento en fase de desarrollo, a corto plazo, sólo una pequeña parte de los costes de marketing es variable, mientras que la mayor parte se considera como coste fijo.
10.1	Recent shifts in marketing mix toward direct-to-consumer marketing, along with a relatively stable overall marketing-to-sales ratio, should have no material impact on short-run marginal costs, although they may shift demand curves outward.	Los recientes cambios en el marketing-mix hacia una comercialización directa al consumidor junto con el ratio marketing-ventas, bastante estable en términos generales, no deberían tener un impacto significativo en los costes marginales a corto plazo, aunque podrían desplazar la curva de demanda a la derecha.
11	**Payers' Marginal Valuations of Drugs** Let us now turn to the demand side and consider marginal revenue. Marginal revenue reflects how a particular drug is valued in the marketplace, including considerations of efficacy, safety and tolerability, side effects, dosing convenience and risks of adverse interactions with other medications, all relative to other substitutable therapies and their prices.	**La valoración marginal del medicamento según el paciente.** A continuación, vamos a plantear la demanda y el ingreso marginal. Este último refleja cómo se valora un determinado medicamento en el mercado teniendo en cuenta su eficacia, seguridad, tolerancia, efectos secundarios, posología y riesgo de interacción farmacológica, todo ello relacionado con otras terapias sustitutivas y sus precios.
12.0	A great deal of heterogeneity exists in the valuations patients place on drugs. Patients vary in their medical and functional responsiveness to a medication. Patients also vary in the values they attach to different characteristics of a drug; for example, some may care in particular about side effects, dosing convenience, the ability to keep functioning at work or to carry out activities	Existe una gran disparidad en cuanto a la valoración que los pacientes hacen sobre los medicamentos ya que, la capacidad de respuesta a los tratamientos es diferente según el paciente. Además, dicha valoración depende de las diferentes propiedades que le atribuyen al medicamento; por ejemplo, algunos pacientes pueden preocuparse por los efectos secundarios, la posología, la

	of daily living when retired, or about a particular drug interaction.	capacidad para seguir trabajando o para realizar actividades cotidianas cuando se jubilan, o bien por una interacción con un determinado fármaco.
12.1	In considering a particular drug relative to other drug and nondrug therapies, the costs of physician office visits and hospitalizations will also be relevant. These costs vary not only within the U.S., but across countries as well.	Si comparamos un determinado medicamento con otro u otras terapias no farmacológicas, el coste de las consultas médicas y de las hospitalizaciones será también bastante significativo. Dichos costes varían no sólo en EE.UU., sino también en otros países.
12.2	On the demand side, therefore, one should expect enormous heterogeneity in the marginal valuations of medications. This demand heterogeneity, together with low marginal production costs, creates incentives for targeted marketing efforts, as well as for nonuniform pricing.	Por lo tanto, con respecto a la demanda, cabe esperar una gran diversidad en cuanto a las valoraciones marginales de los medicamentos. Esta heterogeneidad de la demanda junto con los bajos costes marginales de producción incentiva esfuerzos de marketing específicos, así como la fijación de precios no homogéneos.
13.0	Moreover, the entire demand schedule, and thus marginal revenue, also reflects the buying power of payers. In the U.S. private sector, buying power emanates not so much from sheer scale as from the ability of a potential buyer to exclude or downgrade a drug on the buyer's formulary (Ellison and Snyder, 2001).	Además, la tabla de la demanda agregada y, por consiguiente, el ingreso marginal también refleja el poder adquisitivo de los compradores. En el sector privado de EE.UU., el poder adquisitivo no emana tanto de su gran envergadura como de la capacidad de un cliente potencial para excluir o desestimar un medicamento del catálogo del vendedor (Ellison and Snyder, 2001).
13.1	In countries in which purchasing power is concentrated in national or regional authorities, and in the United States for programs in which governments drug purchasers (like Medicaid), the legislated	En los países en los que la capacidad de compra depende de las autoridades nacionales o regionales y para los programas de compra de medicamentos en Estados Unidos (como Medicaid), la autoridad

	authority to decide on whether and how much to reimburse manufacturers for drugs creates considerable buying power for government payers.	legislativa decide si quiere y cuanto quiere reembolsar a los fabricantes de medicamentos, lo que genera una situación de gran poder adquisitivo para las instituciones gubernamentales.