

**REVIEW OF SOCIO-ECONOMIC
PERSPECTIVES**

**VOLUME 8 ISSUE 3
SEPTEMBER 2023**

ISSN (Print): 2149-9276
ISSN (Online): 2547-9385

ISSN: 2149-9276

e-ISSN: 2547-9385

Sahibi / Owner

BC Grup A.Ş. adına Bahadır ÇETİNKAYA
/Bahadır CETINKAYA on behalf of BC Group

Sorumlu Editör / Chief Editor

Prof. Dr./Professor M. Veysel KAYA

Yardımcı Editörler/Associate Editors

Dr. Ozkan Zulfuoglu Dr. Onder Karadogan

Baskı / Press

Galeri Ekin Bilg. Kit. Kırt. Gaz. Elekt. Eğt. Paz. Dağ. San. ve
Tic. LTD ŞTİ
Karanfil Sok. No:5/50-51 Çankaya/ANKARA
Tel: 03124258181

Dergi Yazışma Adresi / Correspondence Address

BC Grup A.Ş.
Mustafa Kemal Mah. 2134.Sok.
Dereli Apt. No: 15 / 2
Çankaya / ANKARA

Tel: +90 (312) 235 15 44
Faks: +90 (312) 432 48 65

info@reviewsep.com
www.reviewsep.com

Dergi; Nisan, Haziran, Eylül ve Aralık aylarında olmak üzere yılda dört kez yayınlanan uluslararası hakemli bilimsel bir dergidir. Dergide yayınlanan makalelerin bilimsel ve düşünsel sorumluluğu yazarlara aittir.

The journal is an international refereed journal published quarterly a year in April, June, September and December. The scientific and intellectual responsibilities belong to the authors.

EDITORIAL BOARD

Editor in Chief

M. Veysel Kaya

Ankara Hacı Bayram Veli University, Ankara, Turkey
E-mail: muhammed-kaya@hbv.edu.tr & mveyselkaya@yahoo.com

Co-Editors

Ozkan Zulfuoglu

Marmara University, Istanbul, Turkey
E-mail: ozkan.zulfuoglu@marmara.edu.tr

H. Onder Saridogan

Akdeniz University, Antalya, Turkey
E-mail: ondersaridogan@akdeniz.edu.tr

Editors

Metin Toprak

Istanbul Sabahattin Zaim University, Istanbul, Turkey
E-mail: metin.toprak@izu.edu.tr

Burak Pirgaip

Hacettepe University, Ankara, Turkey
E-mail: burakpirgaip@hacettepe.edu.tr

Ibrahim Bakirtas

Aksaray University, Aksaray, Turkey
E-mail: ibakirtas@aksaray.edu.tr

H. Bayram Isik

Kirikkale University, Kirikkale, Turkey
E-mail: hbayram@kku.edu.tr

Nazif M. Shahrani

Indiana University, Indiana, United States
E-mail: shahrani@indiana.edu

Amb Colette Mazzucelli

New York University, Newyork, United States
E-mail: shahrani@indiana.edu

Dawen Meng

Shangai University of Finance and Economics, Shangai, China
E-mail: dewinmeng@126.com

Ryoko Wada

Keiai University, Keiai, Japan
E-mail: rwada@u-keiai.ac.jp

Witsanu Attavanich

Kasetsart University, Bangkok, Thailand
E-mail: witsanu.a@ku.ac.th

Vilas Gaikar

University of Mumbai, Mumbai, India
E-mail: gaikar_vilas@rediffmail.com

Muhammad Saleem Ashraf

Minhaj University Lahore, Pencil, Pakistan
E-mail: drsaleemashraf1@gmail.com

Ramos Mabugu

Sol Plaatje University, Johannesburg, South Africa
E-mail: rmabugu@gmail.com

Patrycja Chodnicka-Jaworska

University of Warsaw, Warsaw, Poland
E-mail: PChodnicka@wz.uw.edu.pl

Vilma Kazlauskiene

Vytautas Magnus University, Kaunas, Lithuania
E-mail: vilma.kazlauskiene@vdu.lt

Adela Coman

The University of Bucharest, Bucharest, Romania
E-mail: adela.coman@faa.unibuc.ro

Luisa Bosetti

University of Brescia, Brescia, Italy
E-mail: luisa.bosetti@unibs.it

Monica Meireless

University of Lisbon, Lisbon, Portugal
E-mail: monica.meireless@iscte-iul.pt

Danijel Mlinaric

University of Zagreb, Zagreb, Croatia
E-mail: dmlinaric@efzg.hr

Veronika Solilova

Mendelu University in Brno, Brno, Czechia
E-mail: veronika.solilova@mendelu.cz

Abstracting & Indexing

Review of Socio-Economic Perspectives is covered by the following services:

- Academic Resource Index
- Advanced Science Index
- Crossref
- Econbiz
- ECONIS
- ERIH PLUS (European Reference Index for the Humanities and Social Sciences)
- Index Copernicus International
- RePEc

CONTENTS

A concise review on comparative studies on the evolution of minority rights in the European and African context <i>Harun Abubakar Siddique</i>	1-7
Impacts of the Russia-Ukraine war on global economy with reference to the case of Algeria: Energy gains and food concerns <i>Assia Brahimi, Azeddine Ouadi, Imane Hamoudi</i>	9-21
Educational policies to promote the knowledge economy and the technological development in Ecuador <i>Marcelo Varela - Enríquez & Gustavo Salazar - Espinoza</i>	23-41
Assessment of the employed accountants' chances to enter and complete the professional accounting education program utilizing ecological systems theory <i>Nadira Traifi & Sawsen Zirek</i>	43-58
Current situation analysis of the family medicine system in Türkiye and recommendations <i>Pelin Yılık</i>	59-65

A concise review on comparative studies on the evolution of minority rights in the European and African context

Harun Abubakar Siddique

Ankara Haci Bayram Veli University, Department of International Relations, Ankara-Turkiye

ORCID ID: 0000-0001-6037-7895

Email: Harun.abubakarsiddique@gmail.com

DOI: <https://doi.org/10.19275/RSEP160>

Article Type: Original/Research Paper

Article History

Received: 8 May 2023 Revised: 5 September 2023 Accepted: 10 September 2023 Available Online: 18 September 2023

Keywords: minority rights, Africa, Europe, ethnicities, politics.

JEL classification: Z31, Z32, O10

Citation: Siddique, H.A. (2023). A concise review on comparative studies on the evolution of minority rights in the European and African context, *Review of Socio-Economic Perspectives*, 8(3), 1-7.

Copyright © The Author(s) 2023 This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

Minority rights refer to the privileges granted to a specific group of people within a particular region. These rights are provided for various reasons, including the fact that this group may have a smaller population compared to others from the same ethnicity or tribe. The topic of minority rights has been a point of dispute in both Europe and Africa. More so, determining who constitutes a minority and granting them rights is a complex and challenging task. The aftermath of colonialism has resulted in a mix of ethnicities living together in a single territory, making the discussion of minority rights particularly difficult in the African context. While progress has been made in Europe with regards to granting rights to minority groups, it is still not a straightforward process. Understanding the evolution of minority rights in both the African and European contexts is crucial to fully comprehending the issue of minority rights and how it somewhat differs from the African to the European context. This paper reviews the historical examination of the evolution of minority rights and presents a comparison of the differences in the way minority rights is understood and dealt with in the African and European contexts.

1. Introduction

The African continent is home to over fifty nation-states, sometimes referred to as state nations, due to the impact of colonialism (Mostafa & Encloe, 1969). As a result, the desire for a political society was initially strongest among the elites or individuals during colonial times, before the emergence of nationalism, unlike in Europe. Most European countries were formed through the strong activation of nationalism, for example in the case of Poland and France. However, in Africa, the process was reversed. This has resulted in one state potentially having over two hundred ethnicities, such as in the case of Cameroon or Nigeria. This has led to significant difficulties in trying to standardize minority rights in these states. The first question that should be addressed before anything else is, "Who are the minority?" This leads to self-identification. But if this question remains unanswered, the question of who we are promoting rights for becomes a major issue.

2. The Definition Problem

In trying to understand the minority problem it is imperative to begin to define what or who a minority is, although, it has been very difficult to get an all-encompassing definition that is accepted by nation-states. However, one definition that is repeatedly mentioned in the discussions of minority rights is that of Francesco Capotorti (1979, p.23). A minority is

“a group numerically inferior to the rest of the population of a State, and in a non-dominant position, whose members – being nationals of the State – possess ethnic, religious or linguistic characteristics differing from those of the rest of the population and show, if only implicitly, a sense of solidarity, directed towards preserving their culture, traditions, religions and language”

And, at the request of the UN Sub Commission, a revision of the term was provided in 1985 by Jules Deschênes (p.3):

“a group of citizens of a State, constituting a numerical minority and in a non-dominant position in that State, endowed with ethnic, religious or linguistic characteristics which differ from those of the majority of the population, having a sense of solidarity with one another, motivated, if only implicitly, by a collective will to survive and whose aim is to achieve equality with the majority in fact and in law”

These above-stated definitions present two significant challenges among others (Slimane, 2003), in the context of Africa in trying to find a place for minority rights in the political dispensation in the respective African states.

First, the problem of numbers, in other words, the numerical problem. In states where there is no clear or outright number of who is minority and majority, it becomes a grave misunderstanding in trying to figure out who is the majority or minority based on numbers. Even when there is a clear number which is known by all, some African states have had minority ethnic groups as frontrunners of political dispensation. In this, the minority that is at the helm of political affairs to the exclusion of the majority enjoys on top of their political advantages, extra rights because of their status as minorities. For example, the Hutus of Rwanda and Oromo of Ethiopia, being the majority in their respective states they were surprisingly excluded from political power. This kind of definition when brought into the context of Europe faces fewer challenges like that of Africa.

Second, the question of citizenship, which is stressed in the definition, in other words, the citizenship problem. Although the question of citizenship is much solved by International law, considering African nation-states, citizenship continues to be a significant point that needs a thorough review. Sometimes in some African states because citizenship is linked to active participation in public life or even access or ownership of lands as in the case of DR Congo, Zambia etc. political authorities in their maneuvers could simply deny people citizenship. This unfortunate lack of clear-cut requirements of citizenship leaves some people at the mercy of these political authorities. This type of case is addressed in the General Comment in Article 27 of the ICCPR as follows, *“the existence of an ethnic, religious or linguistic minority in a given State party does not depend upon a decision by that State party but requires to be established by objective criteria”* (1994) (See paragraph 5.2 HRC General Comment No. 23, 50th session, 1994. As of 9 December 2002, 149 states are party to the ICCPR. Almost all African states are party, with the exceptions of Comoros, Mauritania, and Swaziland (now Eswatini)).

Due to the challenges of recognizing minorities in the African setting, the following five factors suggested by Samia (2003) might serve as a guiding principle in deciding who minorities are in African states. First, the ethnicity or religion within the state, second, who are in a non-dominant position where they reside, third, the group should be composed of individuals who have a sense of belonging to that group, fourth, these groups are centered on preserving their distinct identity and finally, because of their faith or ethnicity, they are ostracized or discriminated against. This criteria could be used to identify persons in the states of Africa as minorities who otherwise do not feel themselves minorities. For example, the Konkombas in Ghana, Ogiek in Kenya, Bakgaladi in Botswana etc. The significant point here is the ability to settle the scuffle on self-identification. After that is achieved then minority rights could gain momentum in the political dispensation of the states in Africa.

3. On The Genesis and Approach of Minority Rights in Africa

Prior to the colonization of the African continent, the talk of fifty-plus names of States was nonexistent in Africa. It was the Berlin Conference in the 1880s that imposed borders on the African continent which as a result caused the clustering of several ethnicities into one territory known as States (Uzoigwe, 1984). This came with consequences, as different ethnicities could not stand one dominant ethnic group having political power over the rest. Moreover, it furthered the division of the African continent to what it has come now to be fifty-four (and counting) nation-states. One troubling consequence is the intrastate conflicts that have torn some states, for example, the 1960s Biafra War in Nigeria.

Indeed, during the colonial period, human rights as it is recognized today were nonexistent. There were several violations of human rights, this then does not give room for the discussion or even the recognition of minority rights (Bonny, 2007). To this extent, the passage of the UN's Universal Declaration of Human Rights was initially opposed by the British because of fear its implementation could extend to their respective colonies (Howard, 1987). Tracing back the evolution of minority rights in Africa, then, it is imperative to note how political power, if there was any, was exercised by the locals during the colonial period. To help manage the population, the colonizers propped up certain people among the population that appeared more European and gave them some amount of political power. Like in the case of Rwanda, the Tutsis were preferred over the Hutus irrespective of the size of the population between these two ethnicities. Among the criteria that caused a population to be chosen were, that they had an organized structure in their leadership, had some level of political consciousness, etc. (Appiagyei-Atua, 2008). Those who were not chosen by the colonial master were those with no or less structure in their ethnicity, had no political consciousness, and lived a simple agrarian life, among others. These oppressed indigenous groups bore the brunt of colonization. When natural riches were discovered on their territory, they were forced off or subjected to other forms of maltreatment to force them to give up ownership over their lands (Barume, 2014). Most of these indigenous groups who were driven out of their lands and settled elsewhere are now termed as the minorities in the political dispensation of most of the African states, like the Maasai, the Ogiek etc. (Appiagyei-Atua, 2008). The Post-colonial period and the need to homogenize and integrate Africa's economies with the rest of the world meant that at the national level each newly recognized state in Africa had to have a strong and central political power to cause rapid development. In other words, the diverse communities were incorporated into statehood. This was recognized in OAU's Cultural Charter article 4, which mentions the diversity in the cultural aspects of the African state. Also, the pursuit of this policy meant "internal colonialism" for the minority groups as they continue to struggle for recognition of their lands, among others (Appiagyei-Atua, 2008).

Another precursor to the contemporary minority issues is that due to the legal notion of *uti possidetis*, (where national borders were maintained as they used to be during the colonial era), the national identity of countries or state took after the dominant population of the country (the core nation or titular), Oded (2015) mentions. This caused a plethora of minority issues since most of the states had several populations not of the dominant population. Although this is not a particular case in the African states, some African states bear some semblance of this situation. Like the dominant Akan tradition in Ghana which influenced much of the political dispensation of the country, among other things.

The Organization of African Union (OAU) came up with its innovative means to help address problems facing the African continent in which concerns of minority rights will not escape attention. The OAU was primarily concerned with promoting unity and solidarity among African governments (as stated in article 2(1a)). The African Charter on Human and Peoples' Rights (ACHPR) was adopted in 1981 to increase the recognition of laws that apply to human rights. Here, it could be understood that, since the ACHPR was walking in the spirit of the OAU, the term 'People' should also be in the form of the nation-state as it is in the Charter of the OAU. In its 2000 Constitutive Act, the now-AU lists "the Promotion and Protection of Human and Peoples' Rights" in accordance with the African Charter as one of its purposes. In the same vein, the African Commission has refrained from using the term "peoples" purely in terms of nations, instead referring to distinct groups or ethnicity as people. It is also noteworthy to mention that the Commission has however not yet defined the term People but, in its interpretation, it has included ethnicities. This new approach differs from the concept that People solely referred to nation-states. As suggested by the Commission, the following is an example of such reasoning in the context of Mauritania according to the Thirteenth Annual Activity Report of the African Commission on Human and Peoples' Rights, 1999-2000 page 179.

"At the heart of the abuses alleged in the different communications is the question of the domination of one section of the population by another. The resultant discrimination against Black Mauritians is, according to the complainants, the result of a negation of the fundamental principle of the equality of peoples as stipulated in the African Charter and constitutes a violation of its art. 19"

In this interpretation, the Commission interpreted the term “people” as mentioned in the African Charter used to mean not the nation-state but the diverse groups of ethnicities living in the territory of Mauritania.

4. Minority Right in the European Context

Prior to the now robust discussion and demand on minority rights in international politics, minority right was quite unattended to in politics as far as global politics was concerned. It is most often traced back to the creation of the Nation-State through the Westphalian model thus religious rights are acknowledged to be a cornerstone towards enriching the discussion of minority rights. Minority rights are said to have evolved as an indemnification provided by the winners, primarily the then-great powers, to vanquished parties (Andre, 2008). The treaties of Munster and Osnabruck that form the basis of the Peace of Westphalia (1648) gives somewhat an understanding of how territories were transferred to victors and how states gained sovereignty to determine their affairs, but what is important is how those oppressed because of their religious difference got the opportunity to practice their faith without hindrance. The princes were at liberty to determine whether to be Catholics or Protestants without interference. Also, Protestant or Huguenots were given some breathing space to practice their religion as a minority. For decades to come, minority rights shifted from religion to include national minority right in the case of Poland as was discussed in the Congress of Vienna (1815) regardless of the consequences that manifested after granting of the rights to the Poles. In addition, the breakup of empires, including the Ottoman Empire, prompted a significant debate over the rights provided to minorities under the aegis of the League of Nations. Meanwhile, with the demise of the League of Nations, the United Nations Charter and the European Union established novel (though ineffective) methods of protecting minorities' rights.

5. On the Genesis or Evolution of Minority Rights

The definition of the term minority in terms of the discussion of people living within the nation-state has generated enormous disagreement due to the anticipated problems it could bring to the political front if the definition does not agree with the aspirations of the majority people within the state. The definition recognizes religious minority rights as a significant part of rights conferred on groups, it is in line with rights granted to people after the thirty years war of Europe that ended with the peace treaty of Westphalia. The Westphalian Peace treaty was concluded in Munster and Osnabruck with different parties ceding territories and allowing the rights of religions which they considered intolerable especially Protestantism because the predominant religion then was Catholicism. Because of the disastrous effects of the thirty-year war that erupted between 1618 and 1648, the diplomats were dedicated to a Christian and Universal Peace in their sanctimonious invocation of "the holy and individual Trinity" (Andre, 2008). This war was a result of the Protestant Reformation that challenged the dominant religious tenets held by the Catholic Church. The Peace of Westphalia as a cornerstone towards some peace used as its principle the *cujus regio eius religio* which was of the Peace of Augsburg (1555) translated *whose realm, their religion*. This simply meant the princes or leaders of the respective territories are solely in charge of determining the religion they deem fit. The Peace treaty laid down the foundation for what would now become formal provisions of a treaty such as peace clauses, amnesty, guarantees, and territorial arrangements. The Peace of Augsburg predated that of Westphalia, meaning the Peace of Westphalia notably was following the *status quo ante*. One of the principles of the Treaty of Osnabruck was to "patiently endure and accept" minority confessions. It further said that minority subjects should not be exposed to additional miseries, should not be required to pay more than the majority for burial, and should not be barred from guilds, almshouses, or hospitals (per the Treaty of Peace between Sweden and the Empire signed at Osnabruck). According to the Treaty of Munster,

That those of the Confession of Augsburg, and particularly the inhabitants of Oppenheim, shall be put in possession again of their Churches, and Ecclesiastical Estates, as they were in the year 1624, as also that all others of the said Confession of Augsburg, who shall demand it, shall have the free Exercise of their Religion, as well in publick Churches at the appointed Hours, as in private in their own Houses, or in others chosen for this purpose by their Ministers, or by those of their neighbors, preaching the Word of God (Article XXVIII).

Here, the newly elected Electorate of Palatine concedes to the emperor. The above article was enjoining on the catholic emperor to respect the right of the Protestant minority. This is explicitly outlining the rights which were enjoyed previously by people who belonged to minority religions. The Peace of Westphalia without any precedence to look up established as a monumental multilateral treaty a paradigm that made the acceptance of minority rights an indemnity to the defeated. This for centuries to come shaped the cause of minority rights. It is not long that the Treaty of Oliva (1660) reproduced what has been laid down in the Westphalia peace treaty about minority right. Poland guaranteed in the pact that Livonian Catholics would adhere to their religious beliefs, and the same was done for other minorities. The Treaties of Nijmegen (1678), Ryswick (1697), and Paris (1763) all granted minority rights to individuals of non-dominant religions to practice their faith in peace and without cohesion.

6. The Significance of the Congress of Vienna of 1815

During the Meeting of Vienna (1815), one of Europe's most important treaties was produced; Henry Kissinger refers to the congress as "a world restored." This assembly was held in response to the grave consequences of the French Revolution and the Napoleonic period. The tradition of recognizing minorities and conferring on them some rights continued as well. The King of Sardinia in ceding part of his territory to Duchy of Savoy of Geneva iterated. *His Majesty unable to consent to having part of his territory united with a state where a different religion is dominant... that they will continue to have the means necessary for the expenses of worship... article III* (Protocol of Conference between the Plenipotentiaries of the Eight Powers (Austria, France, Britain, Portugal, Prussia, Russia, Spain and Sweden) per the pages of the Consolidated Treaty Series (64) 75-76).

The minority rights particularly with religious rights that were provided for in the Peace of Westphalia was replicated again after centuries when confronted with the issue of minority. The Congress of Vienna was momentous in resolving the fate of Poland, which had been partitioned among three great countries, Russia, Prussia, and Austria, between 1772 and 1795. However, this was the first event of this sort to mention a national minority. The Final Act of the Congress of Vienna switched from allowing minority rights based on religion to granting minority rights based on nationality. Then-British Foreign Secretary Castlereagh advocated the concept of uniting Poles, warning that anything less would end in a "hearth of troubles and insurgencies." Talleyrand, the then-French Foreign Minister, also remarked that the Poles would always constitute a family (Andre, 2008). The first item of the Final Acts of the Congress of Vienna, which was signed by, Russia, the Britain, Prussia, Austria, Portugal, Sweden, and France, reads as follows:

The Poles, respectively subjects of Russia, Austria, and Prussia, shall obtain a representation of their National Institutions regulated according to the mode of political existence that each of these Governments to which they belong will judge useful and appropriate to grant them. Protocol of Conference between the Plenipotentiaries of the Eight Powers (Austria, France, Britain, Portugal, Prussia, Russia, Spain and Sweden) per the pages of the Consolidated Treaty Series (64) 75-76).

The importance of this is that, for the first time, minority rights, which had been tied as an indemnification for vanquished parties, were transformed to national minority rights, i.e., the right to self-determination was acknowledged by states or parties at the Vienna Congress. This was a significant step forward in the discussion of the historical process of minority rights. This, however, will have a significant impact on what happens following the collapse of the Russian, Austrian, and Ottoman Empires, which preceded or triggered the foundation of the League of Nations (Andre, 2008).

7. The Two World Wars and their Ramifications on Minority Rights

Following World War I and the collapse of the three multinational empires, namely Austria-Hungary, the Ottoman Empire, and Russia, a large number of people belonging to ethnicities or religions were considered minorities in comparison to the dominant population of a particular state spread all over the world. The League of Nation's innovative response to such an incident was to convene parties in Paris and signed the Paris Peace Conference. In this conference or treaty, special provisions were incorporated and signed by parties, other states too made unilateral declarations relating to the protection of minority rights. Agreements were also reached between States that had minorities across each to protect the rights of these minorities. An example is an agreement between German and Poland, Austria and Czechoslovakia and Greece and Italy etc. The provisions of the treaties or agreements centered on the state providing the minorities equal rights, non-discrimination, speaking one's own language, religious support, and citizenship. A significant part of the League of Nations-led protection of minority rights also known as the Minority Treaties, was the special provisions to be enjoyed by minorities as well as making states recognize minority rights within their political space. This, however, is criticized as granting a lot of attention to the minorities which make these minorities exploit the opportunities granted them. In other words, the Philosophy of recognizing a special right for the minorities as championed by the League of Nations was to be later considered a part of the reason why the League of Nations was not sustained. Because states that were made to recognize the existence of minorities in their state and eventually granting those special rights were not comfortable with such an idea. Since these minorities then could secede or claim self-determination. It also made states that had ethnicities in a different state have a sense that they could intervene if they think the need be. The United Nations Charter was established following the end of World War II. This charter's innovation rejected the philosophy of special recognition of minority rights in favor of the principle of equality and non-discrimination of all individuals; in other words, the new charter's philosophy was the individualistic approach, which prioritized human rights over special minority rights. According to Study on the Legal Validity of the Undertakings Concerning Minorities, U.N. ESCOR, 6th Sess., at chap. XIV, U.N. Doc. EICN.41367 (1950) page 19, the Secretary-General iterated as follows-

"As a whole was overthrown by the Second World War and that the international decisions reached since 1944 had been inspired by a different philosophy that is by the idea of a general and universal protection of human

rights. Reviewing the situation, therefore, one is led to conclude that between 1939 and 1947 circumstances changed to such extent that, generally speaking, the system should be considered as having ceased to exist."

This is evident in the United Nations-sponsored Universal Declaration of Human Rights. Minorities are not mentioned or referred to anywhere in the United Nations Charter or the Universal Declaration of Human Rights. Article 27 of the treaty International Covenant on Civil and Political Rights (1966) under the auspices of the United Nations is a significant milestone in the history of minority rights, it reads *-in those States in which ethnic, religious, or linguistic minorities exist, persons belonging to such minorities shall not be denied the right, in community with the other members of their group...or to use their own language.* This was the first multilateral treaty of its kind to clearly specify the minority rights that should be enjoyed within the respective parties.

In terms of the contemporary struggle for minority rights, the United Nations General Assembly enacted the Declaration on the Rights of Persons Belonging to National or Ethnic Minorities, Religious and Linguistic Minorities in 1992, expanding on the provision of the ICCPR art. 27. On a regional level, the efforts done by the Organization for Security and Cooperation in Europe (OSCE, 1975) to improve minority rights among member nations are also regarded comprehensive. Member States agreeing to respect minority rights is one of the significant principles included in the Helsinki Final Act. The Copenhagen Text of 1992 is another key document that describes strongly the list of privileges that minorities should have, such as the use of mother tongue in school or usage in public, as well as freedom to cultural and religious organizations. Furthermore, the Council of Europe Framework Convention on Minority Rights is a new initiative to improve minority rights. Although the European Convention on Human Rights (ECHR, 1950) does not use the term minority, it does refer to it by declaring that persons would not be disappointed because of their gender, color, ethnicity, or language. The establishment of the Office of the High Commissioner for National Minorities was a significant OSCE initiative. This office oversees or carefully follows the happenings of minorities in the member states.

8. Conclusion

With regards to minority rights in Africa, there is still much work to be done. Emphasis must be placed on the importance of self-identification, due to a lack of understanding regarding the numerical value of minority or majority populations in Africa. The approach to minority rights in Africa must be different from that in Europe, as Africa has a greater diversity of ethnicities within one state, and this is not unique to just one nation-state on the continent. The discourse on minority rights is crucial, as the future may hold intrastate conflicts resulting from ethnic intolerance. This is made more likely by the multiplicity of ethnicities in Africa, which far surpasses that in Europe. The growing awareness and literacy may also lead to further animosity between ethnic groups if tolerance is not promoted. In Europe, the history of minority rights has been closely tied to the history of religious rights for minorities, as they are a crucial component of minority rights. The recognition of minority rights began with the Treaty of Westphalia, which was a result of the Thirty Years War. Some defeated governments were forced to cede lands and accept religious or minority rights as compensation. The Westphalian precedent continued to influence the minority rights movement, as the Congress of Vienna marked the first time a national minority was acknowledged and accepted. This led to the unification of Poland. The fall of empires such as the Ottoman Empire prompted the League of Nations to establish specific minority rights. After the League of Nations was dissolved and replaced by the United Nations, which took a different approach by advocating for complete protection of human rights, including the rights of minorities, the special minority rights recognized through Minority Treaties did not endure. These historical processes in the evolution of minority rights can still be seen in the ongoing discussions at the United Nations and European Union.

References

- Act of the Congress of Vienna, 9 June 1815, Consolidated Treaty Series 64, 457.
- Andre, L. (2008). Minority as Inferiority: Minority Rights in Historical Perspective. *British International Studies Association*, 34(2), doi: 10.1017/S0260210508008012.
- Appiagyei-Atua, K. (2008). Minority Rights, Democracy and Development: The African Experience. *International Journal on Minority and Group Rights*, 15(4), 489-503.
- Barume, A. (2014). *Land Rights of Indigenous Peoples in Africa*. Copenhagen: IWGIA.
- Bonny, I. (2007). *Imperialism and Human Rights: Colonial Discourses of Rights and Liberties in Africa*. Albany, NY: State University of New York Press.
- Capotorti, F. (1979). Study of the Rights of Persons Belonging to Ethnic, Religious and Linguistic Minorities. Sub-Commission on Prevention of Discrimination and Protection of Minorities. U.N. ESCOR, 30th Sess., para. 568, U.N. Doc. E/CN.4/Sub.2/384/Rev.1.

- Communications 51/91, 61/91, 98/93, 164/97 to 196/97 and 210/98, Malawi African Association et al. v. Mauritania, Thirteenth Annual Activity Report of the African Commission on Human and Peoples' Rights, 1999-2000, AHG/222 (XXXVI), Annex V, para. 142.
- Howard, R. (1987). *Human Rights in Commonwealth Africa*. Rowman and Littlefield, Totowa.
- HRC General Comment No. 23, para. 5.2, 50th session, 1994. As of 9 December 2002, 149 states are party to the ICCPR. Almost all African states are party, with the exceptions of Comoros, Mauritania, and Swaziland.
- Mostafa, R., & Enloe, C. H. (1969). Nation-States and State-Nations. *International Studies Quarterly*, 13(2), 140-158. doi:10.2307/3013942.
- Oded, H. (2015). From Independent Statehood to Minority Rights: The Evolution of National Self-determination as an International Order Principle in the Post-State Formation Era. *Ethnopolitics*, 14(1).
- Proposal Concerning a Definition of the Term 'Minority'. (1985). UN Doc. E/CN.4/Sub.2/1985/31.
- Protocol of Conference between the Plenipotentiaries of the Eight Powers (Austria, France, Britain, Portugal, Prussia, Russia, Spain and Sweden) respecting the Cessions made by Sardinia to the Canton of Geneva, signed at Vienna, 29 March 1815, Consolidated Treaty Series 64, 75-76.
- Slimane, S. (2003). *Recognizing Minorities in Africa*. Minority Rights.
- Study on the Legal Validity of the Undertakings Concerning Minorities. (1950). U.N. ESCOR, 6th Sess., chap. XIV, U.N. Doc. E/CN.4/367.
- Treaty of Peace between Sweden and the Empire, signed at Osnabruck 14 (24) October 1648, chap. V, article 28, Consolidated Treaty Series 1, 228.
- Uzoigwe, G. N. (1984). Reflections on the Berlin West Africa Conference, 1884-1885. *Journal of the Historical Society of Nigeria*, 12(3/4), 9-22. <http://www.jstor.org/stable/44715366>

Impacts of the Russia-Ukraine war on global economy with reference to the case of Algeria: Energy gains and food concerns

Assia Brahimi

Lecturer A, High school of management Tlemcen, Algeria

ORCID ID: 0009-0009-2816-6428

Email: bra.assia@gmail.com

Azeddine Ouadi

Lecturer, B, University Akli Mohand Oulhadj, Bouira, Algérie

Email: a.ouadi@univ-bouira.dz

Imane Hamoudi

Ph.D, University Abou ber belaid, Faculty of Economy, Tlemcen, Algeria

ORCID ID: 0009-0001-1846-4992

Email: imane.hamoudi@univ-tlemcen.dz

DOI: <https://doi.org/10.19275/RSEP161>

Article Type: Original/Research Paper

Article History

Received: 16 April 2023 Revised: 30 August 2023 Accepted: 8 September 2023 Available Online: 18 September 2023

Keywords: global economy, Russian-Ukrainian war, energy, food, Algeria

JEL classification: A120, P180, I310.

Citation: Brahimi, A., Ouadi, A., Hamoudi, I. (2023). Impacts of the Russia-Ukraine war on global economy with reference to the case of Algeria: Energy gains and food concerns, *Review of Socio-Economic Perspectives*, 8(3), 9-21.

Copyright © The Author(s) 2023 This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

The Russian-Ukrainian war caused disturbing global repercussions, at a time when the world was on its way out of the Corona pandemic, which had the most severe impact on developing countries. The most prominent repercussions of the Russian-Ukrainian war are the fluctuations in energy prices, especially COVID-19, crude oil and natural gas. One of the most severe of these effects is the food price crisis, especially wheat, which increases the possibility of an imminent global food crisis. This analytical paper deals with the repercussions of the Russian-Ukrainian war. On the global economy and the most important economic and social effects, with a special focus on future trends and expectations.

1. Introduction

Over the past two years, the emerging coronavirus has posed many challenges to global food security, as increased demand as a result of recovery, supply chain bottlenecks, and climate change policies have caused food and energy prices to rise at significant rates. During the period from May 2020 to February 2022, global food prices increased by about 50% and energy prices increased by about 100%, according to data from the Food and Agriculture Organization and the International Energy Agency. The Russian-Ukrainian crisis added another major challenge to global food and energy security. (Abdel Qader, 2022, p. 651)

In the early hours of 24 February 2022, Russia began a full-scale military invasion of Ukraine, resulting in civilian casualties and the destruction of vital infrastructure. In addition to significant human fatalities and devastation, the war has jeopardized global food security by disrupting agriculture production and trade in one of the world's most significant food-exporting regions. (Fazle Rabbi, Ben Hassen, El Bilali, Raheem, & Raposo, 2023)

According to the World Bank, a worldwide recession and possible stagflation are expected due to the conflict, a phenomenon not experienced since 1970. The impacts on the environment, society, and economy are still being understood, and the conflict's length is unknown (Pereira, et al., 2022, p. 277)

Russia's invasion of Ukraine, which appears for a moment to be purely geopolitical, but its economic effects are structural and long-term, and it will lead the world to the inevitability of coexistence with bipolarity again, led by Russia and America again. The sanctions imposed on Russia are within the framework of what is called: soft power. Which Western countries use against every country that contradicts its interests, it also came with reactions in favor of Russia by having a positive impact on the Russian ruble, which became the currency to be paid in as a result of exchanges with Russia, and everyone who does not have the ruble can barter for gold (Saifi, 2022, p. 616)

And with the entry of European-Russian relations into a phase of sharp disagreement, which directly affected the energy sector in general and the natural gas sector in particular, the need arose to find alternatives that guarantee the European tendency to abandon Russian gas by the end of 2023, which offered Algerian gas as a strong alternative to gas. Technically, by virtue of its geographical proximity to European regions. However, the technical advantages face important challenges, which may affect Algeria's competitiveness in this important market, and perhaps the most important of these challenges is: Enhancing new competitors, Qatar and the United States of America are the most important for their market share, in addition to the global market's delinquency towards the LNG industry instead of pipeline gas. (Roulami, 2023, p. 26). Through the above, we are trying through this research paper to answer the following question: What are the repercussions of the Russian-Ukrainian war on the global economy?

Several sub-questions emerge from this question, as follows:

- What are the effects of the Russian-Ukrainian war on energy and food prices?
- What are the repercussions of war on global supply chains?
- What is the impact of the Russian-Ukrainian war on the Algerian economy?

2. Research Methodology:

To answer the problem of this research, the descriptive approach was relied upon because it allows collecting data and facts about the phenomenon under study, i.e. analyzing the impact of the conflict between Russia and Ukraine on many global economic indicators (international trade, supply chains, economic growth, energy prices, food prices. ..), We also relied on the inductive approach in order to analyze and interpret this data and stand on its significance to determine its effects and repercussions and try to extrapolate the future.

In addition, we conduct a literature review to provide a thorough explanation of the descriptive analysis' findings. The literature review was carried out by reading articles published in Scopus, Web of Science, and Google Scholar

3. Results and Discussion :

The Russia-Ukraine War is already having and is expected to continue to have significant negative impacts on global markets for major commodities, particularly in terms of grains, in addition to metal and energy products. The War has forced the closure of all Ukrainian seaports until recently and has resulted in the United States, European Union, and other countries and regions imposing selective sanctions on Russia. There is a concern that the situation is leading to a world food crisis and could compromise the attainment of some important sustainable development goals. (Adam, Zhenhua, & Dan, 2023, p. 1.2)

In this section, we will analyze the economic situation of Russia and Ukraine before the war, and then the impact of the Russian-Ukrainian war on the most important global economic indicators.

3.1. Analysis of the situation of the Russian and Ukrainian economy before the war:

Russia is the largest country in the world in terms of area, with an area of about 17 million square kilometers, a population of 144 million, and a gross domestic product of \$483.5 billion in 2020, or 1.75% of global output, and the volume of this output amounted to \$2,292.5 billion. In 2013, it accounted for 2.96% of global output, and the volume of its foreign trade in goods and services amounted to \$684 billion, or 1.54% of world trade, in 2020. (Abdel Qader, 2022, p. 655)

In 2021, the real GDP growth of Russia reached 4.7 % in general, while the annual inflation rate reached 8.4% in 2021

Russia is the largest exporter of wheat in the world and the largest producer in the world after China and India, and according to the International Energy Agency, Russia is the third largest oil producer in the world after the United States of America and Saudi Arabia, the world's largest exporter of natural gas and the second largest exporter of oil. With about 5 million barrels of oil per day, Russia is also a major supplier of chemical products such as fertilizers and minerals and wood products. To clarify Russia's position more in world trade, we present the following table, which shows the percentage of Russia's exports in world markets as follows: (Hani, 2022, p. 25)

Table 1: Percentage of the most important Russian exports out of world exports based on the World Bank website (World Bank Group , Analysis March -2022) :

Export Type	The Percentage
Natural gas	25.3%
Platinum	23%
Nickel	22.5%
Coal	18%
Fertilisers	14%
Crude Oil	11.4%
Aluminium	10%
wheat	18%

Source: (Hani, 2022, pp. 25-26)

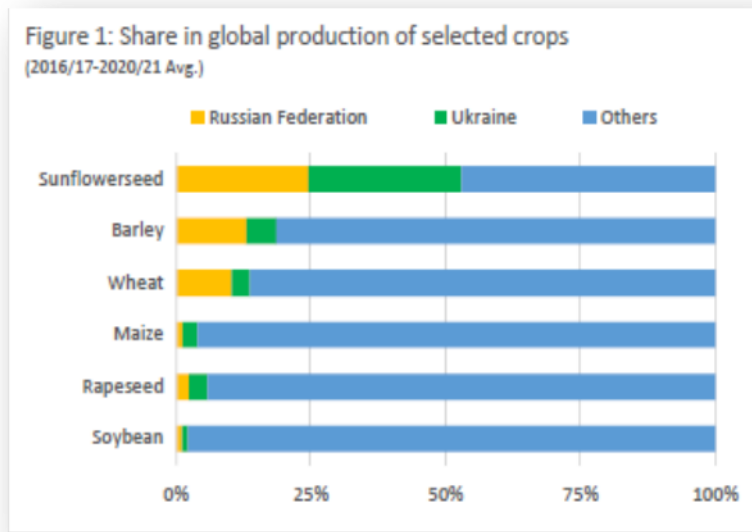
Ukraine has an area of about 0.6 million km², with a population of about 44 million, and its GDP amounted to \$155.5 billion in 2020, and it is located in the lower middle-income countries. (Abdel Qader, 2022, p. 657)

And the economic base of Ukraine is based on the availability of important underground resources, on top of which are raw materials Coal, iron, and energy sources such as oil, gas, and electricity, and this is what helps the development of many industries, especially the heavy and mining industries, and the machinery industry. There are more than 130 iron-producing factories that provide ferrous materials needed for other industries the most important of which is the manufacture of various machines, and the chemical and petrochemical industries occupy an important place. Reliance on it for the production of chemical fertilizers, including nitrogen, which is necessary for the development of agriculture in the country, as the availability of natural conditions and the presence of fertile soil are among the factors that help the growth and development of agriculture in Ukraine, as the area of Ukrainian land suitable for agricultural investment is about 50 million hectares. (Hani, 2022, p. 26)

The Russian Federation and Ukraine are among the most important producers of agricultural

commodities in the world (Figure 1). Both countries are net exporters of agricultural products, and they both play leading supply roles in global markets of foodstuffs and fertilizers, where exportable supplies are often

concentrated in a handful of countries. This concentration could expose these markets to increased vulnerability to shocks and volatility. (FAO, 2022, p. 4)



Source: (Ben Hassen & El Bilali, 2022, p. 8)

Russian and Ukrainian agro-food output and exports have expanded considerably during the last three decades due to intense modernization and automation, making the region the world’s breadbasket . In 2021, Russia and Ukraine exported nearly 12% of the food calories traded globally, making them essential actors in the global agri-food sector . They are significant producers of staple agro-commodities such as wheat, corn, and sunflower oil and Russia is the largest exporter of fertilizers in the world.

Further, Ukraine is one of the top three grain exporters, leading the world in soybean and sunflower oil exports. Ukraine controls 52.2% of the global sunflower oil market. Ukrainian agricultural exports have acquired a rising reputation in China, Egypt, India, Turkey, and the European Union .

Figure 2 shows that in 2021, Ukraine and Russia combined trade accounts for over 34% of world wheat, 17% of corn, 27% of barley, and over 80% and 55% of sunflower cake and oil, respectively. The global trade in vegetable oils and food calories amounts to 10% and 11.80%, respectively. Furthermore, Russia exports 16% of fish (Alaska pollock), 13% of mineral fertilizers such as ammonia, phosphate rock, sulfur, and 16% of finished fertilizers (Fazle Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 6)

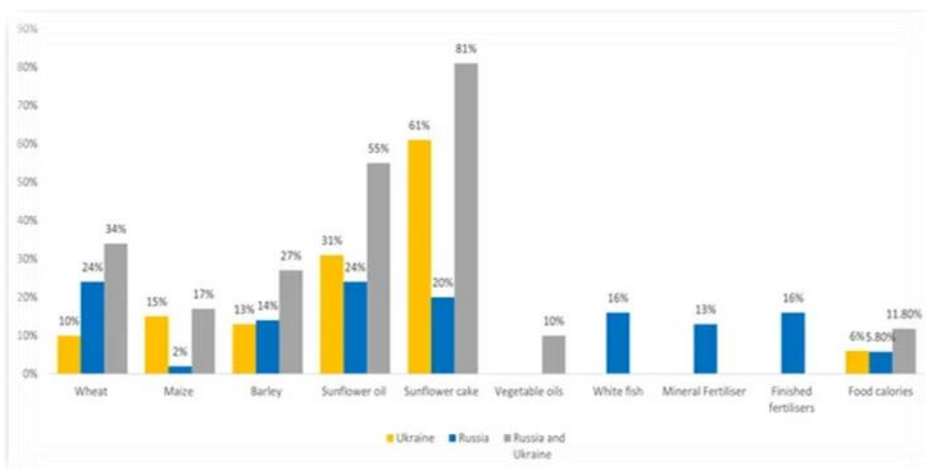


Figure2. The proportion of Ukraine and Russia’s combined global exports in 2021

Source: (Fazle Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 7)

The impacts on the maize market depend mainly on Ukraine since Russia is a small producer. Ukraine is the world's fourth-largest maize exporter, accounting for around 15% of the global market. (Ben Hassen & El Bilali, 2022, p. 8)

3.2. War and Energy:

The most obvious result caused by the Russia/Ukraine war has been the increase in energy prices in the world and the serious damage to general trade due to the effect of the embargo on Russia. Ukraine is not indispensable for any major economy in the world. However, the situation for Russia is very different. 1.37 of Russia's GDP consists of imports from countries such as China, USA, Germany, France and Italy. According to IMF reports, Russia's share of global GDP is estimated to be 1.6% in 2022, while Ukraine's overall production is estimated to correspond to 0.2% of world production. (TUNA, 2022, p. 74)

Russia and Ukraine constitute a large proportion of global exports of a large number of strategic commodities. Russia is a major exporter of natural gas and the second largest exporter of crude oil. Russia represents about 25% of global natural gas exports, 18% of coal exports, and 14% of platinum exports.

Crude oil prices continued to rise from their lowest levels since the outbreak of the Corona pandemic, as the monthly change in the global average price of crude oil increased by 20.3% at the end of March 2022 compared to February 2022, to reach \$113/barrel. It increased by 76.1% compared to the price in March 2021. And according to the latest issue in May 2022 of the "Commodity Markets Outlook" issued by the World Bank. The monthly change in the global average price of crude oil declined by 8% in April 2022 compared to last March.(Figure3) .

Brent Crude Oil is a key reference price for oil purchases worldwide as it is priced against this oil. According to daily data released on May 7, 2022 by (Trading Economics) the weekly changes showed fluctuations in the prices of Brent crude futures contracts; It rose to \$112.6/bbl on May 7, 2022

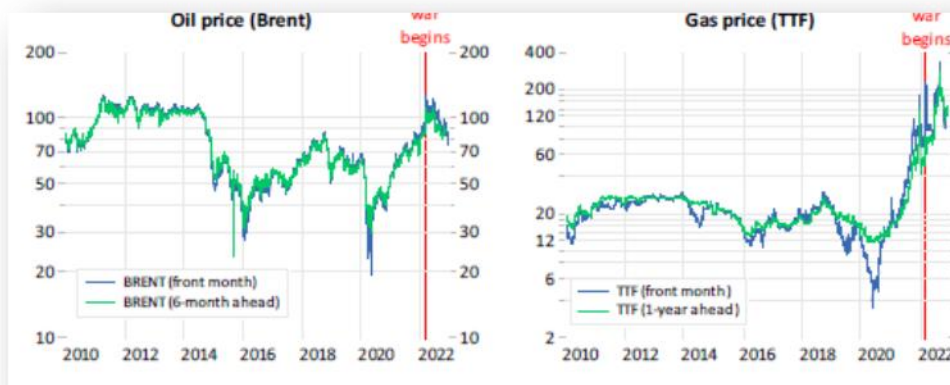


Figure 3 : Oil and gas wholesale prices, 2010-2022

Source: (DARVAS & MARTINS, 2022, p. 3)

Note: A front month is the nearest expiration date for a futures or options contract. Brent is measured in dollars, TTF is measured in euro. The last observation date is 12 December 2022. The vertical axes use logarithmic scaling to better capture percent changes (eg a change in Brent from \$50 to \$100 and from \$100 to \$200 represent the same percent change).

With the repercussions of the Russian-Ukrainian war, the rise in oil prices is also reinforced in light of the rise in natural gas prices with the restrictions imposed on Russian gas. In addition, the rise in gas prices has affected the increasing attractiveness of oil as an alternative for heating and electricity generation, as data issued by the World Bank showed a rise in The natural gas index increased to 273.1 points in March 2022, with a monthly increase of 38.24%, and an annual increase of 316.1% compared to March 2021.

According to the daily data issued by Trandig on May 7, 2022, the natural gas futures contracts in the United States 9 amounted to about \$8.6/MMBtu, with a weekly increase of about 21.1% compared to the price of \$7.1/mBtu on April 29, 2022 (Unicef, 2022, pp. 9-10)

The gas price remained highly volatile, depending on the need for gas in electricity generation and Russia's continued cut in gas supply to Europe, despite the absence of any European gas sanction. The peak of €300

(weekly average in 22-26 August 2022) was followed by a sudden decline and volatility, with the early-December 2022 price (€140) similar to the price towards the end of 2021 (DARVAS & MARTINS, 2022, p. 2)

Future expectations to identify the trends in oil and natural gas prices are among the means that reflect the repercussions of the Russian-Ukrainian war on price trends, as future expectations have shown in the short term in international prices for oil and natural gas according to many international bodies such as: the International Energy Agency, the World Bank, and the Organization for Cooperation Economic and development, and the location of trade economies, an increasing trend in the prices of oil derivatives and natural gas, as shown in Figure 4 and Figure 5 :

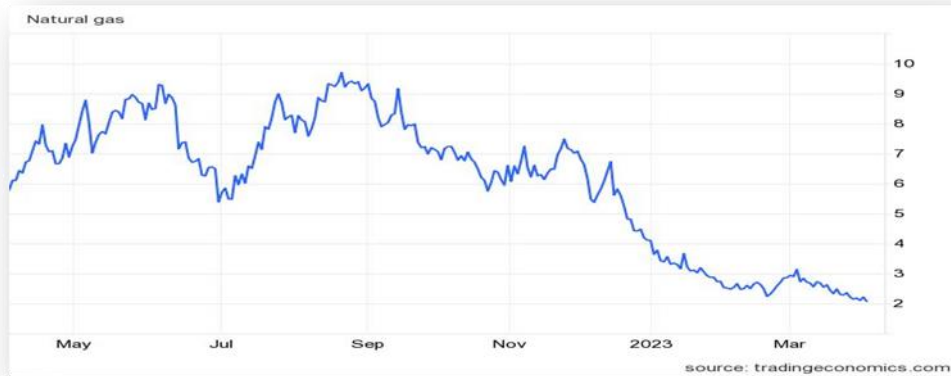


Figure 4: Future forecasts for natural gas prices

Source: <https://tradingeconomics.com/commodity/natural-gas>

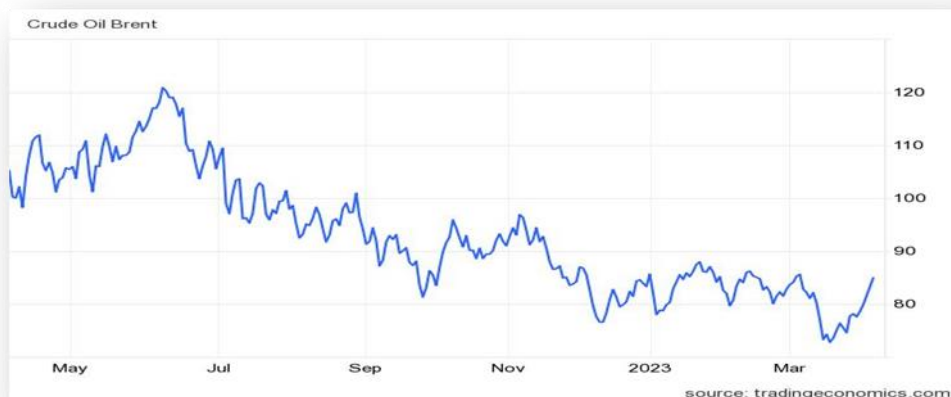


Figure 5: Future expectations in the price of Brent Crude Oil

Source: <https://tradingeconomics.com/commodity/brent-crude-oil>

There is no doubt that these expected hikes in oil and gas prices will bring great revenues to the producing and exporting countries. However, it will have certain repercussions on the slowdown in global economic growth

We can say that the loser of this war we lived in before the end of the first quarter of the century is not only Ukraine and Russia, but more or less the whole world. The increase in energy prices has affected all countries except exporting countries, more importantly, it is expected that millions of people will become refugees from Ukraine due to the war, and this number is expected to reach 10 million. (TUNA, 2022, p. 75)

3.3. The expected impacts of the war on global trade and supply chains:

The Military operations during the Russian invasion of Ukraine will affect operations in many sectors by disrupting global supply chain. The embargo on Russian exports and the retaliation against foreign imports by Russia, including Russian refusal to allow foreign shipments through its airspace and waterways during the conflict, can disrupt the global supply chain. (BALBAA, ESHOV, & ISMAILOVA, 2022, p. 12)

In an interview with CNBC, the head of services for the Keelvar supply software platform (Ireland) Dylan Alperin said the maritime route in and out of the Sea of Azov, one of the few points of access to road commerce. The sea in Ukraine is now inaccessible because Ukrainian and Russian military forces have blocked the entrance. This has resulted in a significant number of ships waiting to pass through the Kerch Strait. “70% of Ukraine's exports are transported by ships. Congestion is getting worse by the hour,” Alperin said. The director of container rental technology platform Containerx Change (Germany) Christian Roeloffs also shared that the areas around the Black Sea and Sea of Azov are currently very dangerous or impassable. There have been reports of missile attacks on passing commercial ships and crew arrests. The ships that crashed were oil tankers, container ships and cargo ships from Japan, Turkey, Moldova and Estonia. Commodities transported include diesel, rare earths and grains. Many companies in the supply industry have suspended delivery services to and from Russia and Ukraine. Some other companies added that the transport of goods is at a standstill because the seaports in the Ukrainian city of Odessa and the city of Mariupol are closed due to damage from shelling. Container shipping operations have now stalled with a lot of cargo stuck at these ports. The situation of transportation by air is also facing many similar difficulties. Ukraine's airspace is closed to civil flights as well as airlines avoiding flying over Russian airspace, causing air freight rates to skyrocket, significantly reducing the amount of goods moving through this type of transport. download this. (Minh Ngoc, et al., 2022, p. 636)

For 2024-2026, a period which will hopefully fall beyond the war, IMF expects about half a percent per year slower GDP growth in China in its October 2022 forecast than its October 2021 forecast.

Thus, even though the revisions to trade and commodity price forecasts do not reflect only the impact of the war, the war has likely played an important role in the revisions.

Figure 6 shows that the pandemic resulted in a major drop in global trade in 2020, followed by a strong rebound in 2021, resulting in a total trade volume that was 1.5 percent higher in 2021 than in 2019.

Naturally, the rebound-driven pace of global trade growth in 2021 was set to decelerate from 2022. The October 2021 forecast for 2022 growth of global trade volume was 6.7 percent, which was reduced to 5.0 percent in the April 2022 forecast and 4.3 percent in the October 2022 forecast. Overall, the level of global trade volume in 2023 was forecasted to be 3.4 percent lower in October 2022 than the October 2021 forecast, with this gap forecasted to stabilise in 2024-2026. Whether 3.4 percent is small or large is subject to judgement. On the one hand, this is a large value in dollar terms, about \$1 trillion annually, given that global trade is around \$30 trillion a year⁷. On the other hand, Figure 6 shows that the annual

fluctuations in the growth rate of global trade are rather large. There were 12 years between 1980 and 2018 (excluding 2009-2011, three years after the global financial crisis) when the change in the growth rate in one year was larger than 3.4 percentage points in absolute terms. Thus, annual changes exceeding this magnitude are rather common (DARVAS & MARTINS, 2022, pp. 5-6)

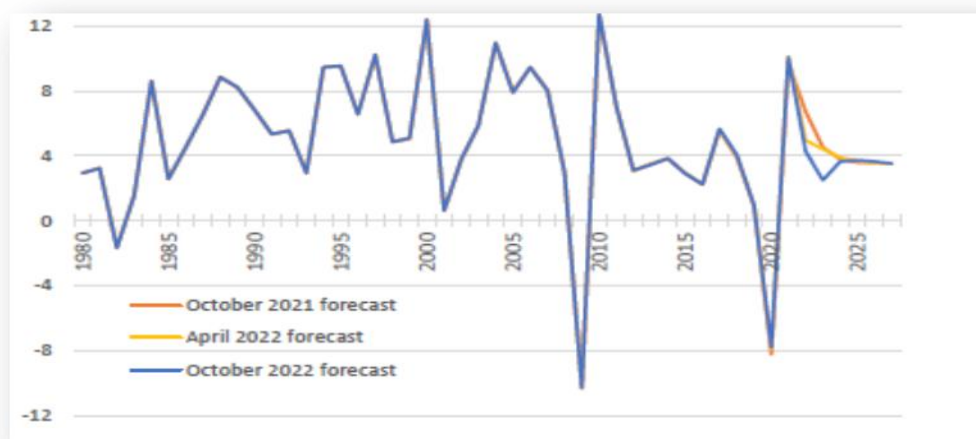


Figure 6 : The global trade volume of goods and services, 1980-2027 (% annual change)

Source: (DARVAS & MARTINS, 2022, p. 6)

3.4. Impact of the Russian-Ukrainian War on World Food :

Food security happens when “all people at all times have physical and economic access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life” . Food security has four standard dimensions: availability (having a sufficient quantity of food available regularly); access (having enough resources to acquire suitable and healthy food); utilization (having a reasonable food use based on knowledge of essential nutrition and care); and stability of availability, access, and utilization of food . Although these four dimensions remain fundamental, they lack other features, such as agency and sustainability, that have come to be recognized as critical for altering food systems in the direction required to accomplish the SDGs . Evidence shows that wars and conflicts are the most important drivers of food insecurity globally . (Ben Hassen & El Bilali, 2022, p. 2)

As early as the nineteenth century, the French political economist Frédéric Bastiat claimed, «when goods cannot cross borders, armies will» (Mariotti, 2022, p. 770)

Food is one of the most traded goods, and the conflict in Ukraine, one of the European breadbaskets, has triggered a significant additional disruption in the global food supply chains after the COVID-19 impact. The disruption to food output, supply chains, availability, and affordability could have a long-standing impact. As a result, the availability and supply of a wide range of food raw materials and finished food products are under threat, and global markets have seen recent increases in food prices. Furthermore, the Russian-Ukrainian conflict has adversely affected food supply chains, with significant effects on production, sourcing, manufacturing, processing, logistics, and significant shifts in demand between nations reliant on imports from Ukraine. (Jagtap, et al., 2022, p. 1)

Global food prices showed an increasing trend between May 2017 and May 2022 (Figure7). From 2017 to 2019, global food prices had a history of stability. However, food prices began to rise in 2020 and 2021. Wheat and maize prices increased each month dramatically by 2.17% and 2.59%, respectively. During the same period, the price of soybeans increased by 1.73% per month

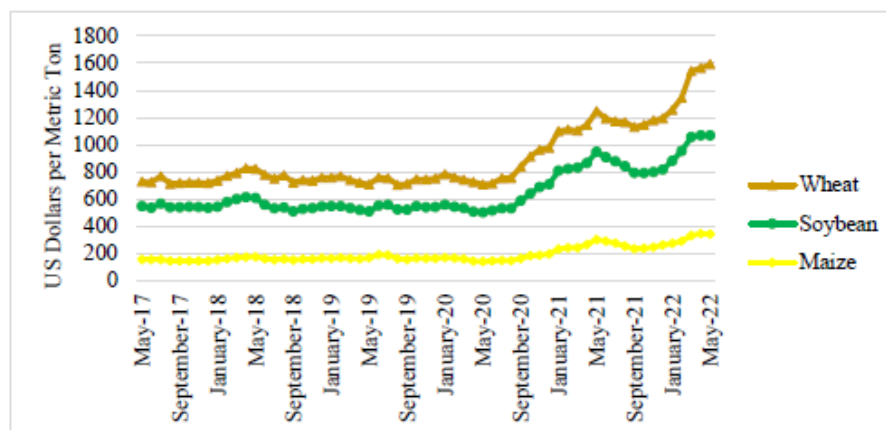


Figure 7: Global food prices from May 2017 to May 2022

Source: 2 (Nasir, Nugroho, & Lakner, 2022, p. 5)

Global food prices increased drastically in 2022, especially in March, one month after the Russian attack on Ukraine. World soybean prices rose by 8.91% in March and rose again by around 0.03% and 0.46% in April and May, respectively. The price of maize increased higher than that of soybean, rising by 14.66% in March 2022, 3.77% in April 2022, and 0.95% in May 2022. Wheat saw the greatest price increase among all food products. This commodity’s price rose to 24.53% in March and then increased again in April (1.85%) and May (5.45%). According to the FAO , the global food and feed prices will increase by 8% to 22% beyond their current high baseline levels if this conflict is not resolved early. (Nasir, Nugroho, & Lakner, 2022, p. 5)

As of January 2023, the slowdown in the global economy and fears of a worldwide recession have contributed to a general lowering of commodity prices. Nevertheless, commodity prices remain high relative to historical averages, extending the challenges connected with food security. Lower input costs, especially for fertilizers, are expected to contribute to a 5% drop in agricultural prices in 2023. Despite these forecasts, prices are projected to stay higher than pre pandemic levels. As a result, global inflation will remain high in 2023 at 5.2% before decreasing to 3.2% in 2024. Although inflation is expected to decline gradually during 2023, underlying inflationary pressures may become more persistent . According to the International Monetary Fund , global food

prices are anticipated to stay high due to conflict, energy costs, and weather events, despite interest rate rises marginally easing pricing pressures. (Fazle Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 12)

3.5. The impact of war on the rate of growth and inflation :

Western countries intervention in Russia's struggle for territorial control may push Russia to impose an oil export embargo as retaliation for Western sanctions on Russia. This could increase the prices of oil and affect the economic growth, whereas the evidence shows that energy use and GDP are positively correlated .

As this will rise the firms spending on raw materials which will increase their costs of production and subsequently increase the output prices. Therefore the aggregate demand will fall due to the decrease in consumers' purchasing power which means less incentives to suppliers to produce more, therefore the aggregate supply also will fall, this reduction in supply thereby leads to a decrease in economic output and the growth rates (BALBAA, ESHOV, & ISMAILOVA, 2022, p. 12)

In April 2022, the International Monetary Fund predicted that global growth would fall from an expected 6.1% to 3.6% in 2022 and 2023. Additionally, food and fuel prices would increase by 3% in 2022 and 2.3% in 2023. (Ben Hassen & El Bilali, 2022, p. 5)

Amid a rapid rebound in global activity from the depth of the pandemic-induced global recession in Q2 2020, global inflation had risen to over 6 percent in February 2022, its highest level since 2008. Inflation is now running well above inflation targets in almost all advanced economies and most inflation-targeting EMDEs. The energy and food price surge triggered by Russia's invasion of Ukraine has further fueled inflation.

Prospects for inflation. In the near-term, inflation is likely to remain elevated as demand and supply shocks pass through wage and price setting processes. Over the medium-term, current inflation expectations point to a return of inflation to low and within-target inflation . As central banks tighten monetary policy and pandemic-related fiscal stimulus is unwound, growth will slow; as the supply disruptions caused by the war in Ukraine are priced in, commodity prices will stabilize; and as global production lines and logistics adjust, supply bottlenecks will ease . After decades of building credibility, inflation expectations are likely to remain well anchored over the medium-term . There is a material risk, however, that recent inflationary shocks combine with a fading of structural forces of disinflation to usher in an era of higher inflation that weakens the anchoring of inflation expectations. This would mark a turning point after two decades of low and stable inflation. (Guénette, Kenworthy, & Wheeler, 2022, p. 22)

The IMF predicts that global inflation will climb from 4.7% in 2021 to 8.8% in 2022 before falling to 6.5% in 2023 and 4.1% in 2024. (Fazle Rabbi , Ben Hassen, El Bilali, Raheem, & Raposo, 2023, p. 3)

The current conflict may also have global spillovers. While its full impact on the global economy remains uncertain at this stage and will depend on several factors, the most vulnerable countries and populations are expected to be hit hard by slower economic growth and increased inflation, at a time when the world is still attempting to recover from the recession triggered by the COVID-19 pandemic. (FAO, 2022, p. 9)

3.6. The impact of the war on the banking sector and global financial markets .

Financial consequences from the Russian invasion of Ukraine, including sanctions against Russia, are severely impacting Russian and Ukrainian banks, and having spillovers to other banking systems with direct exposures. Ukrainian banks are experiencing severe disruptions in their operations that have led to a material deterioration of their credit profiles and rating downgrades to "near default" status. Russian banks are also facing acute challenges including the inability to operate international transactions, withdrawals by retail depositors and growing risk of higher NPLs, which could cause credit conditions to tighten and make the economic pain from sanctions even worse. International banks in major OECD banking sectors are exposed to direct risks from the potential deterioration of global economic conditions and their exposure to Russia and Ukraine, which may result in higher NPLs and possible equity write-offs. International banks may be also exposed to indirect risks from the deteriorating credit quality of their corporate borrowers with trade relationships tied to Russia and Ukraine and their capital market activities. (OECD, 2022, p. 9)

This conflict also caused many central banks to raise interest rates as a result Inflationary pressures, as happened in the United States of America, which leads to an increase in the cost of debt Many developing countries weaken their ability to obtain any other loans and the increasing difficulties in paying debt installments, in addition to the investors' sense of uncertainty and the decline in confidence in the business community, which of course affects investment opportunities at the global level. (Riyad, 2022, p. 75)

A less accommodative interest rate environment and negative economic impacts of the intensifying geopolitical conflict may trigger bouts of investor risk aversion. As key stable coins are redeemable at par value, they are vulnerable to unexpected redemptions with negative implications for the value of underlying

assets and market resilience. Stable coins (mainly Tether) are reportedly increasingly investing in US commercial paper as their reserve assets. In a scenario where risk aversion would increase for Tether and similar stablecoins holding short-term instruments, substantial redemptions and liquidation of underlying assets could disrupt conditions on commercial paper and other short-term debt markets. (OECD, 2022, p. 10)

3.7. The impact of the Russian-Ukrainian war on Algeria "energy gains and food concerns"

With the increasing intensity of the Russian political dispute with the European Union, and then its transition to an indirect armed conflict between the two parties after the Russian invasion of Ukraine starting from February 24, 2022, European concern escalated about the security of its supplies of natural gas from Russia, and in the face of these concerns and the state of anxiety escalates, one day after another, European voices calling for abandoning Russian gas as a stable strategy for supply security.

Although the European Union did not reach, until the end of June 2022, a binding agreement for its countries regarding the abandonment of natural gas supplies from Russia, it has already begun a short and long-term energy strategy that includes, in a first step, giving up 90% of Russian gas supplies by 2024. Then, in a second phase that will last for years, the total abandonment of Russian natural gas. (Roulami, 2023, p. 32)

Algeria has emerged as a safe haven that may contribute to strengthening the energy security of the European Union countries and ending its dependence on Russian gas. This may be achieved by increasing the quantities of gas exported, and this is what leads us to search for Algeria's ability to export additional quantities, the limits of its energy resources and the adequacy of these resources. And how to preserve it, and in this regard it appears clearly that the Algerian petroleum capacities are limited, and what reinforces this proposition is the presence of several factors, the most important of which are: (Benaichouba, 2022, p. 459)

- By analyzing the data on oil reserves in Algeria and trends in energy exploitation (production), the period of depletion of the reserves may not exceed 13 years, meaning that the depletion of oil may be around the year 2035.
- The annual discoveries achieved by the Algerian company Sonatrach and its international partners only compensate for what has been consumed.
- Algeria's reliance on a limited number of giant oil fields that occupy the largest share of production, which do not exceed four fields, most notably Hassi Messaoud and Hassi R'Mel, which represent the largest share of production by nearly 60 percent.

And if the Algerian oil energies seem limited, the gas reserves are considered enormous, and they are likely to increase thanks to the successive discoveries, as the statistics indicate that the undiscovered gas reserves amount to 6000 billion cubic meters, which represents 14 out of the total of 43400 billion cubic meters, which is the size of those reserves that do not exist. It is still undiscovered in the Arab world, and these energies exist through more than eighty gas fields, representing reserves estimated at about 4.500 billion cubic meters distributed in seven different regions, the most important of which is the Hassi R'mel field (reserves exceeding 2000 billion cubic meters), which is considered one of the most important fields of natural gas accumulation. In the world, it contains equipment capable of receiving production estimated at: 250 million cubic meters per day, in addition to the Adrar region, which contains equipment capable of receiving production estimated at 18.5 million cubic meters per day, as well as in the recent period, the regions of Ain Saleh and Ain Amnas.

Algeria has always had an important role in the gas equation in Europe, after Russia and Norway, with 11.9% of the continent's gas imports in 2020, and among the factors that supported Algeria's occupation of this position, we find the geographical proximity to the European Union countries, which strengthened the Euro-Algerian economic rapprochement as a whole. And not only energy, in addition to the above, Algeria relied in many of its contracts on a policy of preferential prices with strategic partners on the European side, and it has reached the point of approving the cost of Algerian gas in some contracts equivalent to half the cost of Russian-Norwegian gas.

Food is considered the most important element for the continuation of economic and political security for different countries, and therefore it is necessary to anticipate the future of food security in Algeria. (Benaichouba, 2022, p. 460)

Algeria imports wheat from partners in the European Union, which makes its commercial relationship with the European Union the direct channel for transmission of the food crisis related to the consequences of the Russian-Ukrainian war.

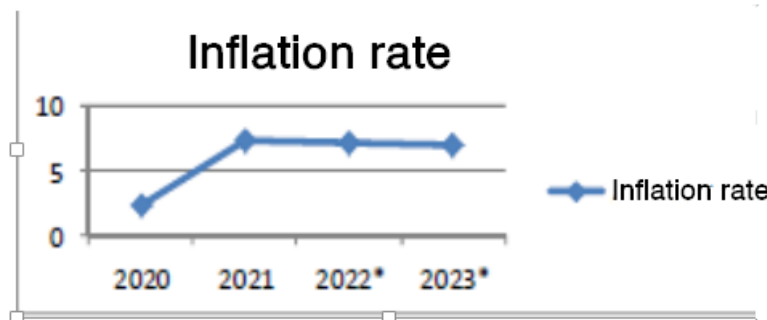


Figure 8: Recorded and expected inflation rates in Algeria during the period 2020-2023.

Source : (Khochmane & Mechache, 2022, p. 524)

Through the curve, inflation rates and their expectations have evolved until the year 2023, which flared up since 2020 as a result of the deficit recorded at the budget level and the increase in public debt due to the collapse in oil prices, in addition to the growing social role of the state to contain the consequences of the Covid-19 nation. In light of the deterioration of the food security situation at the global level, Figure 9 shows the implications of inflation on the per capita purchasing power in Algeria. (Khochmane & Mechache, 2022, pp. 523-524)

Figure 9: The evolution of per capita real output in Algeria during the period 2020-2023.



Figure 9: The evolution of per capita real output in Algeria during the period 2020-2023.

Source: (Khochmane & Mechache, 2022, p. 524)

Since 2020, food security in Algeria has been negatively affected as a result of the consequences of the Covid-19 crisis, where the real GDP per capita decreased by 8.6 percent during the year 2020, and it is expected to decline in 2023 by more than 6.0 percent in light of the prevailing conditions that threatened food security and contributed to the deterioration of the situation. (Khochmane & Mechache, 2022, p. 525)

4. Conclusion

The potential global repercussions of the Russian-Ukrainian war indicate that the countries that will feel the most stress are those that depend on imports of oil and natural gas, and countries that depend heavily on importing food commodities from Russia and Ukraine, especially that suffer from severe levels of hunger and food insecurity.

fluctuations in energy prices and exchange rates are two serious consequences of the war that could significantly impact market expectations for bank stocks, a proxy for the perceived soundness of the financial system. (Boubaker, Nguyen, Quang Trinh, & Vu, 2023, p. 26)

Thus, the already very serious consequences come from the risk of a boom in energy and commodity prices - including wheat and other grains - which increases inflationary pressures as a result of supply chain disruptions. The price shock will have an impact on the entire world, especially on poor families whose expenditures are greater than food and fuel.

The long-term consequences of the war in Ukraine will depend on current policy responses and priorities. Most recently, policy makers have been promoting energy efficiency and low-carbon sources of energy production, which is in line with the "green" goals of a transition affordability higher in their agenda. (Izzeldin, Muradoglu, Pappas, Petropoulou, & Sivaprasad, 2023, p. 12)

It is also vital to promote domestic food systems, targeting the development of multiple shorter supply chains based on seasonal and traditional products. Consumers should redefine how they consume energy, goods, and food and become the driving force of the noted transformations (Galanakis, 2023, p. 10).

References

- Abdel Qader, E. (2022, December). The Expected Effects of the Russian-Ukrainian Crisis on the Egyptian Economy. *Scientific Journal of Economics and Trade, Volume 52(4)*.
- Adam , R., Zhenhua , C., & Dan , W. (2023, March 30). The economic impacts of Russia–Ukraine War export disruptions of grain commodities. *Applied Economic Perspectives and Policy, 45(1)*.
- Balbaa, M., Eshov, M., & Ismailova, N. (2022, , December 15). The Impacts of Russian-Ukrainian War on the Global Economy. *ICFNDS*.
- Benaichouba, R. (2022, December 31). Algeria's contribution to the energy security of European Union nations in the light of the Russian-Ukrainian war. *Research Journal, 7(2)*.
- Ben Hassen , T., & El Bilali, H. (2022, August 2). Impacts of the Russia-UkraineWar on Global Food Security:Towards More Sustainable and Resilient Food Systems? *foods, 11(15)*.
- Boubaker, S., Nguyen, N., Quang Trinh, V., & Vu, T. (2023, January 19). Market Reaction to the Russian-Ukraine War:A Global Analysis of the Banking Industry. *Review of Accounting and Finance, 22(1)*.
- Darvas , Z., & Martins, C. (2022, DECEMBER 20). The impact of the Ukraine crisis on international trade (WORKING PAPER). (20). Bruegel.
- Fazle Rabbi , M., Ben Hassen, T., El Bilali, H., Raheem, D., & Raposo, A. (2023, March 7). Food Security Challenges in Europe in the Context of the Prolonged Russian–Ukrainian Conflict. *Sustainability, 15(6)*.
- Galanakis, C. (2023, February 7). The “Vertigo” of the Food Sector within the Triangle ofClimate Change, the Post-PandemicWorld, and theRussian-UkrainianWar. *foods, 12(4)*. Retrieved from <https://doi.org/10.3390/foods12040721>
- Guénette, J. D., Kenworthy, P., & Wheeler, C. (2022, April). Implications of the War in Ukraine for the Global Economy. *Word Bank Group*.
- Izzeldin, M., Muradoğlu, Y. G., Pappas , V., Petropoulou , A., & Sivaprasad , S. (2023, February 17). The impact of the Russian-Ukrainian war on global financial markets. *International Review of Financial Analysis*. Retrieved from <https://doi.org/10.1016/j.irfa.2023.102598>
- Jagtap, S., Trollman, H., Trollman , F., Garcia-Garcia, G., Parra-López, C., Duong, L., . . . Afy-Shararah, M. (2022, July 14). The Russia-Ukraine Conflict: Its Implications for the Global Food Supply Chains. *foods, 11(14)*.
- Mariotti, S. (2022, July 4). A warning from the Russian–Ukrainian war: avoiding a future that rhymes with the past. *Journal of Industrial and Business Economics, 49(4)*.
- Minh Ngoc, N., Thanh Viet, D., Hoang Tien, N., Minh Hiep, P., Tuan Anh, N., Hue Anh, L., . . . Huong Thao, L. (2022, June). Russia-Ukraine war and risks to global supply chains. *International Journal of Mechanical Engineering, 7(6)*.
- Nasir, M. A., Nugroho, A. D., & Lakner, Z. (2022). Impact of the Russian–Ukrainian Conflict on Global Food Crops. *foods*.
- Pereira, P., Zhao, W., Symochko, L., Inacio, M., Bogunovic, I., & Barcelo, D. (2022). The Russian -Ukrainian armed conflict will push back the sustainable development goals. *Geography and Sustainability, 3(3)*.
- Riyad, G. (2022, September). Repercussions of the Russian-Ukrainian War on the Egyptian Economy: "Wheat Crop as an Example". *National Social Journal, 59(3)*.
- Saifi, W. (2022, October 10). The dual impact of the Russian invasion of Ukraine on global supply chains and public spending - a study. *Critic Journal for Political Studies, 06(02)*.
- Tuna, F. (2022, october 22). Political Assessment of The Effect of Russian-Ukrainian War on The Energy Markets. *JOURNAL OF FINANCIAL ECONOMICS AND BANKINGA, 3(2)*.
- FAO. (2022). *Impact of the Ukraine-Russia conflict on global food security and related matters under the mandate of the Food and Agriculture Organization of the United Nations (Hundred and Seventieth Session)*.
- Hani, M. (2022). The Russian war on Ukraine and its impact on Global Economy: Reality and Lessons Learned. *Journal of the Institute of Economic Sciences, 25(2)*.
- Khochmane, E., & Mechache, N. (2022, December 31). Food security in crises- A reading in the costs of the Russian-Ukrainian war onthe Algerian economy as a model -. *New Economy Journal, 17(1)*.
- OECD. (2022). *Impacts of the Russian Invasion of Ukraine on Financial Market Conditions and Resilience: Assessment of Global Financial Markets*. Paris. Retrieved from <https://doi.org/10.1787/879c9322-en>
- Roulami, A. (2023, March 03). Transformations of the European gas market after the Russia-Ukraine war and the position of Algerian gas towards competitors. *North African Economics Journal, 19 (31)*.

Unicef. (2022). *the socio-economic repercussions of the russia-ukraine_war_on_yemen*. Republic of Yemen Ministry of Planning & International Cooperation Economic Studies & Forecasting Sector.

Educational policies to promote the knowledge economy and the technological development in Ecuador

Marcelo Varela - Enríquez

Doctor (Ph.D.) in Social Sciences specialized in Applied Economics, University of Salamanca. Dean of the School of Public Economics and Strategic Sectors and tenured research professor at the Institute of Advanced National Studies. Professor at the Central University of Ecuador. ORCID: <https://orcid.org/0000-0003-4721-8229>.
E-mail: marcelo.varela@iaen.edu.ec ; avarela@uce.edu.ec

Gustavo Salazar - Espinoza

Economist from the Central University of Ecuador, Student's Master of Development Economics from the Latin American Faculty of Social Sciences (FLACSO Ecuador). Economic research consultant.
ORCID: <https://orcid.org/0000-0003-4942-0842>
E-mail: gustavoandrian016@gmail.com

DOI: <https://doi.org/10.19275/RSEP162>

Article Type: Original/Research Paper

Article History

Received: 7 June 2023 Revised: 5 September 2023 Accepted: 16 September 2023 Available Online: 18 September 2023

Keywords: educational policies, higher education, knowledge economy, educational offer, technological development
JEL classification: H52; I28; O38.

Citation: Enríquez, M.V. & Espinoza, G.S. (2023). Educational policies to promote the knowledge economy and the technological development in Ecuador. *Review of Socio-Economic Perspectives*, 8(3), 23-41.

Copyright © The Author(s) 2023 This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

The objective of this research is to define educational policies to promote the knowledge economy and technological development. For this, the objective is to determine the existing conditions for the development of the knowledge economy in Ecuador, and the connection with the business structure (public and private) to promote the country in technological development, so that higher education comply with the principle of relevance. To analyze the theoretical perspectives with the empirical results, two models were made that cover the evolution of the knowledge economy. The main results show that when investment in education is greater, the knowledge economy grows and is reflected in exports with a higher technological level. For the Ecuadorian case, it is recommended to carry out an educational reform and increase investment in education, and in science and technology, that promotes technological development.

1. Introduction

Ecuador is a developing middle-income country with an educational offer that must be linked to the productive structure through the definition of public policies where the state has a strong intervention. The fact of having a primary export productive structure defines the importance of developing the knowledge economy to promote not only productive development but also technological development, since the knowledge economy "is an economy in which the creation, distribution and use of knowledge it is the greatest driver of growth, wealth and employment" (Heng, et al: 2002, p. 9). In this regard, in the Organic Law of Higher Education -LOES-, the Council of Higher Education (2010) in article 107 established as a principle of relevance the following:

"The principle of relevance is that higher education responds to the expectations and needs of society, to national planning, and to the development regime, to the prospect of global scientific, humanistic and technological development, and to cultural diversity. For this, the higher education institutions will articulate their teaching offer of research and activities of connection with the society, to the academic demand, to the needs of local, regional and national development, to the innovation and diversification of professors and academic degrees, to local, regional and national occupational market trends, local, provincial and regional demographic trends; to the link with the current and potential productive structure of the province and the region, and to the national science and technology policies" (p. 43).

For Tünnermann (2000) higher education must be oriented towards policies that respond to social relevance; Although the demands of the economy and the labor sector must be considered, it is also imperative to broaden its attention to the challenges of society as a whole. On the other hand, according to Taccari (2007), education achieves quality when it is articulated with people's conditions (defined by the author as relevance), and with development challenges (defined by the author as relevance). Finally, for Hamid, Álvarez and Torres (2017), relevance studies must consider: i) needs of the work environment; ii) need; iii) influence of educational training; iv) relationship between curriculum and environment. Therefore, the first objective of this research is to determine the existing conditions for the development of the knowledge economy in Ecuador, and the connection with the business structure (public and private) to promote the country in technological development. So, higher education complies with the principle of relevance. Therefore, the first research question is what are the existing conditions for the development of the knowledge economy in Ecuador, and the connection with the business structure (public and private) to promote the country in technological development?

The answer is given later by demonstrating the link between education and the productive structure and technological development, based on educational policies that arise from economic policies of greater spending and fundamentally greater public investment.

In addition, it should be considered as a condition for the development of the knowledge economy, that a production that goes hand in hand with greater human capital (education) generates technological improvements that are reflected in greater competitiveness as a result of exports with the incorporation of greater technological level, but the following tables show the opposite. The share of exports with high technological intensity has been decreasing since 2017 as a result of lower public investment in education, while imports with high technological intensity have increased since 2017, after imports had been decreasing since 2013 as a consequence of greater exports with high technological intensity, that is, as of 2017, imports with high technological intensity have been increasing, unlike exports with the incorporation of high technology, which have been decreasing since 2017.

Table 1. Share of exports according to technological intensity, percentage, 2013-2022.

Years	Low technology	Medium Technology	High technology
2013	1,92%	2,35%	0,48%
2014	1,96%	2,11%	0,64%
2015	1,62%	1,76%	0,91%
2016	1,42%	1,37%	0,90%
2017	1,44%	1,25%	0,79%
2018	1,50%	1,62%	0,53%
2019	1,43%	1,35%	0,51%

2020	1,26%	1,37%	0,38%
2021	2,00%	1,61%	0,46%
2022	1,79%	1,78%	0,69%

Source: *Central Bank of Ecuador. Elaboration: Authors.*

Table 2. Share of imports according to technological intensity, percentage, 2013-2022.

Years	Low technology	Medium Technology	High technology
2013	10,74%	35,03%	14,57%
2014	10,44%	35,01%	14,98%
2015	9,11%	28,16%	12,18%
2016	6,66%	21,18%	9,96%
2017	8,42%	27,24%	10,49%
2018	9,46%	31,15%	11,39%
2019	9,13%	30,53%	11,05%
2020	7,23%	22,46%	10,78%
2021	9,62%	30,51%	13,48%
2022	11,42%	36,97%	13,54%

Source: *Central Bank of Ecuador. Elaboration: Authors.*

The result, as of 2017, the trade deficit with the incorporation of high technology presents the same dynamics, after reducing between 2013 and 2017, it begins to increase as of 2017, which is generating loss in the development of the economy of the country. knowledge, as shown below.

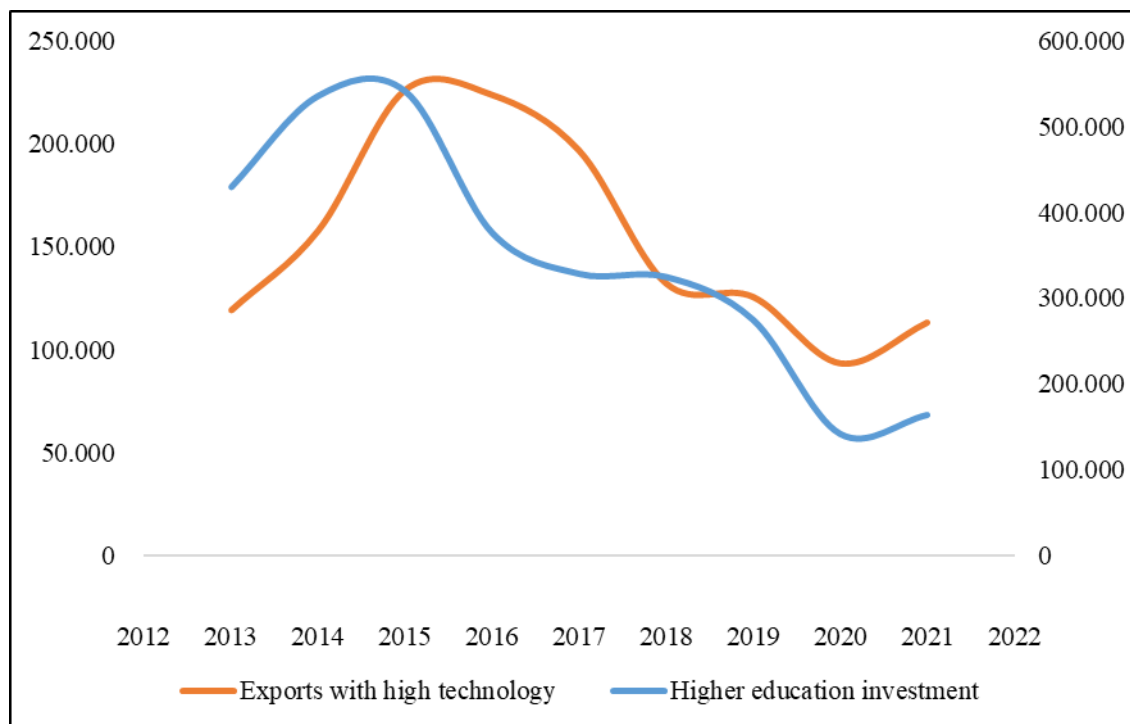
Table 3. Trade deficit according to technological intensity, thousands of dollars, 2013-2022.

Years	Low technology	Medium Technology	High technology
2013	-2.290.681	-8.444.278	-3.635.929
2014	-2.205.673	-8.496.692	-3.700.734
2015	-1.946.121	-6.818.396	-2.911.408
2016	-1.365.558	-5.118.788	-2.342.202
2017	-1.812.176	-6.709.296	-2.506.855
2018	-2.067.318	-7.624.954	-2.801.844
2019	-2.000.051	-7.530.051	-2.722.050
2020	-1.550.768	-5.449.050	-2.683.174

2021	-1.982.000	-7.463.719	-3.359.566
2022	-2.499.389	-9.083.624	-3.317.664

Source: *Central Bank of Ecuador. Elaboration: Authors.*

In addition, it can be seen in the following graph that the relationship between public investment and higher education is closely related, the higher the investment in higher education, the higher the export with the incorporation of high technology, or the lower the investment in higher education, the lower the export with the incorporation of high technology.



Graph 1. Investment in higher education and exports with the incorporation of high technology, 2013-2021, thousands of dollars.

Source: *Central Bank of Ecuador. Elaboration: Authors.*

2. Literature Review

Saenz de Miera (1998) points out that over time Universities have become "knowledge factories"; and in the current century the relevance, social responsibility and accountability on the part of the Universities is essential to face the current process of globalization where the knowledge society and the knowledge economy is linked to technological development, that is, new forms of knowledge production in a globalized world. David and Foray (2002, p. 1) point out "that knowledge has always occupied the central place of economic growth and the progressive elevation of social welfare. The ability to invent and innovate, that is, to create new knowledge and new ideas that later materialize in products, procedures and organizations, has historically fueled development.

According to Edward Steinmueller (2015) the knowledge-based economy makes a big difference between the conduct of economic life and the organization existing in companies, since the economy of a country also depends on the success of companies based on the effectiveness have to generate and use knowledge.

"Although scientific and technological knowledge is of key importance, knowledge about how to organize and manage economic activities, especially those involving the application of new scientific and technological perspectives, is also a crucial determinant of economic performance. In short, knowledge contributes to the economy by sustaining productivity increases, the formation and growth of new industries, and the organizational changes necessary to effectively apply new knowledge." (p. 2).

In this sense, the knowledge economy has become a factor of competitiveness and development because one of its characteristics is to allow the more systematic exploitation of knowledge with the use of new technologies to create wealth (Brinkley, 2006: 6). In addition, as the OECD (2004: 9) points out, "the role of knowledge (compared to natural resources, capital and low-skilled labor) has become more important. Although the pace

may differ, all OECD economies are moving towards a “knowledge-based economy”, and economic success is increasingly based on the effective use of intangible assets such as knowledge, skills and innovative potential as the key resource for competitive advantage (Dahlman et al, 2005). Therefore, the term *knowledge economy* is used to describe this emerging economic structure.

According to Dahlman and Andersson (2000, p. 5) "a knowledge-based economy is one in which knowledge (codified and tacit) is created, acquired, transmitted and used more effectively by companies, organizations, individuals and communities for a further economic and social development. However, the preamble to the knowledge economy is the "learning economy" in which the result of the teaching-learning process, the cognitive process, results in the information acquired and obtained; and all information transmission, analysis and retention translates into intelligence. Therefore, in any learning process, the use of technology-based tools develops human knowledge and intelligence, as part of a social process in which skills and abilities are part of that conjunction in economic success. as they point out Reig Martinez et al (2017: 61).

“The role of human knowledge as a transcendental factor in explaining the growth capacity of modern economies is widely recognized today. Investments in knowledge make it possible to improve the productivity of the other factors that contribute to production, and allow their transformation into new products and the use of new production processes. Knowledge, or more simply ideas, constitutes a resource characterized by increasing returns in its use, which gives it a determining role as a key to long-term economic development.”

The greatest successes of knowledge-based economies, where public investment in education has high levels such as in Finland, Sweden, South Korea, Singapore, among others, have been based on obtaining a highly qualified labor force with a class business that uses and adapts knowledge in an economic system where the state stimulates and fosters the creation of knowledge through distributive economic policies in a framework of high access to information and communication technologies that streamlines the exchange of information within a national innovation system. In the case of Ecuador, as part of this process of creating innovation and technological development, Yachay was the Emblematic University to achieve the knowledge economy, however, the policies of structural adjustment and reduction of the state (austericide) did not only that they have minimized the size and role of the state, but they have minimized the innovative role of Yachay, which is destined to disappear as a result of these structural adjustment policies.

Therefore, "education, as a central and core element of knowledge-based economies, affects both the supply and demand of innovation processes, since a trained labor and business force will be in a better position to create, adopt, and transform technologies." , while an educated population will generate a demand for new and better products" (Del Valle et al, 2005), and hence the importance of the existence of a national innovation system as a "network of public and private institutions that finance and they carry out research and development, translate the results of these investigations into commercial innovations and carry out the processes of diffusion of new technologies" (Mowery & Oxley, 1995; p. 68)

Despite the difficulties in measuring knowledge, Steedman (2001) defines four fundamental categories are:

1. Creation of knowledge
2. Acquisition/transfer of knowledge
3. Dissemination of knowledge
4. Application of knowledge

And these categories have been defined with proxy variables, as Heng et al (2002) determined.

Table 4. Indicators and variables to be measured in different phases of knowledge

Proxy Indicator	Variables to measure
Knowledge creation	
I&D spending as a percentage of GDP	I&D intensity in the economy
Researchers per capita	Availability of human resources necessary to carry out R&D activities
Patents per capita or Academic publications	Quality of scientific creation
Acquisition and transfer of knowledge	
Percentage of imports with technological content	Content of technological knowledge included (embedded) in the imports
Number of central and regional offices of companies in the country	Number of companies with specialized knowledge established by multinational and regional companies
Number of companies in the knowledge-intensive services sector	Services provided to knowledge-intensive industries, promotion of the creative process and the acquisition and transfer of knowledge by activities
Dissemination of knowledge	
Spending on information and communication technologies (ICT's)	Intensity of information and communication resources and infrastructure available for the transfer and dissemination of knowledge
Internet access costs as a percentage of GDP per capita	Accessibility of ICT services as a determinant of use
Percentage of labor force with secondary education	Linguistic and technological skills necessary to make use of ICT's
Application of knowledge	
Percentage of labor force with higher education	Ability of the workforce to search, process and use relevant information
Percentage of knowledge workers in the labor force	Number of jobs that require and promote the application of knowledge
Rank of business conduct (entrepreneurship) according to the world competitiveness yearbook	Capacity of the economy to create new business models that promote the creation, acquisition, dissemination and application of new ideas and processes

Source: *Heng et al (2002)*.

In addition, the existence of intangible assets in the generation of knowledge based on capital must be considered, which is not only for companies that are in the service sector or on the technology frontier. Knowledge-based economies have different degrees of success, and this depends on how resources are directed towards companies that have great growth potential and have greater R&D or innovation processes. As Andrews and Criscuolo (2013: 22) point out, "the proper functioning of the product, labor and capital markets, and the reduction of the costs for companies to experiment with new ideas, and even to fail, constitute a pillar essential to ensure that difficulties in reallocating productive resources do not hinder the development of the knowledge economy".

Undoubtedly, the knowledge economy implies that companies reduce their costs in innovation processes, reduce their costs in resource allocation, and hence how important the role of the state. If the state allocates more public investment to higher education, companies would have a more trained workforce and would not have to spend/invest in obtaining knowledge. If the state intervened in the financial market and reduced the spread (see Varela, 2017, 2021), that is, a higher passive interest rate to generate more deposits and with it more credit, and reduce active interest rates, since there are more Deposits can allocate greater credits, this would reduce the financial costs of companies and easier access to credit that will not only be for production processes, but also for R&D processes. If the state provided cheaper energy to companies, cheaper services, the costs of companies would be reduced. If the state gave tax incentives to smaller companies, they could direct those resources towards R&D processes. If the state will carry out a tax reform of progressive taxation for companies, where the smaller ones would have a lower tax effort, they could allocate these resources to R&D processes (see Varela and Salazar, 2022). If the state develops more complexes for the generation of knowledge and innovation for technology transfer, for example the Yachay University, the costs of access to technology for companies would be lower. That is, the state is fundamental in the development of the knowledge economy and technological development, and the result would be a successful economy with a diversified productive structure (see Varela, 2018).

The evidence of the knowledge economy is extensive, but it is worth considering what Del Valle et al (2005: 62) said:

"The complexity of the treatment of knowledge within the framework of a theory of production has led economists to develop simplifications that allow its management. Among them is reducing the production of knowledge to the generation of research and development (R&D), an activity for which abundant statistical information is available today. But in reality, the analysis of the R&D undertaken by companies, universities and other specialized private and public centers is a relatively small part of the set of activities related to the production of knowledge. In fact, any activity related to the production or use of a good or service can contribute to the production of knowledge, for example through learning by doing."

Marquina and Rozga (2015) point out that the greatest experience in the generation of knowledge occurred in the Silio Valley in California when, with state support, there was the greatest increase in high-tech ventures. In this process, the intervention of the state generated the result of "post-industrial cities" where the state with the collaboration of the Universities and the industry:

"Design strategies that would give a boost to the dynamics of knowledge in cities and megalopolitan regions and thus increase the value of their economy and the possibilities of a greater economic spillover that would translate into an improvement in the living conditions of the urban population. Since then, experiences of cities began to be systematized that emphasized the importance of knowledge as a basis for development at the dawn of the 21st century" (p. 12).

Regarding what was said above, Richard Knight (1995: 13) underlined:

"In post-industrial society knowledge had become the fundamental force that was restructuring cities. He argued that knowledge-based development requires attention to the extent that societies prosper towards knowledge-based organizational models and, therefore, cities play a strategic role since the greatest resources of both knowledge and equipment are concentrated in them (universities and public and private research centers) as well as intellectual capital".

Hence the link between the role of the state and knowledge determines a system of capitals of knowledge cities.

Table 5. Taxonomy of the capital system of knowledge cities

Type of capital	Indicators and dimensions
Capital Aim	<ol style="list-style-type: none"> 1. Referential: identity, responsibility 2. Articulation: integration and cohesion; equity; legality; financing
Human Capital	<ol style="list-style-type: none"> 1. On an individual basis: ethnic diversity, health, education, socio-economic level. 2. Collectively based: living cultures (languages, religions, customs, clothing, food, celebrations and rituals) 3. Evolving capacities: diversity, tolerance, participation
Instrumental Capital	<ol style="list-style-type: none"> 1. Tangible: geography, environment; infrastructure (basic service networks, land use planning, equipment, etc.) 2. Intangible or symbolic: public institutions, procedures, government system, political powers; commercial institutions, civil society organizations; physical and digital information platforms; memory physical and digital collective.

Source: Carrillo (2002, 2004).

Similarly, in this state-knowledge link, development measurement indices have been developed.

Table 6. Indicators for the construction of the index for measuring the development of Regional Knowledge Economies

Indicator	Measurement index
Education Subsystem	SE1- Average years of school education
	SE2- Percentage of population with higher education
Research and Development Subsystem	SID1 – Researchers at the SNI
	SID2 – Patent application
Productive-Innovative Subsystem	SPI1 – Number of technology-based companies
	SPI2 – Companies that have applied for patents
Dissemination and Promotion Subsystem	SDP1 – I&D dissemination and promotion centers
	SDP2 – Number of users of dissemination and promotion centers
Financing Subsystem	SF1 – Number of financial supports for I&D
	SF2 – Amount of financial support for I&D
Information Infrastructure Subsystem	SI1 – Percentage of households with a computer
	SI1 – Percentage of population with Internet access

Source: Rozga, 2010

Vilaseca et al (2002) in a study for the Spanish economy, in which they analyze technological development, that is, the penetration of digital technologies in the activity of economic agents, and its structural evolution, that is, the economic dynamics of the transformation process sector, which is the information and communication technology sector, conclude as follows:

“The development of the demand for goods and services resulting from the economic application of information and communication technologies is much more advanced than the development of the offer, represented by the indicator of economic development of the ICT sector. This conclusion is even more relevant when comparing the dynamics between ICT demand and supply in the group of less developed countries. In fact, we can close this section by stating that, in countries like Spain, with regard to the development of the information society, society as a whole is clearly more advanced than the business sector, as has been observed in the analysis of the indicator related to the economic development of the ICT sector.” (p. 33).

Pérez, Hernández and Mendoza (2018), in a study for Mexico, detect public policy problems directed towards supply or market failures, the misdirection of tax incentives, trade opening as the main element in the knowledge economy as a dimension of the preconditions of development, and the lack of a culture of innovation associated with deficient levels of schooling prevent "promoting, extending and generalizing the knowledge economy." (p.9) and conclude that:

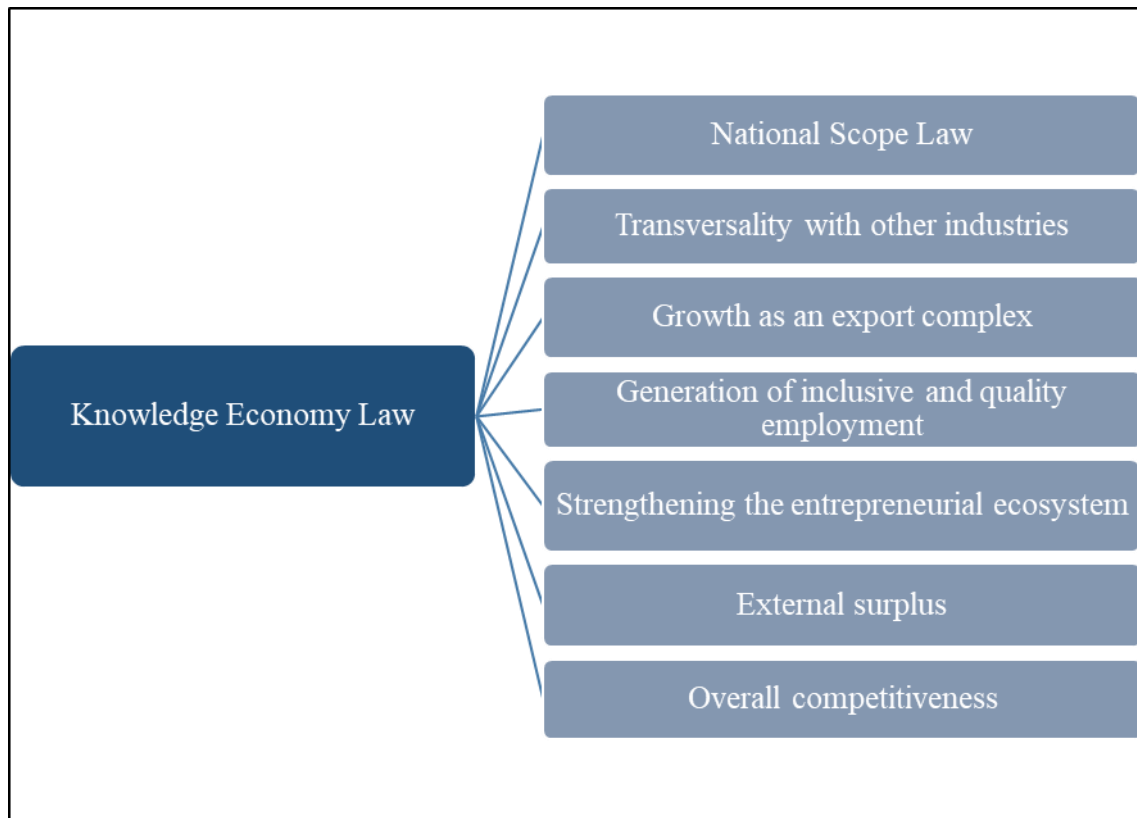
“There are priority challenges in the dimension of the preconditions for development, which implies that this is a problem that has a certain social endorsement, because both experts, analysts and society; they perceive failures that have to do with macroeconomic stability, economic incentives and the institutional regime, the degree of commercial openness, the labor market, social or cultural factors and the policy of CTI itself. Therefore, in order to intensify the knowledge economy, the quality of the environment in which economic, scientific and technological activities take place should initially be ensured.” (p. 1).

The knowledge economy has been widely discussed in various organizations and countries, including Argentina, where the development of productive transformation strategies linked to the knowledge economy have been defined. Paula Szenkman, Secretariat for Productive Transformation, announced that Argentina is working on a new law to promote the knowledge economy. "The knowledge economy will allow us to increase productivity across the entire economy." For this, "we are working on a new framework of incentives for these activities, as well as instruments for the development of talent, the reduction of export costs and the reinvestment of profits towards innovation." (<https://conexionintal.iadb.org/2018/10/31/hacia-una-economia-del-conocimiento/>).

In the development of strategies linked to knowledge and the digital economy, in all its aspects, from the opportunities offered by electronic commerce, to the challenges of regulating data exchange. We are experiencing a very accelerated exponential change that requires rethinking the current production models and structures. Progress is being made towards "hybrid processes that combine the physical and the digital, biology with knowledge, human intelligence with artificial intelligence". (Gustavo Beliz, Director of INTAL-IDB).

Rodrigo Filgueira, Project Coordinator of the Inter-American Center for the Development of Knowledge in Vocational Training (Cinterfor) of the ILO has pointed out "Creativity, communication, critical thinking and problem solving are some of the most frequent, it is necessary to modify educational systems and pedagogical practices to develop these skills. What we propose is a teaching based on research and the realization of projects. We must encourage ourselves to innovate in curricular designs". (<https://conexionintal.iadb.org/2018/10/31/hacia-una-economia-del-conocimiento/>).

The Secretariat of Productive Transformation of Argentina has defined the importance of the Knowledge Economy through a Law: "The knowledge economy is vital for the growth of Argentina. They are the industries and services that would make it possible to take a leap in the country's development, which will transversally increase productivity and job creation throughout the economy" (Paula Szenkman, Secretariat for Productive Transformation).



Graph 2. Knowledge Economy Law, Argentina.

Source: Secretary of Productive Transformation of Argentina.

Finally, it can be pointed out that the knowledge economy is made up of those productive activities that are characterized by the intensive use of technology and that require highly qualified human capital, and represents sectors with enormous development potential for future generations. It requires a promotion regime in: Software, computer and digital services; audiovisual production and post-production; biotechnology, neurotechnology and genetic engineering; geological and prospecting services; aerospace and satellite industry; professional export services; nanotechnology and nanoscience; artificial intelligence, robotics (IOT), internet of things. For all these reasons, the role of the state with a view to the future requires different productive strategies, which, on the one hand, in developing countries and with a primary exporting structure, demand to diversify the productive structure based on the implementation of supply and demand policies. aggregate (see Varela, 2021) to move towards an economy of knowledge and technological development.

3. Methodology and Results

A balanced panel data model was made using the process for the adequate selection of evaluators in short panel data, proposed by Cameron and Trivedi (2009), and Álvarez, Perdomo, Morales and Urrego (2013). In such a way that, it starts by identifying if there is unobserved heterogeneity due to the presence of constant terms in time that vary between observed units. In the event that this component exists, the model can be estimated with fixed effects and/or random effects.

In subsequent calculations, X represents the model regressors, α is the model constant, and ε is the terminal error of the model. If α represents an unobservable variable in the model that varies between individuals, but not over time, since it is constant and is related to the regressors, a fixed effects model should be used, while if it is not related to the regressors it can be considered as randomness and applying the random effects model. Therefore, there is also a discussion about the endogeneity of the X variables, where when there is evidence that random effects prevail, it can be approximated that the regressors are related to the error term.

The Ordinary Least Squares (OLS) model is presented in equation [I] where there is a single constant for all the observed units and their respective times. In this case, the estimators are consistent if the appropriate model is the random effects model. In this type of model, a different specification can be considered depending on the behavior of the errors, for example, an autoregressive process of order one (AR1) has the following error specification [II].

The random effects (EA) model assumes that the time-invariant component of the error can be treated as random and is not related to the regressors, it presents a specification where each observed unit has a different intercept [III]. On the other hand, the fixed effects (EF) model eliminates unobserved individual effects through the calculation of means, it is consistent despite the existence of endogeneity with the time-invariant component of the error, the specification of the model [IV] includes v_i as a binary variable that holds the difference between the observed units fixed.

$$y_{it} = \alpha + \beta_k X'_{it} + u_{it} \tag{I}$$

$$u_{it} = \rho_1 u_{it-1} + \epsilon_{it} \tag{II}$$

$$y_{it} = \alpha_i + \beta_k X'_{it} + u_{it}, \alpha_i = \alpha + e_{it} \tag{III}$$

$$y_{it} = v_i + \beta_k X'_{it} + u_{it} \tag{IV}$$

In the analysis of panel data, the variability of the dependent variable can be captured by the variability within [V] of the regressors (given for the same unit observed in several periods of time) and/or by the variability between [VI] of the regressors (it occurs between the units observed at one time). The combination of both variations is called overall [VII]. It should be noted that, according to (Baltagi, 2005, p.200), the between estimator tends to estimate long-term relationships, while the within estimator tends to estimate short-term relationships. Collaterally, Kennedy (2008, p. 287) indicates that if there were only observations in cross-section, the OLS regression produces long-term estimators, on the contrary, if there were a unit observed in several periods of time, effects would be estimated. Short-term.

$$S^2_w = \frac{1}{NT-1} \sum_i \sum_t (x_{it} - \bar{x}_i + \bar{x})^2 \tag{V}$$

$$S^2_B = \frac{1}{N-1} \sum_i (\bar{x}_i - \bar{x})^2 \tag{VI}$$

$$S^2_O = \frac{1}{NT-1} \sum_i \sum_t (x_{it} - \bar{x})^2 \tag{VII}$$

To quantify the relationship between public spending on education and economic growth in Ecuador, it is proposed to estimate a panel data model at the provincial level with annual information. For which information from different databases was collected and estimated as shown in the following table. The specification of the model considers the incorporation of variables carried out by previous studies such as Cerquera et al (2022), Alataş and Çakir (2016), Ngepah et al (2021) and Odhiambo (2020). In this sense, the variable of interest is public spending on education controlled for demographic and business factors.

Table 7. Databases used for the econometric model

Entity	Base number	Variables	Notes
Central Bank of Ecuador	1	Gross value added by province	Provincial accounts were used to address economic growth through the variation of the provincial gross value added of all economic activities.
World Bank	2	Public spending on education. GDP at current prices, national currency.	Public spending on education was obtained by multiplying: the indicator of the % of public spending with respect to GDP by Ecuador's GDP.

Entity	Base number	Variables	Notes
National Institute of Statistics and Censuses	2	Population estimated by province. Total, hospital discharges by province.	The total provincial population that was estimated for the death tabulations was used. Likewise, the total number of hospital discharges was used as a proxy variable for the health of the population in each province.
Superintendence of Companies	12	Average registered employment. Average income tax caused.	The databases of the Ranking of companies of the Superintendence of Companies were used to estimate the indicators considering legal persons in active status.

Source: Central Bank of Ecuador, World Bank, National Institute of Statistics and Censuses, Superintendence of Companies. Elaboration: Authors.

The estimated model has the following specification, where the determinants of the growth rate of the provincial gross added value are analyzed. It should be noted that growth rates and variations were used so that the series are stationary and avoid making spurious regression errors when correlating trends of the variables.

$$tvab_{it} = \alpha + \beta_1 tedu_t + \beta_2 dpob_{it} + \beta_3 tegr_{it} + \beta_4 tigad_{it} + \beta_5 demp_{it} + \beta_6 dirc_{it-1} + u_{it}$$

Where:

$i = 1, \dots, 23$ (provinces of Ecuador, Galapagos not included)

$t = 2013, 2014, \dots, 2019$

$tedu$ = Growth rate of public spending on education

$dpob$ = Population variation

$tegr$ = Growth rate of hospital discharges

$tigad$ = Growth rate of investment by decentralized autonomous governments

$demp$ = Variation of average employment of active companies

$dirc$ = Variation of income tax caused by active companies. Notice that the subscript indicates that the variable is from one year earlier.

α = Model constant

u = Model error

The following table presents the results of different tests applied to the model. As a summary, the OLS model prevails over EA or EF. In addition, the EA model prevails over EF. It is necessary to correct problems of heteroskedasticity and first order autocorrelation. The typical contemporaneous correlation of models that have cities, provinces or countries as observed units, in this case is not a critical factor if a high confidence level is considered for the estimates.

Table 9. Results of the tests carried out on the model

Test	Null hypothesis of the test	Statistical probability	Interpretation
Ramsey test	The model does not omit variables	0,1185	There is no evidence to reject the hypothesis that the model does not omit variables, with at least 99% confidence.
Wooldridge test	The model has no first-order autocorrelation	0,000	The hypothesis that the model has no first-order autocorrelation is rejected.
Wald test	The model presents a constant variance of errors	0,000	The hypothesis is rejected, therefore, due to heteroscedasticity problems, it is necessary to estimate with robust errors or with cluster errors.
Breusch and Pagan test	There is no time-invariant component, but it is different for each province in the model. If it exists, it can lead to endogeneity problems	1,0000	There is no evidence to reject the hypothesis that there is no unobservable component that produces heteroskedasticity. OLS model prevails before EA or EF.
Hausman test	There is no systematic difference between the EA and EF estimates	0,6474	There is no evidence to reject the hypothesis, therefore, the EA model prevails over EF.
Contemporaneous correlation test	There is contemporaneous cross-sectional independence in the errors	0.0248	The hypothesis is rejected at 95% confidence; therefore, it is necessary to use a Discoll-Kraay estimation.
Harris-Tzavalis unit root test corrected for small bases	The panel contains unit roots in each of the regressors	Not applicable	The hypothesis is rejected for all the regressors. Therefore, the variables of the model are stationary.
Variance inflation factor	Not applicable	Not applicable	All regressors have an inflation factor of less than 2%. Likewise, weak correlations between the regressors are evident.

Source: Central Bank of Ecuador, World Bank, National Institute of Statistics and Censuses, Superintendence of Companies. Elaboration: Authors.

The following table presents the results of the different estimated models. It is observed that the sign of each of the variables is the same in all the regressions; likewise, the coefficient of the variable of interest presents relatively robust results for all estimations. In such a way that, given a unitary increase in the growth rate of public spending on education, it is expected that on average the growth rate of the provincial gross added value will increase by 0.2 units.

The population variation of each province has a positive effect on economic growth, while an increase in the growth rate of hospital discharges has a negative effect. Intuitively, it would be expected that with more hospital discharges, a sicker population could be had, and therefore with a lower contribution to final production.

It is possible to observe that the investment of the decentralized autonomous governments (GADs) contributes positively to the provincial economic growth. Also, as expected, a higher average number of total workers per company is positively correlated with higher growth. Finally, the average income tax incurred for the previous period has a positive sign, but it is not statistically significant in all the estimated models.

Table 8. Results of the econometric model, dependent variable growth rate of gross provincial added value

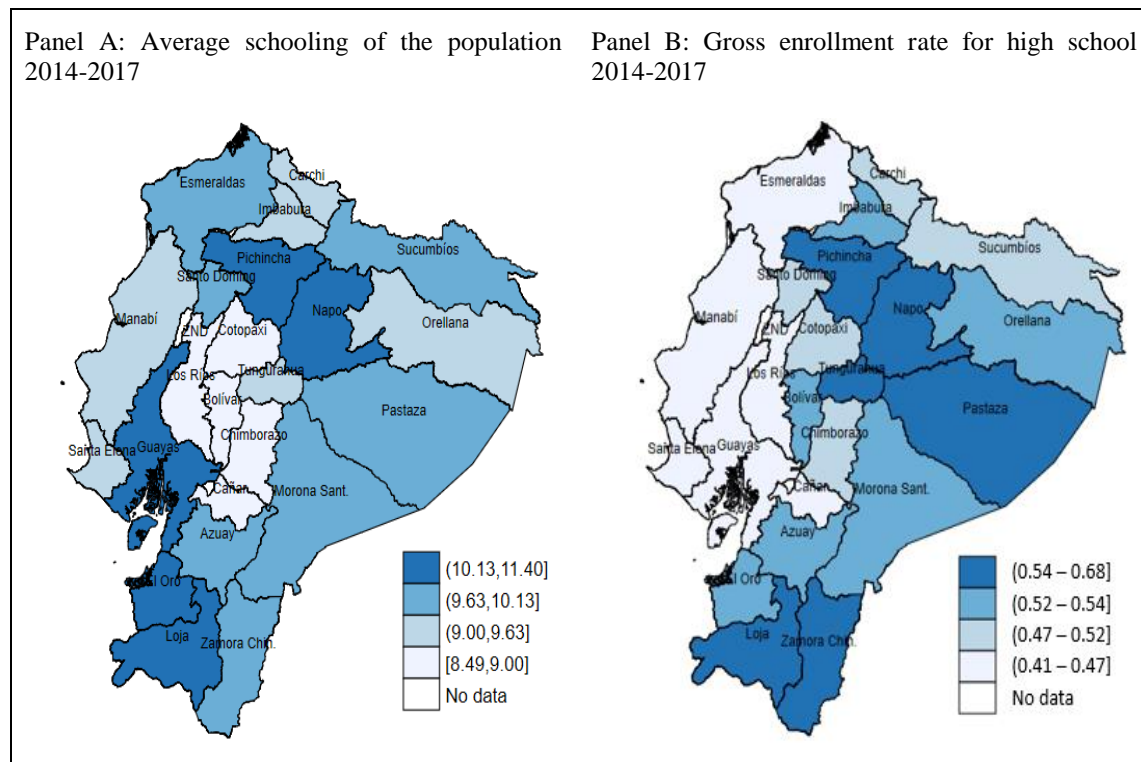
Variable	MCO	AR1	EA	EF	DK
tedu: Growth rate of public spending on education	0.209***	0.237***	0.209***	0.181**	0.209**
dpob: Population variation of the province	4.26e-07**	5.55e-07***	4.26e-07**	28.9e-07	4.26e-07
tegr: Hospital discharge growth rate	-0.348**	-0.276**	-0.348**	-0.300**	-0.348**
tigad: Provincial GADs investment growth rate	0.001*	0.016***	0.001*	0.002***	0.001
demp: Variation of the average employment of the companies	0.027*	0.029*	0.027*	0.028*	0.027***
dir: Variation of the average income tax caused by the companies one year before	6.87e-07	4.42e-07*	6.87e-07*	6.89e-07	6.87e-07
Model constant	0.021**	0.017**	0.021***	-0.286	0.021***
N	161	161	161	161	161
r2	0.1232			0.1299	0.1232
r2_o			0.1232	0.0088	
r2_b			0.1517	0.0599	
r2_w			0.1215	0.1299	

*p-value <0.15, ** p-value <0.05, *** p-value <0.01. *Source: Central Bank of Ecuador, World Bank, National Institute of Statistics and Censuses, Superintendence of Companies. Elaboration: Authors.*

4. Educational policies to promote the knowledge economy and technological development

Educational policies aimed at promoting the knowledge economy in Ecuador must consider the territorial dynamics in terms of secondary education, tertiary education, schooling, employment and production. In such a way that heat maps were prepared with relevant indicators for the discussion of potential policies. It should be noted that the study covers a pre-pandemic stage, especially due to the comparability of information at the time of presenting the results in terms of averages, which are not affected by the impact of the pandemic.

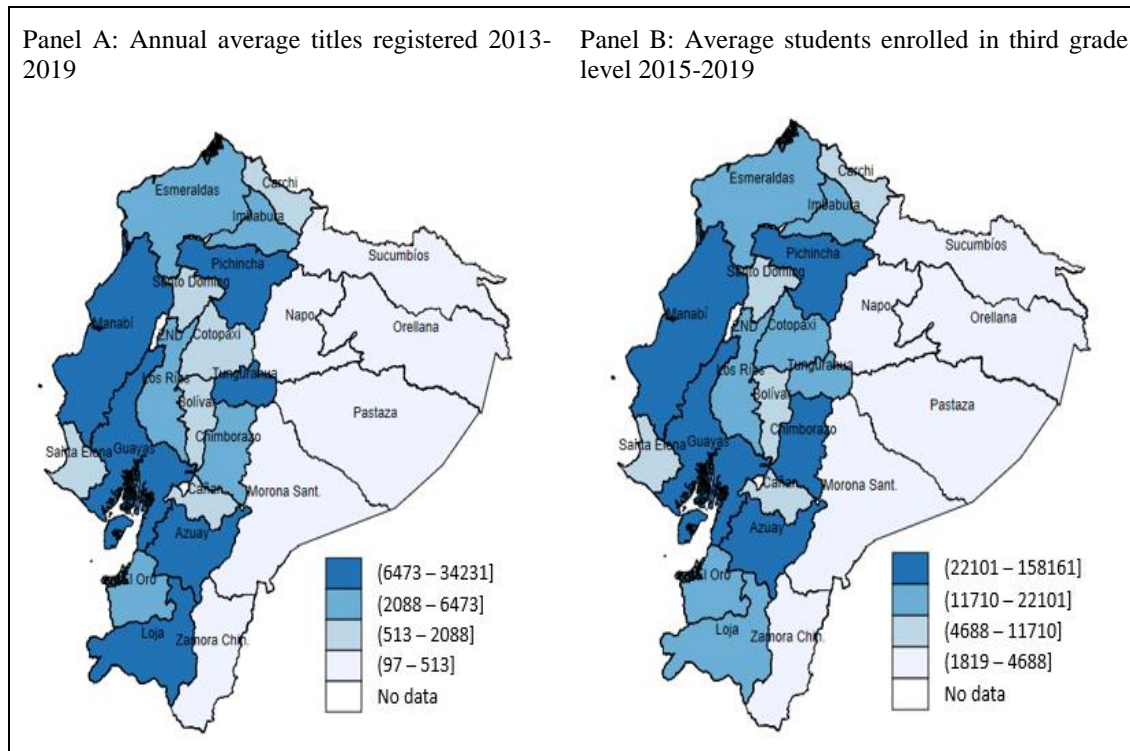
Certain provinces of the Sierra and Amazon region of Ecuador have a higher gross enrollment rate for high school studies, which, in turn, have high levels of average schooling in their population. This phenomenon is less marked in the Amazonian provinces, in this sense, it is to be expected that the new generations are preparing more (in formal school education) compared to past generations. In addition, it should be noted that, in the Coastal region, several provinces have a population that has a high level of schooling, however, the gross enrollment rate is low. Note that this may be due to the estimate made since the numerator of the indicator includes the population between 18 and 19 years of age, who may have already graduated from high school.



Graph 3. Maps of average schooling and high school gross enrollment rate by provinces of Ecuador

Note: The average schooling was calculated from the INEC methodological file, the indicator covers the population older than or equal to 24 years. The gross enrollment rate was calculated from the records of the Master File of Educational Institutions, the denominator of this indicator was calculated with the estimated population between 15 and 19 years of age. Source: Central Bank of Ecuador, National Institute of Statistics and Censuses. Elaboration: Authors

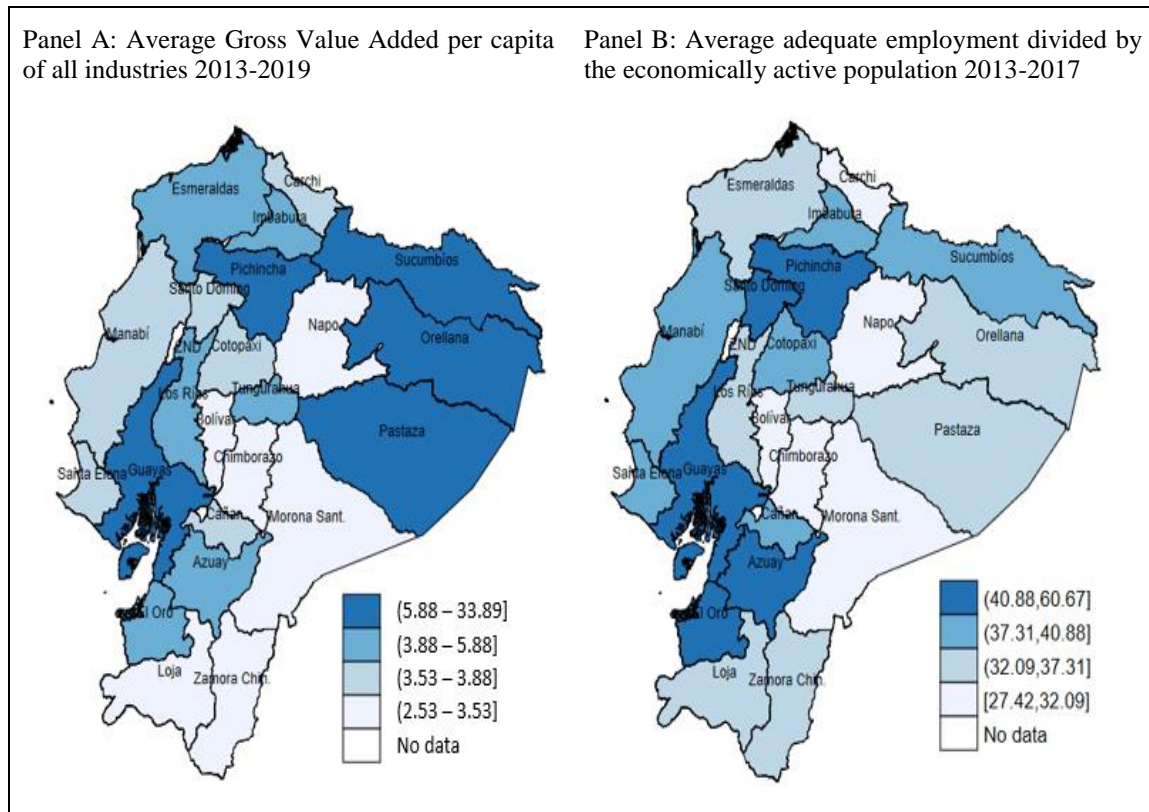
In the following heat maps, a strong relationship is identified between the provinces that have a greater number of titles registered annually, and those that have a greater number of enrolled students. It is clear, the lag of students and degrees in the entire Amazon region of Ecuador, this is linked to the tertiary level academic offer offered in said territories. It is also important to mention that, of the total number of students enrolled in the period analyzed, on average close to 42% studied careers in the field of knowledge related to administration, social sciences, journalism and law. While, on average, 15% studied engineering, industry and construction; 4% in services; and, 1% in information technologies. A similar case occurs with the enrollments in the field of study of the technical and technological institutes, where the majority were studying administrative careers. To a certain extent, this is related to the academic offer of universities and technological institutes, where 36% of the offer (measured percentage of the total careers offered in 2021) is in fields related to administration, social sciences, journalism and law.



Graph 4. Maps of the total registered titles and total number of students enrolled in third-level degree courses by provinces of Ecuador

Source: National Secretariat of Higher Education, Science, Technology and Innovation. Elaboration: Authors.

In terms of production, several of the Amazonian territories that present the lowest prevalence of students and registered third-level degrees have a high gross added value. This is due to the extractive activities carried out in the Ecuadorian Amazon, where professionals who are trained in other provinces work. In turn, it may imply that in such territories a part of the wealth generated is sent to large cities via salaries (without considering that the largest surplus is taken by companies dedicated to the exploitation of natural resources). Finally, a certain pattern of relationship with schooling and adequate employment is observed, territories where the population has a high level of education are associated with territories with better working conditions.



Graph 5. Maps of the total registered titles and total students enrolled in third-level degree courses by provinces of Ecuador

Source: Central Bank of Ecuador, National Institute of Statistics and Censuses. Elaboration: Authors.

Consequently, according to the literature review, analysis of the descriptive statistics of variables that allow contextualizing the problem and results of the econometric model, educational policies to promote the knowledge economy and technological development in Ecuador should be focused on:

- Promote school enrollment at all educational levels: school, college and tertiary level. Mitigating the potential risks that can be found according to each territory (coverage, violence, child labor, among others).
- Promote the offer of third-level careers with a high technological component, ensuring that the careers comply with the principles of relevance and achieve employability of students in the short term.
- Invest in tertiary education infrastructure in territories where there is currently a limited supply, and that has characteristics for the project(s) to be successful (scholarship programs, infrastructure construction in places where population density justifies the creation of institutions large or small, etc.).
- Establish research and cooperation agreements between universities and technological institutes and public and private sector companies. For the creation and application of knowledge.
- Give incentives to legal persons in the field of innovation. As well as creating environments for cooperation between industries and consolidation of value chains.

5. Conclusions

Investment in higher education is important for the country to develop exports that incorporate high technology in the long term. Evidence was found that, at the territorial level, a higher growth rate of public spending on education is associated with a higher growth rate of the economy. In such a way that, in the face of reductions in public spending, as has been seen since 2019, growth is affected in the short term, and in the long term it is committed to the technological development of the country.

The indicators of imports and exports according to technological level indicate that Ecuador is an importer of products with a high technology component, but its exports do not reach similar levels. One way to change this is through the development of human capital (education), however, there are territorial barriers (measured by education, enrollment rate and registered titles) and barriers due to the academic offer of universities and

technical and technological institutes. Therefore, it is necessary to rethink the priorities in terms of preparing future generations, taking into account the country's own territorial dynamics.

References

- Álvarez, R., Perdomo, J., Morales, C., & Urrego, J. (2013). *Fundamentos de econometría intermedia: teoría y aplicaciones*. Bogotá: Ediciones Uniandes.
- Alataş, S., & Çakır, M. (2016). The effect of human capital on economic growth: A panel data analysis. *Yönetim Bilimleri Dergisi*, 14(27), 539-555.
- Andrews, Dan & Chiara Criscuolo (2013). [Knowledge-Based Capital, Innovation and Resource Allocation](#), *OECD Economics Department Working Papers* 1046, OECD Publishing.
- Baltagi, B. (2005). *Econometric Analysis of Panel Data* (Third ed.). West Sussex: John Wiley & Sons.
- Banco Interamericano de Desarrollo. Proyecto Conexión Intal. <https://conexionintal.iadb.org/>
- Brinkley, I. (2006). *Defining the Knowledge Economy: Knowledge Economy Programme Report*. London: The Work Foundation
- Cameron, C., & Trivedi, P. (2009). *Microeconometrics Using Stata*. Texas: StataCorp LP.
- Carrillo, Franciso Javier (2002). Capital systems: implications for a global knowledge agenda. *Journal of Knowledge Management*, vol. 6, núm. 4.
- Carrillo, Franciso Javier (2004), "Capital cities: a taxonomy of capital accounts for knowledge cities. *Journal of Knowledge Management*, vol. 8, núm. 5.
- Cerquera Losada, Ó. H., Clavijo Tovar, M. D. L. A., & Pérez Peña, C. Y. (2022). Capital humano y crecimiento económico: evidencia empírica para Suramérica. *Apuntes del CENES*, 41(73), 145-169.
- David, P.A. & Foray, D. (marzo 2002). Una introducción a la economía y a la sociedad del saber, en *Revista Interamericana de Ciencias Sociales*, Vol. 171.
- Sáenz de Miera, A. (1998). *La fábrica del saber: 25 años de relaciones universidad-empresa*. Madrid: Fundación Universidad –Empresa.
- Dahlman, Carl & Thomas Andersson (2000) *Korea and the Knowledge-Based Economy: Making the Transition (Highlights)* World Bank/OECD.
- Dahlman, Carl J., Jorma Routti & Pekka Ylä-Anttila (2005) *Finland as a Knowledge Economy: Elements of Success and Lessons Learned* International Bank for reconstruction and Development http://info.worldbank.org/etools/docs/library/201645/Finland_ES.pdf.
- Del Valle, Jaime; Manuel Lobato, Francisco Martínez; Ernesto Rodríguez; Eilen Segarra (2005). *Proyecto economía del Conocimiento: Puerto Rico: Universidad de Puerto Rico*.
- Heng, Toh Mum, Chin, TangHsiu, Choo, Adrian "Mapping Singapore's Knowledge-Based Economy" *Economic Survey of Singapore*, Economics Division, Ministry of Trade and Industry, Third Quarter 2002.
- Hoechle, D. (2007). Robust Standard Errors for Panel Regressions with Cross-Sectional Dependence. *Stata Journal*, 281-312.
- Kennedy, P. (2008). *A Guide to Econometrics* (Sixth ed.). Malden: Blackwell.
- Marquina, Lourdes; y Ryszard Rozga (2015). La economía del conocimiento perspectivas urbano-regionales. *Desarrollo económico y sustentable*, Vol. IX – agosto de 2015 - pp. 6-30 – Enfoques teóricos y metodológicos - Proyección
- Mowery, David & J. Oxley (1995) *Inward technology transfer and competitiveness: the role of national innovation systems*, *Cambridge Journal of Economics*, Vol. 19, No. 1, pp. 67-93.
- Ngepah, N., Saba, C. S., & Mabindisa, N. G. (2021). Human capital and economic growth in South Africa: A cross-municipality panel data analysis. *South African Journal of Economic and Management Sciences*, 24(1), 1-11.
- Odhiambo, N. M. (2020). Education and Economic Growth in South Africa: An Empirical Investigation. *Revista Internacional de Economía Social*, 48, 1-21.
- OECD (2004). *Science, Technology & Industry (STI) Outlook*, OECD, 2004.
- Pérez, Carla Carolina; Martín Aubert Hernández y Jessica Mendoza (2020). *Hacia una economía del conocimiento en México*. *Economía UNAM*, vol. 17, núm. 49, enero-abril, 2020
- Reig Martínez, Ernest; Francisco Pérez García, Javier Quesada Ibáñez, Lorenzo Serrano Martínez, Carlos Albert Pérez, Eva Benages Candau, Juan Pérez Ballester, Jimena Salamanca Gonzáles (2017). *La Competitividad de las Regiones Españolas ante la economía del conocimiento*. España: Fundación BBVA. ISBN: 978-84-92937-69-1
- Rozga, Ryszard (2010). La correlación entre el desarrollo regional y los elementos de la economía regional del conocimiento: evidencias empíricas del país de desarrollo mediano. Ponencia presentada para el 15º Encuentro Nacional sobre

- Desarrollo Regional en México, AMECIDER 2010, del 16 al 19 de noviembre de 2010, en la ciudad Villahermosa, Tabasco.
- Rozga, Ryszard y Lourdes Marquina (2014). La función de las ciudades en la economía del conocimiento. Estado del arte y propuestas de medición. Ponencia presentada en el XIII Congreso Internacional de la Red Iberoamericana de Investigadores en Globalización y Territorio, Salvador de Bahía, Brasil, 1 al 5 de septiembre de 2014.
- Secretaría de Transformación Productiva de Argentina. <https://www.produccion.gob.ar/tramites/area/secretaria-de-la-transformacion-productiva>
- Steedman, Ian (2001) On Measuring Knowledge in (New) Endogenous Growth Theory, Department of Economics Manchester Metropolitan, Growth Theory Conference, Pisa, Italy, October 5-7th, 2001
- Varela, Marcelo (2017). Modelo Kaleckiano de dos bienes: Enfoque teórico para el Ecuador. Revista Cuestiones Económicas, (27). Quito: Banco Central del Ecuador.
- Varela, Marcelo (2018). Industrialización Periférica; políticas de cambio estructural y diversificación económica, una perspectiva desde Ecuador. Revista Estado y Comunes, No 7, volumen 2, julio-diciembre de 2018.
- Varela, Marcelo (2021). Ecuador con rostro humano: políticas de estabilización heterodoxa para enfrentar el neoliberalismo. Propuestas para el Desarrollo, año V, número V, octubre
- Varela, Marcelo & Gustavo Salazar (2022). Políticas Fiscales Progresivas para Empresas en el Ecuador: Evidencia en Supervivencia y Recaudación. Cuestiones Económicas, 32(2).
- Vilaseca, Jordi; Joan Torrent; Angel Diaz (2002). La economía del conocimiento: paradigma tecnológico y cambio estructural. Un análisis empírico e internacional para la economía española. Working Paper Series WP02-003. <http://www.uoc.edu/in3/dt/20007/index.html>

Assessment of the employed accountants' chances to enter and complete the professional accounting education program utilizing ecological systems theory

Nadira Traifi

PhD Student. ECOFIMA, University of 20 Aout 1955- Skikda, Faculty of Economics, Commerce Sciences and Management Sciences, Skikda, Algeria

ORCID ID: 0000-0002-1380-6033

Email: n.traifi@univ-skikda.dz

Sawsen Zirek

Lecturer. ECOFIMA, University of 20 Aout 1955- Skikda, Faculty of Economics, Commerce Sciences and Management Sciences, Skikda, Algeria

ORCID ID: 0009-0001-9046-1892

Email: s.zirek@univ-skikda.dz

DOI: <https://doi.org/10.19275/RSEP163>

Article Type: Original/Research Paper

Article History

Received: 19 July 2023 Revised: 1 September 2023 Accepted: 10 September 2023 Available Online: 18 September 2023

Keywords: employed accountant, economic sector, professional accounting education program, Algeria, ecological systems theory, entry requirements.

JEL classification: J24, J44, M41

Citation: Traifi, N. & Zirek, S. (2023). Assessment of the employed accountants' chances to enter and complete the professional accounting education program utilizing ecological systems theory, *Review of Socio-Economic Perspectives*, 8(3), 43-58.

Copyright © The Author(s) 2023 This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

This article aims to assess the opportunities for employed accountants practicing in the economic sector in Algeria to enter and complete the professional accounting education program for the chartered accountant and statutory auditor utilizing Bronfenbrenner's ecological systems theory.

Through distributing a questionnaire to 90 employed accountants in the economic units across eastern Algeria to identify the ecological factors influencing their opportunities, the results revealed that individual factors such as experience, desire, knowledge, skills, and effort have a positive impact to enter the educational program. However, direct environmental factors within the microsystem, notably work hours and family commitments, may lead to the failure to complete it. It is the same type of impact resulting from family financial and social needs and their relationship with the work of employed accountants within the mesosystem.

Within the exosystem, the results indicated that adopting a combination of attendance and cloud-based programs enhances the opportunities for program completion. However, the results related to the factors of the macrosystem had a negative impact due to employed accountants' belief in the obstacles of the professional work environment and the lack of legal agility governing the profession. The researchers suggest considering the ecological perspective when designing the entry requirements for the professional accounting education program to provide employed accountants with a fair chance to complete it.

1. Introduction

The primary objective of professional accounting education is to prepare individuals to work in a certain way with understanding (Littleton, 1942, p.216). Thus, the production of a competent and able selection of professionals makes a positive contribution to the profession and other stakeholders. From these perspectives, it seems that defining the requirements for entry to educational programs has significantly important to attract appropriate individuals and talents. For this reason, the International Federation of Accountants (IFAC) has released, through its International Accounting Education Standards Board (IAESB), International Education Standards (IES) to ensure the quality of accounting education (IAESB, 2019). by making an effective approach to professional competence development (IAESB, 2015, p.4).

On the other hand, many factors, such as individual, social, cultural, and historical factors, influence a developing person (Pae, 2003). Therefore, it is important to consider the ecological perspective when setting the relevant requirements that are not so high as to cause unnecessary barriers to entry, nor so low as to falsely believe that individuals have the potential to complete their education (IAESB, 2019, p.114).

In light of this, it is worth noting that several categories, including employed accountants who are university graduates and have demonstrated a level of competence in their performance through the tasks they carry out in their organizations, may be interested in entering the professional accounting program.

This study uses the Algerian context to address the primary research question, 'What is the ecological perspective assessment of the reasonable opportunity for employed accountants to enter and complete successfully the professional accounting education program of the chartered accountant and statutory auditor?'

This question responds to the situation of the Algerian accounting profession, which has undergone several reforms, both about its content and structure, resulting from the abandonment of the command economy and the adoption of the market economy. Thus, the adoption of International Accounting Standards and International Financial Reporting Standards (IAS/IFRS) in the financial accounting system format, and a trend towards the issuance of auditing standards derived from international standards. The reform also extended to the reorganization of the accounting profession in Algeria, namely, the professions of the chartered accountant, the statutory auditor, and the certified accountant. This matter has resulted in the discontinuation of its accounting education for new entrants to the profession for a long period, punctuated by some legislative and regulatory texts that attempt to establish new rules and structures to pursue the educational path culminating in the profession.

Individuals wishing to enter the professional accounting education program continue to look forward to the requirements that enable them to do so in light of the perceived time gap between the issuance of legislative and regulatory texts since the adoption of professional reforms.

Previous research has attempted to understand the correlation between work duration and academic performance. This study aims to identify the factors expected to influence the fair opportunity for employed accountants to enter and complete the professional education program for the chartered accountant and statutory auditor, according to the ecological system, in light of the disclosed entry requirements in Algerian legal and regulatory texts. The purpose is to develop mechanisms to consider these factors when establishing the remaining entry requirements.

The remainder of the paper is organized as follows: we begin with a literature review on Bronfenbrenner's ecological systems theory and entry requirements to professional accounting education programs in the context of the ecological model. Next, we present the Algerian framework, followed by the method employed to collect data. We then present findings, provide a discussion, and close with the conclusion of the study.

2. Literature Review

2.1. Bronfenbrenner's Ecological Systems Theory

Several studies have used the ecological model in education (Cowie & Khoo, 2018) to interpret the individual's behaviors (Abrams et al., 1999, p.285) and his development process (Stewart, 2007, p.18). The ecological model represents a tool and contextual map that assist in understanding the numerous factors contributing to the student's depressed behaviors because it considers and incorporates factors inherent both within a student as well as within the student's school, family, and community (Abrams et al., 1999, p.285).

Bronfenbrenner (1979) developed an ecological theory that identifies the interconnected systems influencing human development (Stewart, 2007, p.18). Based on this theory, the developing person is not a passive receptacle; he is an active individual who develops in continuous interaction with his environment (Pae, 2003, p.146). This theory provides an ecological model as a framework that classifies these factors in their system relevant between four systems defined:

- **Microsystem:** refers to direct environmental impacts(O'Toole et al., 2014, p.122) including family, friend groups, work. The developing person is in the microsystem's center(Sarvan & Muslu, 2022, p.17).
- **Mesosystem:** a system of microsystems, which includes the interrelationships between two or more contexts where the developing person is an active participant (such as family and work) (Bronfenbrenner, 1979, p.25).
- **Exosystem:** designates one or more contexts in which the developing person is not involved as an active participant, but in which events arise that affect, or are affected by, what happens in the context of the developing person(Bronfenbrenner, 1979, p.25).
- **Macrosystem:** it refers to the influence of the broader societal factors(O'Toole et al., 2014, p.122). The economy, society, laws, politics, education, and religion are the practical manifestation of this level(Pae, 2003).

The systems cited above are nested, and with be-directional influences within and between the systems, the former is included in the last, forming a concentric circle structure(Xue, 2012).

2.2. Entry Requirements to Professional Accounting Education Programs in the Context of the Ecological Model

2.2.1. Entry Requirements to Professional Accounting Education Programs

The basic challenge for all professional bodies and educational institutions is related to the changing environment and maintaining the quality of accounting education that meets the future needs of the accounting profession and its members and maintains integrity in performing the service(Behn et al., 2012). The process by which individuals are "made" into professionals is a fundamental issue in the functioning and maintenance of every profession. The nature of this process will have significant implications for a profession's ability to attract clients and establish its place in society as a whole(Anderson-Gough et al., 2002, p.41). The accounting profession can attract and retain appropriate talent better with the rethinking and fundamental development of continuous education and training and lifelong learning requirements, to cope with the implications of intense competition for mobile talent in the labor market(IFAC, 2022, p.8). This has led the International Federation of Accountants (IFAC), as an international standard-setting body, to define the principles used in determining and communicating requirements for entry into professional accounting education programs under International Accounting Education Standard 1 (IES 1), while the standards listed below have covered the requirements for entry into the profession as follows:

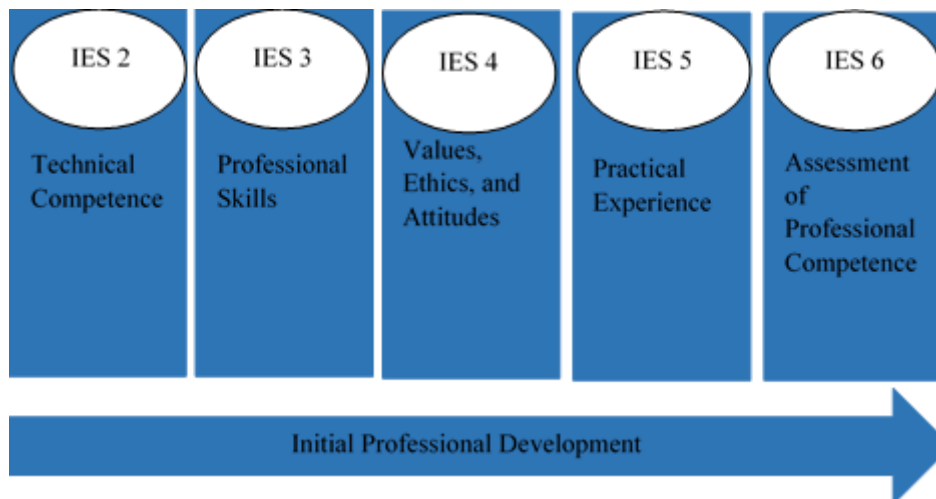


Figure 1. Mapping out Initial Professional Development According to International Education Standards

These six education standards constitute the initial professional development embodied in learning and development through which an aspiring professional accountant meets the requirements of his future role in the profession.

In the international accounting education standards (IES) context, entry requirements to professional accounting education programs refer to the conditions that IFAC's member body expects an individual to meet to obtain admission to the accounting education program(IAESB, 2016b). The international accounting education standards board(IAESB, 2019), through IES1, asserts that fair and proportionate requirements, as well as protection of the public interest, is the main objective of the indicated standard. On this account, he determines the requirements for the IFAC's member bodies and other stakeholders as follows:

- Establish educational entry requirements that allow entry only to those who stand a reasonable chance to complete the professional accounting education program successfully without constituting excessive barriers to entry.
- Attach the process of setting educational entry requirements to an explanation of principles used in it for stakeholders, including both the relevant education providers and individuals who are interested in pursuing a career as a professional accountant.
- Availability of relevant information to assist individuals in evaluating their chance of successful completion of the professional accounting education program (IAESB, 2013). This information includes but is not limited to the educational qualification's entry requirement, recognition of prior learning, technology requirements, financial cost, and mandatory attendance hours to complete the program (IAESB, 2016b).

Requirements for enrolment in professional accounting education are important for many reasons such as:

- Protecting the public interest by helping future professional accountants to make informed decisions related to their educational choices, and
- Achieving general protection requirements and allowing adequate numbers of high-quality professional accountants, by setting principles for entry into professional accounting education programs that are not so high as to cause unnecessary barriers to entry, nor so low as to falsely believe that individuals have the potential to complete education successfully (IAESB, 2019, p.114). IAESB(2016b) listed other benefits such as assistance in the preparation of individuals to participate in the professional accounting education program, illustrate the various pathways individuals may follow to access the relevant educational program as well as insurance that the resources of the Federation's member bodies are allocated efficiently (for example, financial and human).

2.2.2. Determinants of Entry Requirements for Professional Accounting Education Programs

Influencing factors of determinate entry requirements for the professional accounting education program include those that may affect the reasonable opportunity of the aspiring professional accountant to complete the professional accounting education program with success. The IFAC (IAESB, 2016a) defined relevant factors :

Cognitive ability, autonomous ability to progress, motivation to study, past academic performance both in total and in specific subjects, in school or in the case of university postgraduate studies, as well as direct environmental factors that are summarized in the amount of time available for study, peer communication networks, and funding matters, including government support. Factors that may contribute to the successful completion of the professional accounting education program are identified within a systemic environmental framework (eco-systemic framework) that views education in the context of an individual's broader environment, such as:

- Individual factors: consider the abilities and qualities of aspiring professional accountants (personality, knowledge, skills, motivation and effort, previous academic success, previous experiential learning...).
- Direct environmental factors: contain the aspiring professional accountant's background, work and home conditions, finances, and other elements that directly affect him.
- Professional accounting education programs: include the nature of the program and the related competencies for its successful completion.
- Factors in the working environment: the world of work and the role that an aspiring professional accountant is likely to play in the field of accounting. This includes the general expectations of the role that an aspiring professional accountant will play in the accounting profession.

IAESB(2016d) states that viewing entry requirements from an eco-systemic perspective, due to several advantages:

- It ensures that entry requirements are considered within the inter-related context of the individual considering a career as a professional accountant, their environment, and the environment in which the professional accounting education program is offered.
- It permits IFAC member organizations with varying professional accounting education programs, obligations, and public interest responsibilities to evaluate entry requirements in light of their particular circumstances.

2.3. The Reform of Algeria's Accounting Profession and Entry Requirements for Professional Accounting Education Programs

2.3.1. Overview of Accounting Reform in Algeria

In response to the changes witnessed in the global accounting system, Algeria has adopted IAS/IFRS through the financial accounting system, which was implemented starting in 2010. Algeria has restructured the accounting profession, primarily reflected in Law 10-01 dated June 29, 2010. This law pertains to the professions of the chartered accountant, the statutory auditor, and the certified accountant, and it repealed the provisions of law 91-08, through which the profession enjoyed a degree of self-regulation led by the National Order of chartered accountants and statutory auditors and certified accountants. The National Council of Accounting was established, responsible for accreditation, accounting standardization, organization, and monitoring of the profession, operating under the authority of the Minister of Finance. The new law encompasses the tasks, responsibilities, disciplinary penalties, incompatibilities, and barriers related to the practice of the profession, in addition to its provision for the establishment of supervisory professional bodies.

The practice of any of the aforementioned three professions requires obtaining a qualified certificate, taking into account recognized equivalencies for the certificates. The certificates related to the chartered accountant's and statutory auditor's professions are granted by the specialized education institute under the authority of the Minister responsible for finance. On the other hand, the certificate related to the certified accountant's profession is granted by professional training institutions under the authority of the Minister responsible for professional training or by institutions accredited by him, or by higher education institutions (Law No. 10-01, 2010).

2.3.2. The Specialized Education Institute for the Accounting Profession

The decision to establish the Specialized Education Institute for the Accounting Profession was issued under Executive Decree No. 12-288 dated July 21, 2012. It is a public institution with an independent legal personality and financial autonomy, operating under the supervision of the Minister of Finance (Abdessamad, 2022, p.22). Article five(5) (Executive Decree No. 12-288, 2012) states that the institute is responsible for ensuring specialized education for obtaining the certificate of chartered accountant and the statutory auditor. It is specifically responsible for the following tasks:

- Implementing specialized education programs to obtain the certificate of expert accountant and the certificate of statutory auditor,
- Ensuring continuous development directed towards accounting professionals,
- Contributing to the development of research in the fields of accounting, taxation, finance, auditing, and computerized management information,
- Conducting studies and publications related to its tasks,
- Participating in the dissemination of modern techniques for education in accounting, auditing, and financial engineering,
- Establishing relationships of exchange and cooperation with national or international bodies active in the same field of activity, and
- Providing continuous training courses as part of its tasks for the benefit of users from administrative sectors or public and private bodies, according to the specific criteria defined in agreements.

Up until the writing of these lines, the institute has not been realized in practice, but certain requirements have been identified to proceed with the newly established theoretical educational track for the professional accounting education program for both the chartered accountant and the statutory auditor. These requirements include educational level requirements, represented by qualified certificates and specializations. They also include knowledge and skills requirements that are demonstrated through a written competition followed by an oral examination for admission to the institute and, consequently, the educational program.

As summarized in Figure 2, the announced entry requirements to the Specialized Accounting Profession Institute and consequently the professional accounting education program for the chartered accountant and statutory auditor can be classified into two categories, as follows:

- Educational level requirements: Algerian legislation stipulates a university degree at the bachelor's level (Baccalaureate + 3 years) or any other university degree obtained from abroad, and recognized as equivalent as a minimum requirement for entry into the professional accounting education program. The specializations are specified as follows:

Accounting, Accounting and Finance, Finance, and Auditing.

- The abilities requirements: Among the requirements set for admission to the professional accounting education program for the profession of chartered accountant and statutory auditor, it is necessary to fulfill a certain level

of knowledge and skills in specific areas, which is demonstrated by passing a competition held annually after the Minister of Finance determines the number of available academic seats. The joint ministerial decision dated March 7, 2017, specifies the number, nature, coefficients, and the program of the tests within the competition that enables entry into the professional accounting education program for the chartered accountant and statutory auditor, conducted at the Specialized Education Institute for Accounting Profession.

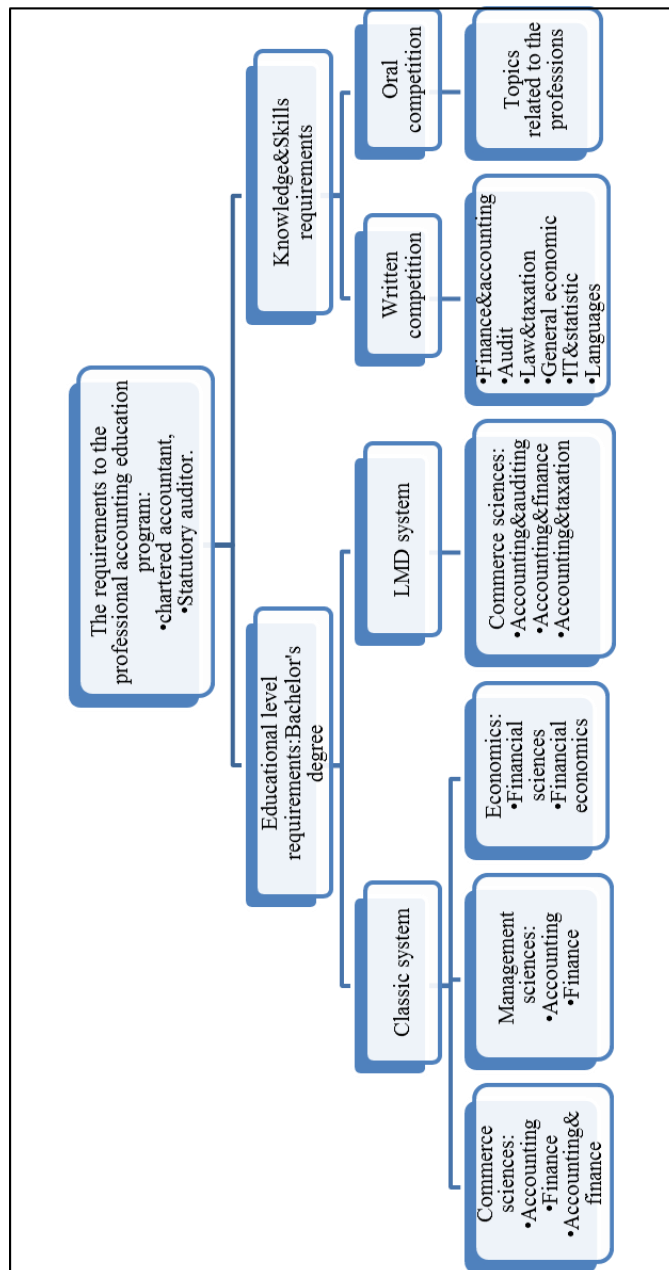


Figure 2. Entry requirements to the Specialized Education Institute for the Accounting Profession in Algeria

Source: Created by authors, based on the regulatory framework of the accounting profession

3. Research Methodology

The sample consists of 111 practitioners in different roles in the accounting field in fifteen (15) economic units from the east of Algeria, holding higher education certificates qualifying them to enter the professional accounting education program for the chartered accountant and statutory auditor. These include respondents from Sonatrach DRG Skikda, Sonatrach RA2K Skikda, Sonatrach GL1K Skikda, Sonatrach RA1K Skikda, Naftal GPL Batna, Naftal CLP Annaba, Naftal DASC Annaba, Naftal BITUMES Annaba, Asmidal FERTIAL Annaba, Enamarbre Skikda, Somik Skikda, Sidal Constantine 02, EN GTP Skikda, ENAC El Khroub, STH Skikda. From the total of 111 survey questionnaires that have been distributed, 90 questionnaires were returned. (Rate of return is 81%).

The analysis presented in this article is based on qualitative data collected during January-April 2023. The study employed a questionnaire to ascertain employed accountants' expectations regarding the assessment of their

opportunities for entry and complete the professional accounting education program of the chartered accountant and statutory auditor, following the ecological perspective.

The authors designed and developed a survey questionnaire following the ecosystem perspective (IAESB, 2016c) based on Bronfenbrenner's theory (1979). The indicated ecosystem approach includes factors that can affect the reasonable opportunity for entry and the successful completion of a professional accounting education program adapted to the Algerian environment. The questionnaire used two types of closed questions: the two-pronged question and the multi-choice question, which allows the respondent to have several reasonable and feasible responses, including questions that allow for one answer and others that allow for multiple responses.

The questionnaire contains nine demographic questions and three axes. The demographic questions inquired about the accountant's employers, gender, social status, specialization, nature of the job position, the job area, the type of employment contract, and experience. The axes questions inquired about assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to factors in the microsystem and mesosystem, factors in the exosystem, and factors in the macrosystem, respectively.

4. Findings and Discussion

4.1. Findings

In this part of the study, the data obtained from the survey administered to a sample of employed accountants working in several economic units in eastern Algeria are evaluated.

Aligned with the ecological systems theory, the study findings were statistically analyzed under the headings:

- Descriptive Characteristics of the respondents;
- Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to factors in the micro and mesosystem;
- Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the exosystem; and
- Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the macrosystem.

4.1.1. Descriptive Characteristics

It is seen in table 1, the final sample consists of 90 practitioner accountants in economic units. The majority of the respondents are male (52.2%) and married (84.4%). Most of the respondents hold degrees in finance and accounting and finance, with a percentage of 36.7% and 33.3% respectively.

According to the job area, the useable sample of 90 survey questionnaires consists 35 (38.9%) practitioners in accounting, 16 (17.8%) practitioners in finance, 31 (34.4%) practitioners in accounting and finance, 4 (4.4%) practitioners in internal audit, 2 (2.2%) practitioners in wages, and 2 (2.2%) practitioners in management control, distributed with 27 (30%) occupying positions of responsibility and 63 (70%) holding regular positions. The majority of the respondents are employed on a permanent employment contract (75.6%). Most of them (48.9%) has been an experience in the field of accounting for less than 15 years, following that, a percentage representing approximately one-third of respondents (28.9%) falling within the range of 15 to less than 20 years.

Table 1. Descriptive Statistics of the Respondents

Characteristic	Sub-groups	Frequency	Frequency (%)
Sample	N	90	100%
Unit	SH DRG SKIKDA	9	10.0%
	SH RA2K SKIKDA	10	11.1%
	SH GL1K SKIKDA	10	11.1%
	SH RA1K SKIKDA	12	13.3%
	NAFTAL GPL BATNA	10	11.1%
	NAFTAL CLP ANNABA	1	1.1%
	NAFTAL DASC ANNABA	3	3.3%
	NAFTAL BITUMES ANNABA	1	1.1%
	ASMIDAL FERTIAL ANNABA	7	7.8%
	ENAMARBRE SKIKDA	4	4.4%
	SOMIK SKIKDA	10	11.1%
	SAIDAL CONSTANTINE 02	2	2.2%
	EN GTP SKIKDA	5	5.6%

	ENAC EL KHROUB	4	4.4%
	STH SKIKDA	2	2.2%
Gender	Male	47	52.2%
	Female	43	47.8%
Social status	Single	14	15.6%
	Married	76	84.4%
The specialization Degrees	Accounting	20	22.2%
	Accounting and Finance	30	33.3%
	Finance	33	36.7%
Nature of the job Position	Accounting and Auditing	7	7.8%
	Responsibility position	27	30.0%
Job area	Normal position	63	70.0%
	Accounting	35	38.9%
Type of employment Contract	Finance	16	17.8%
	Accounting and Finance	31	34.4%
	Internal audit	4	4.4%
	Wages	2	2.2%
	Management Control	2	2.2%
	Fixed-term contract	22	24.4%
	Permanent contract	68	75.6%
Experience	Less than 15 years	44	48.9%
	15 to less than 20 years	26	28.9%
	20 to less than 25 years	10	11.1%
	25 to less than 32 years	7	7.8%
	32 years or more	3	3.3%

Source: Prepared by authors, based on the fieldwork

4.1.2. Assessing the Employed Accountants' Opportunities of Successfully Entering and Completing the Professional Accounting Education Program According to Factors in the Micro and Mesosystem

Individual factors are closely related to the microsystem because the individual is considered the center of this system. For this reason, individual factors have been included in this axis.

Based on Table 2 below, it is seen that the majority of respondents (76.7%) have a desire to enter the professional accounting education program, 57.97% of them choose the program qualifies for the profession of the chartered accountant, while 42.03% opted for the program of the statutory auditor.

Participants were asked about their knowledge area to participate in written completion to enter the professional accounting education program; their answers indicated that all respondents have good knowledge of accounting and finance; this is logical considering that accounting or/and finance constitute the majority of the sample's individuals' field of work. This is followed by audit with 10.7% of the total responses, French language (writing) with 10.4%, both law and taxation and general economics with 9.6%, Arabic language (writing) with 8%, information technology with 7.5%, statistic with 6.4%, French language (translation) with 6.1%, English language (writing) with 4.8%, and English language (translation) with 2.9%.

Participants were asked about their skills area to successfully pass the oral competition to enter the professional accounting education program; 31.2% of the responses stated that the respondents have critical thinking skills. This is followed by analytical skills with 24.5% of the total responses, Familiarity with the Algerian accounting profession with 23.4%, and communication skills with 20.9%.

Participants were asked whether they have the necessary effort to prepare for the competition to enter the professional accounting education program. In all, 66.7% of the respondents stated that they have the indicated effort, while 33.3% stated that they have not. Regarding those who answered 'no', the most important reason for most of them (40%) was limited time. This is explained by the 8-hour daily work system that is in place.

Participants were asked whether they have the necessary commitment to study and complete the Professional Accounting Program in case of success. The responses of the majority were positive (66.7%).

Table 2. The Individual Factors

Item	Yes		No		Response detail
	N	%	N	%	
Do You wish to enroll in a professional accounting education program?	69	76.7%	21	23.3%	For the response yes : -Statutory auditor: 29 (42.03%) -Chartered accountant: 40(57.97%)
Item	N		%		Response detail
Knowledge Area :					Multi-choice question
Accounting and Finance	90		24%		
Audit	40		10.7%		
Law and Taxation	36		9.6%		
General Economic	36		9.6%		
Information Technology	28		7.5%		
Statistic	24		6.4%		
Arabic Language(Writing)	30		8%		
French Language(translation)	23		6.1%		
French Language(writing)	39		10.4%		
English Language(translation)	11		2.9%		
English Language(writing)	18		4.8%		
What skills do you possess to Success in the oral competition To enter the professional accounting education program?					Multi-choice question
Familiarity with the Algerian Accounting Profession.	66		23.4%		
Analytical skills	69		24.5%		
Critical thinking skills	88		31.2%		
Communication skills	59		20.9%		
Item	Yes		No		Response detail
	N	%	N	%	
Do you have the necessary effort to prepare for the competition to enter the professional accounting education program?	60	66.7%	30	33.3%	The main reason for 'no': -Age: 3 (10%) -Limited time: 12 (40%) -Certified End of Education Chartered Accountant: 1 (3.33%) -Lack of willingness: 7 (23.34%) -Family Obligations: 6 (20%) -Health Reasons: 1 (3.33%)
Do you have the necessary commitment to study and complete the professional accounting program in case you succeed in entering it?	60	66.7%	30	33.3%	-

Source: Prepared by authors, based on the fieldwork

The results in Table 3 below show that the majority of the respondents (51.1%) stated that their employers have not authorized attendance study simultaneously with working times, and the majority of the respondents (74.4%) also stated that their employers do not allow adjusting working time if they follow a professional accounting education program.

In addition, the majority of the respondents (63.3%) expressed the encouragement of colleagues to the worker who is pursuing his education, and the majority of them (61.1%) assured their colleagues' cooperation in performing the tasks in the same situation. The majority of respondents (71.1%) indicated their willingness to pursue a cloud-based educational program.

On the question of whether unpaid leave could be taken to pursue the study, the majority of respondents (82.2%) stated that they were unable to do so. Most of the responses (36.3% of the total responses) were focused on family reasons. In the same context, the majority of respondents (67.8%) confirmed that they were unable to stay away from their families to study, and even those who answered positively mostly (45.1%) focused on the eastern of Algeria, which is the workplace of the study participants.

Table 3. Direct Environmental Factors

Item	Yes		No		Response detail
	N	%	%	N	
Does your employer authorize attendance study simultaneously with working times?	44	48.9	46	51.1%	For the response yes Hours/week : -I don't know exactly: 15 (34.09%) -4 hours: 10 (22.73%) -6 hours: 5 (11.36%) -8 hours: 12 (27.28%) -10 hours 1 (2.27%) -16 hours 1 (2.27%)
Does your employer allow adjusting working time if you Follow a professional accounting education program?	23	25.6	67	74.4%	-
Do your colleagues encourage the worker who is pursuing his education?	57	63.3	33	36.7%	-
Do your colleagues cooperate with the worker who is pursuing his education in performing his tasks?	55	61.1	35	38.9%	-
Can you follow a cloud-based professional accounting education program in communication and interaction with the teacher and peers?	64	71.1	26	28.9%	Reasons for 'no'(multi-choice question): -Work commitments: 20 (45.5%) -Family Obligations: 21 (47.7%) -Lack of technology Skills: 3 (6.8%)
Does your financial potential allow you to take an unpaid leave from work to continue a professional accounting education program?	16	17.8	74	82.2%	For the response 'yes' Maximum duration of unpaid leave: -6 months: 7(43.75%) -One year: 6 (37.5%) -One year and 6 months: 2 (12.5%) -Two years: 1 (6.25%) Reasons for 'no'(multi-choice) : Self-causes: 28 (33.7%) Family causes: 55 (36.3%)
Can you stay away from the the family for pursuing a professional accounting education program?	29	32.2	61	67.8%	For the response 'yes' the destination that can approached (Multi-choice question): -Eastern Algeria: 23 (45.1%)

-Central Algeria:
17 (33.3%)
-Western Algeria:
11 (21.6%)

Source: Prepared by authors, based on the fieldwork

4.1.3. Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the exosystem

As indicated in Table 4, to know the impact of exosystem factors on employed accountants' opportunities to enter and complete the professional accounting education program, participants were asked whether pursuing an additional educational path, as a condition for obtaining a professional certificate is a barrier to completing the professional accounting education program. The majority of respondents (56.7%) responded 'No'. In addition, the majority (65.6%) confirmed that a combination of attendance and cloud-based education will enhance their chances of completing successfully the program.

The majority of respondents (56.7%) also stated that a two-year professional internship period is insufficient to demonstrate appropriate experience. This is what makes prior practical experience an additional asset for employed accountants entering the professional accounting education program.

Table 4. Professional Accounting Education Program

Item	Yes		No	
	N	%	N	%
Do you believe that pursuing an additional educational path, as a condition for obtaining a professional certificate is a barrier to completing the professional accounting education program?	39	43.3%	51	56.7%
Item	N	%		
What is the nature of the professional accounting education program that enhances your chances of completing successfully it?				
-An attendance Program	17	18.9%		
-Cloud-Based Program	14	15.6%		
-A combination of attendance and cloud-based program	59	65.6%		
Item	Yes		No	
	N	%	N	%
Do you believe that a two-year professional internship requirement to demonstrate experience in the professional accounting education program is suitable for completing successfully the program?	39	43.3%	51	56.7%

Source: Prepared by authors, based on the fieldwork

4.1.4. Assessing the employed accountants' opportunities of successfully entering and completing the professional accounting education program according to the factors in the macrosystem

Table 5 depicts the results of perceptions of employed accountants on the professional work environment in the macrosystem. The majority of respondents (64.4%) believe that the Algerian environment lacks a culture of support from professional officeholders for aspiring professionals. Meanwhile, 61.1% of respondents think that the accreditation procedures for the right to practice the profession later affect the entry into and completion of the professional accounting education program by employed accountants. In addition, the majority of respondents (56.7%) consider that the legal regulation of Algeria's accounting profession has affected the opportunities of employed accountants wishing to enter the professional accounting education program. The majority of those who responded with 'Yes'(70.59%) confirmed the negative impact, referring to the delayed application of Law No 10-01 dated June 29, 2010.

Table 5. Work Environment Factors

Item	Yes		No		Response detail
	N	%	N	%	
Do you think that the Algerian environment has a culture of support from professional officeholders for aspiring professional accountants?	32	35.6%	58	64.4%	-
Do you think that the accreditation procedures for the right to practice the profession later affects the entry into and completion of the professional accounting education program by employed accountants?	55	61.1%	35	38.9%	-
Do you consider that the legal regulation of the accounting profession in Algeria has affected the opportunities of employed accountants wishing to enter the professional accounting education program?	51	56.7%	39	43.3%	For the response 'yes' effect type : -Positive effect: 15 (29.41% of those who responded ' yes') -Negative effect:36 (70.59% of those who responded ' yes')

Source: Prepared by authors, based on the fieldwork

4.2. Discussion

Examining the factors that influence the reasonable chance of employed accountants to enter and complete successfully the professional accounting education program for the chartered accountant and the statutory auditor in Algeria, this study adopted an ecological systems theory (Bronfenbrenner, 1979) to the relationship between a variety of factors that were identified by the participants as contributing to enhance or failure their chances to enter and complete the indicated professional program. Specifically, a set of factors that operate micro-, meso-, exo-, and macro-levels.

Firstly, we included targeted questions for the study sample focusing on the individual as the central figure in the microsystem, as well as factors related to the microsystem and mesosystem in a unified axis due to the interplay of elements and direct relationships linking them together, making the questions and reasons interconnected. Regarding personal traits, the results indicated that the majority of participants have a strong desire to enter the mentioned professional education program. This desire primarily stems from their ambition to progress in their professional career, with the potential of pursuing the profession in the future. This is especially significant as these individuals possess knowledge in the field of accounting and finance, which is the specialized area of study and work for most participants. In addition to the acquired skills, they also possess other qualities that support their opportunities to enter and complete successfully the professional education program, such as experience, effort in preparation, and commitment to their studies. It is worth noting that the participants' desire and effort in preparing for and completing successfully the program can compensate for any deficiencies in the areas of knowledge that did not receive sufficient positive responses from participants. The desire and effort create a kind of internal motivation. This finding is consistent with the work of (Credé & Kuncel, 2008) who has been shown, in a similar context, a strong correlation between both study motivation and study skills with both grade point average and grades in individual classes. Therefore, it can be said that the personal traits of the participants support their reasonable chance of entering and successfully completing the professional accounting education program.

In the context of the microsystem, the results showed that participants who expressed a lack of interest in entering the professional education program confirmed that they did not have the necessary effort to prepare. This can be attributed primarily to time constraints, which can be attributed to the full-time work system (8 hours per day) followed in economic organizations, in addition to family obligations. It is worth noting that most individuals in this situation are married. The results regarding study permission from the employer and the possibility of adjusting work hours for pursuing an educational path were mostly negative, with conflicting and

varying responses even among participants working within the same economic unit. This can be attributed to the absence of a binding legal provision in this regard and the reliance of economic organizations on what is stated in collective agreements and the assessments of the hierarchical authority. According to the appendix of the joint ministerial decision dated March 7, 2017 (Joint Ministerial Decision, 2017), which specifies the process of training and specialized training programs to obtain the chartered accountant certificate and the statutory auditor certificate, the total required duration to complete the program is 2390 hours. These hours are distributed over three years as follows: 850 hours during the first year, 810 hours during the second year, and 730 hours during the additional third year, which is exclusively dedicated to the chartered accountant program. Considering that the study period will be eight months per year, we would have an average weekly workload of approximately 25 hours. This exceeds the maximum licensed courier size for the study, as discussed in the participant's responses. Taking into account the centralization of the education institute, it would be challenging for employed accountants to balance work and study, even if they have permission from their employing organization. This would negatively affect their chances of completing the program. On the contrary, the majority of employed accountants expressed positivity about their immediate environment regarding their relationships with colleagues, their support, encouragement, and collaboration in task performance. This is somewhat consistent with the findings reported in the study of (Howieson et al., 2012), where they highlighted the lack of support in their research, suggesting that work itself is inimical to educational engagement. However, the issue primarily revolves around problems arising from the overlap of work schedules with attendance study time. In this regard, the majority of participants expressed their readiness to embrace cloud-based education that involves interaction with educators and peers, which would enhance their opportunities to reduce the required hours of attendance study.

In the next step, we attempted to assess the opportunities of employed accountants in completing successfully the professional accounting education program according to the exosystem. We posed questions regarding the nature of the program, as the profession witnessed the addition of a theoretical education track, estimated to be two years for the profession of the statutory auditor and three years for the profession of a chartered accountant. This is primarily aimed at deepening professional knowledge and the competence acquired by aspiring professional accountants in their initial professional development. The results showed that the addition of a theoretical professional education track does not affect the opportunities for employed accountants to complete successfully the program. The majority of participants stated that this measure does not pose an obstacle. However, they confirmed that their chances of completing the program are enhanced by adopting a professional accounting education program that combines both attendance and cloud-based learning. This is consistent with what we have previously emphasized regarding the importance of using cloud computing in accounting education, particularly interactive platforms that allow for immediate and real-time testing, evaluation, as well as training. This enables aspiring accounting professionals to proactively prepare for modern trends in the professional practice field (Traifi & Zirek, 2022).

In the broader context which includes the impact of factors classified within the macro level on the opportunities of employed accountants to enter and complete the professional education program, the study results revealed negative expectations regarding these factors, as indicated by the participants' responses. They expressed their belief in the lack of support and cooperation from professionals towards aspiring professional accountants, a matter that has been widely debated in the Algerian environment. Graduating students now complain about the lack of opportunities to undergo internships in professionals' offices, while professionals justify their inability to accommodate the large number of students seeking professional training in their offices. Furthermore, the majority of participants stated their belief in the expected negative impact of the complexities of accreditation procedures, a consequence of the reform phase in Algeria. A group of professionals had to wait for approximately 13 years to obtain accreditation. The results also highlighted the participants' perception of the negative influence of the legal regulation of the profession, particularly Law 10-01, on their opportunities to enter and complete the professional education program. This was expected, considering that the provisions of the mentioned law relating to the professional education program have not been implemented in reality, even after 13 years since its issuance. This can partially be explained by the heavy and inflexible legal regulation that characterizes the accounting profession in Algeria, which has resulted in delaying opportunities for many individuals to enter the professional accounting education program for a period exceeding a decade.

5. Conclusion

This study examines the assessment of opportunities for employed accountants to enter and complete the accounting education program related to the professions of chartered accountant and statutory auditor from an ecosystem perspective, amidst the reforms witnessed by the accounting profession in Algeria.

The factors that are likely to affect the opportunities for employed accountants to enter and complete the indicated program can be classified, according to the ecosystem model, into factors that fall within the

microsystem, factors that fall within the mesosystem, factors that fall within the exosystem, and factors that fall within the macrosystem. All factors were adapted to the Algerian environment.

Based on the responses of the participating employed accountants in the questionnaire survey, the study revealed that individual factors such as experience, desire, knowledge (especially in accounting and finance), skills, and effort contribute to the favorability of an employed accountant to enroll in and complete successfully the professional accounting program. A higher number of associate accountants are interested in the accounting profession

However, direct environmental factors within both the microsystem and mesosystem may negatively affect the opportunities of employed accountants due to the detrimental impact of work and family commitments, as well as the lack of financial resources that allow the employed accountants to temporarily leave work to pursue a professional accounting education program if they enter one. Additionally, insufficient study time and a lack of empathy toward work scheduling by employers further contribute to these challenges.

Regarding the factors related to the professional accounting education program for the chartered accountant and statutory auditor within the exosystem, the results showed that the majority of respondents from the category of employed accountants did not consider the addition of a theoretical educational track as a barrier to completing successfully the program. Meanwhile, the majority expressed that the provision the resources that ensure a combination of attendance and cloud-based education methods enhances their chances of completing successfully the program. The majority of the respondents consider that the duration of the field internship is insufficient.

In addition, the study results revealed the belief of employed accountants in the negative impact of factors within the macrosystem on their chances of completing the professional accounting education program. This is a result of the lack of a supportive culture among accounting professionals towards aspiring professional accountants in the Algerian environment, and concerns about the influence of accreditation requirements and procedures on their opportunities to enter and complete the program. Furthermore, the majority expressed the negative impact of the legal regulation of the profession embodied in law 10-01 on their opportunities to enter the professional education program.

In light of the results obtained from this study, we present the following suggestions:

- The necessity of providing full disclosure regarding the remaining entry requirements into the professional accounting education program for both statutory auditors and expert accountants.
- Taking into consideration the factors within the ecosystem that may affect the opportunities of employed accountants to successfully enter and complete a professional accounting education program, when releasing any requirement about the program and its implementation.
- Establishing subsidiary institutes spread across the national territory to facilitate the pursuit of the theoretical program.
- Taking into consideration the previous experiential learning acquired by the employed accountant through practical experience in their field, to produce the required in-person attendance hours imposed by the professional educational track.
- Adopting a blended approach that combines attendance and cloud-based education in implementing the program.
- Adopting Competency-based education as a solution to alleviate time constraints and limited seats, especially considering the controlled number of entrants into the professional accounting education program.
- Adopting flexibility in regulation related to the professional education pathway and expediting the process of determining its procedures to ensure sustainability in education, provide opportunities for future generations, and maintain trust in the profession, its members, and the regulating authorities.

References

- Abdessamad, N. (2022). *Dapt wa tandim mihnet mohafid el hissabet fi ettachri3 el djawairi*. Dar El Houda.
- Abrams, K., Theberge, S. K., & Karan, O. C. (1999). Children and Adolescents Who Are Depressed: An Ecological Approach. *Professional School Counseling*, 8(3), 284–292. <https://about.jstor.org/terms>
- Anderson-Gough, F., Grey, C., & Robson, K. (2002). Accounting professionals and the accounting profession: Linking conduct and context. *Accounting and Business Research*, 32(1), 41–56. <https://doi.org/10.1080/00014788.2002.9728953>

- Behn, B. K., Ezzell, W. F., Murphy, L. A., Rayburn, J. D., Stith, M. T., & Strawser, J. R. (2012). The pathways commission on accounting higher education: Charting a national strategy for the next generation of Accountants. In *Issues in Accounting Education* (Vol. 27, Issue 3). <https://doi.org/10.2308/iace-10300>
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard university press. [https://books.google.dz/books?hl=fr&lr=&id=OCmbzWka6xUC&oi=fnd&pg=PA3&dq=Bronfenbrenner,+U.+\(1979\).+The+ecology+of+human+development:+Experiments+by+nature+and+design.+Harvard+university+press.&ots=yzQVK3WSj9&sig=ZN-NooHiAGnErZYabzOUVV_0Lho&redir_esc=y#v=](https://books.google.dz/books?hl=fr&lr=&id=OCmbzWka6xUC&oi=fnd&pg=PA3&dq=Bronfenbrenner,+U.+(1979).+The+ecology+of+human+development:+Experiments+by+nature+and+design.+Harvard+university+press.&ots=yzQVK3WSj9&sig=ZN-NooHiAGnErZYabzOUVV_0Lho&redir_esc=y#v=)
- Cowie, B., & Khoo, E. (2018). An Ecological Approach to Understanding Assessment for Learning in Support of Student Writing Achievement. *Frontiers in Education*, 3(February), 1–13. <https://doi.org/10.3389/educ.2018.00011>
- Credé, M., & Kuncel, N. R. (2008). Study Habits, Skills, and Attitudes: The Third Pillar Supporting Collegiate Academic Performance. *Perspectives on Psychological Science*, 3(6), 425–453. <https://doi.org/10.1111/j.1745-6924.2008.00089.x>
- Executive Decree No. 12-288 dated July 21, 2012. Concerning the creation, organization, and functioning of the Specialized Institute of Accounting Education for the Accounting Profession, Pub. L. No. 12–288 (2012). <https://www.joradp.dz/FTP/JO-FRANCAIS/2012/F2012043.pdf?znjo=43>
- Howieson, C., Mekechnie, J., Hobbs, S., & Semple, S. (2012). New Perspectives on School Students' Part-time Work. *Source: Sociology*, 46(2), 322–338. <https://www.jstor.org/stable/43497259%0AJSTOR>
- IAESB. (2013). *International Accounting Standard(IES1) Entry Requirements to Professional Accounting Education Programs (Revised) Final Pronouncement*. https://www.ifac.org/system/files/publications/files/IES_1_Final_February_1_2013.pdf
- IAESB. (2015). *Framework for International Education Standards for Professional Accountants and Aspiring Professional Accountants*. https://www.ifac.org/system/files/publications/files/IAESB-Framework-for_IES-for-Professional-Accountants-and-Aspiring-Professional-Accountants.pdf
- IAESB. (2016a). *IMPLEMENTATION SUPPORT MATERIALS ILLUSTRATIVE EXAMPLE ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS*. <https://www.ifac.org/system/files/publications/files/FAQ-on-IES-1-Sept-2016.pdf>
- IAESB. (2016b). *STAFF QUESTIONS AND ANSWERS IMPLEMENTATION SUPPORT MATERIALS GUIDANCE PAPER ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS*. <https://www.ifac.org/system/files/publications/files/FAQ-on-IES-1-Sept-2016.pdf>
- IAESB. (2016c). *STAFF QUESTIONS AND ANSWERS IMPLEMENTATION SUPPORT MATERIALS GUIDANCE PAPER ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS*. <https://www.ifac.org/system/files/publications/files/Perspectives-on-IES-1-Sept-2016.pdf>
- IAESB. (2016d). *STAFF QUESTIONS AND ANSWERS IMPLEMENTATION SUPPORT MATERIALS PERSPECTIVES ON IES 1, ENTRY REQUIREMENTS TO PROFESSIONAL ACCOUNTING EDUCATION PROGRAMS WHAT DO WE KNOW ABOUT THE FACTORS THAT INFLUENCE SUCCESS OR FAILURE WITHIN A PROFESSIONAL ACCOUNTING EDUCA*. https://www.ifac.org/_flysystem/azure-private/publications/files/Perspectives-on-IES-1-Sept-2016.pdf
- IAESB. (2019). *Handbook of International Education Pronouncements*. International Federation of Accountants(IFAC). <https://www.ifac.org/system/files/publications/files/Handbook-of-International-Education-Standards-2019.pdf>
- IFAC. (2022). *IFAC STRATEGIC PLAN: 2022 AND BEYOND*. https://www.ifac.org/_flysystem/azure-private/publications/files/IFAC-Strategic-Plan-2022-Beyond.pdf
- Joint ministerial decision dated March 7, 2017. Establishing the modalities for the conduct of the training, as well as the specialized training programs leading to obtaining the diploma of a chartered accountant and the diploma of a statutory auditor, (2017). <https://www.joradp.dz/FTP/JO-ARABE/2017/A2017045.pdf?znjo=45>
- Law No. 10–01 dated June 29, 2010. Pertains to the professions of the chartered accountant, the statutory auditor, and the certified accountant, Pub. L. No. 10–01 (2010). <https://www.joradp.dz/FTP/JO-FRANCAIS/2010/F2010042.pdf?znjo=42>
- Littleton, A. C. (1942). The Meaning of Accounting Education. *The Accounting Review*, 17(3), 215–221. <https://www.jstor.org/stable/239890>
- O'Toole, L., Hayes, N., & Mhathúna, M. M. (2014). A Bio-ecological Perspective on Educational Transition. *Procedia - Social and Behavioral Sciences*, 140, 121–127. <https://doi.org/10.1016/J.SBSPRO.2014.04.396>
- Pae, H.-K. (2003). Chapter Nine: Global Education from an Ecological Perspective: To Become a Global Citizen. In *Counterpoints* (Vol. 218, pp. 139–161). <https://doi.org/https://doi.org/10.2307/42978157>
- Sarvan, S., & Muslu, L. (2022). In the eyes of adolescents, is the pandemic an obstacle or a gain? A qualitative study based on the ecological theory. *Journal of Pediatric Nursing*, 66, 15–22. <https://doi.org/10.1016/j.pedn.2022.05.012>

- Stewart, E. B. (2007). Individual and School Structural Effects on African American High School Students' Academic Achievement. *The High School Journal*, 91(2), 16–34. <https://doi.org/10.1353/hsj.2008.0002>
- Traifi, N., & Zirek, S. (2022). The Reality of Using Cloud-Computing Applications in Activating Accounting Education: An Exploratory Study of the Opinions of Finance and Accounting Department professors in the University of 20 August 1955 Skikda. *Revue Les Cahiers Du POIDEX*, 11(02), 67–89. <https://www.asjp.cerist.dz/en/downArticle/195/11/2/209059>
- Xue, J. (2012). The Construction of Higher Education Entrepreneur Services Network System a Research Based on Ecological Systems Theory. *Physics Procedia*, 25, 1757–1760. <https://doi.org/10.1016/J.PHPRO.2012.03.307>

Current situation analysis of the family medicine system in Türkiye and recommendations

Pelin Yılık

Dr., Deputy, Grand National Assembly of Türkiye, Ankara, Türkiye

ORCID ID: 0000-0002-4210-3898

Email: pelinyilik@hotmail.com

DOI: <https://doi.org/10.19275/RSEP164>

Article Type: Original/Research Paper

Article History

Received: 6 May 2023

Revised: 25 August 2023

Accepted: 7 September 2023

Available Online: 18 September 2023

Keywords: family medicine system, current situation, health statistics

JEL classification: I13, I15

Citation: Yılık, P. (2023). Current situation analysis of the family medicine system in Türkiye and recommendations, *Review of Socio-Economic Perspectives*, 8(3), 59-65.

Copyright © The Author(s) 2023 This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<https://creativecommons.org/licenses/by/4.0/>), which permits unrestricted reuse, distribution, and reproduction in any medium, provided the original work is properly cited.

Abstract

In Türkiye, the first place of application for preventive health services and polyclinic services is Family Medicine Units. This study was conducted to reveal the status of the Family Medicine System in the current health system as of 2021 and to make recommendations. Study data were taken from the 2021 health statistics yearbook of the Ministry of Health. The average population per Family Medicine Unit in Türkiye is 3,145 and it has been determined that there are significant imbalances between regions and provinces. In 2021, 36% of the total physician applications in Türkiye were made to Family Medicine Units, and 2.9 of 8 applications per capita were made here. The referral rate in the family medicine system has been 0.6% as of 2021, and when evaluated together with the number of applications, it can be said that the referral system is not functioning effectively. The satisfaction rate with the Family Medicine System was generally higher than with inpatient treatment services, at 70.1%. When the study results are evaluated; Suggestions were made, especially for improving the referral system, making the distribution of family medicine units balanced, and increasing the qualifications of family physicians.

1. Introduction

Family medicine was first introduced in 1923 by an English physician named Francis Peabody. According to Peabody, since patients cannot access medical services as a result of excessive specialization in medical sciences, he put forward the necessity of a specialty that provides comprehensive and personalized health services. In 1947, the real practice of family medicine came to life in England when family physicians and general practitioners established the Royal College of Family Physicians. The advancement and socialization of family medicine, which would provide comprehensive and personalized services, began in the 1950s (Turkish Family Physicians Specialization Association, 2023).

The idea of establishing a new medical discipline, which would be formed by physicians suitable for working in primary health care services, was put forward in the early 1960s. In addition, in the 1960s, an institutional structure in the form of the "Board of Family Practice" was formed in the United States of America (USA) and family medicine specialization was established. Later, in 1963, the first family medicine department opened in Scotland. It was recognized as a specialty throughout the United Kingdom in 1965. In the USA, "Family Medicine" was recognized by the "American Medical Association" in 1969, together with the "Militia Report" and "Willard Report". The "International Conference on Primary Health Care Services (Alma Ata Conference)" was held in Kazakhstan in 1978, and as a result of the modern medical understanding of the world countries, goals and strategies were stated under the title of Health for All in 2000. Emphasizing that the provision of primary health care services includes unique information and conditions and that this should be given by specialist physicians, studies have been initiated all over the world on this subject. In the "Alma Ata Conference Concluding Declaration" signed by World Health Organization (WHO), WHO and WONCA World Family Physicians Organization, family medicine was written as a specialty, and it was decided to provide family medicine specialty training after medical school in all countries.(Aktaş, 2012).

The terms family medicine and general practice are used synonymously throughout the world and describe a medical doctor who has received specific specialization training in "Primary Health Care". In Türkiye, the term general practitioner is used for a physician who has not received specialized training after medical school. Despite the differences in practice and name, family medicine forms the basis of primary health care services in many of the world's countries (Turhan, 2014).

2. Family Medicine System in Türkiye

In the development and organization of Turkish health services, efforts to deliver preventive and therapeutic health services to individuals have gained momentum in the development process extending from the proclamation of the Republic to the present day. The foundations of today's health organization and health services in our country were laid in the first years of the proclamation of the Republic. During the Republic period, while it was desired to expand the treatment service network, on the other hand, a major move was made in preventive health services. After the proclamation of the Republic, Dr. Refik Saydam made great contributions to the establishment and development of health services in our country. The health policies included in the General Hygiene Law include principles regarding the planning and programming of health services, the execution of preventive and therapeutic medicine, the prevention of infectious diseases, and increasing interest in medical faculties. In the light of these principles, health services are organized as "single-purpose" / "vertical organization in a wide area". " model was carried out. Starting from places with high population, examination and treatment houses were opened, physicians working in preventive health services were supported, and the foundations of today's health transformation program were laid even then. The Health Transformation Program (HTP) aims to transform the institutional position of primary health services into a structure that will have authority and control over other service levels. Improving the conditions of individuals and healthcare professionals constitutes the starting point for innovations in this regard. The most distinctive feature of the health transformation program is to provide individuals with access to healthy life programs, reduce maternal and infant mortality, prioritize combating infectious diseases and risk factors of chronic diseases, improve individuals' ability to control their own health conditions, and place the preventive medicine approach at the center of health. This practice, which is among the main objectives of the HTP, is to increase the health level of our people, to provide more services by using our resources appropriately, and to ensure that all individuals have access to health services according to their needs in the light of the principle of equity. Access to health services and health indicators both between rural and urban areas and between east and west. Reducing the differences related to In order to achieve these goals, primary health care services are reorganized and expanded with a contemporary approach and offered in a way that is preferable to all members of the society. One of the main elements of this approach is that everyone has a family doctor that they can choose, easily access, and consult without encountering any obstacles. Nusret Fişek expressed the importance he attaches to this issue by saying, "personal preventive medicine services and outpatient and home patient treatment services should be carried out together, and the simplest integrated organization model is modern family medicine" (hsgm.saglik.gov.tr, 2023).

With modern family medicine, our main goal is to deliver health services to all individuals in a geographically balanced manner in our country, and to provide primary health care services with preventive, diagnostic, treatment and rehabilitative aspects in the places where individuals live and work, in a way that ensures the participation of the society. In the provision of health services, the main principles are to develop and strengthen primary health care services through continuous education, to encourage working physicians and other health personnel, to focus on the preventive health system by taking into account individual needs and to implement an acceptable referral system. These principles will prevent congestion in secondary care and ensure that sufficient time is allocated to patients who need to be treated in secondary care. Considering that family medicine is a multidisciplinary health approach, it envisages a holistic health care approach. Communicates based on trust, deals with problems in physical, psychological and social aspects. In addition to being individual-centered, it is an important building block of family medicine practice due to its integrativeness, continuity, and family and society-oriented features. The basic health care needs of the ever-increasing elderly population will be met much more effectively through family physicians who know them and can be easily reached. It is generally envisaged that providing primary health care services effectively will reduce the disease burden of the society, as well as provide opportunities for our secondary and tertiary care institutions to provide better and higher quality health services and health education. Until 2010, the WHO included among its goals the "Health for All" approach in the 21st century, as a continuation of the decision taken at the Alma Ata congress, and better access to family and community-based basic health services. Aiming to achieve this goal, the Health Transformation Program envisages providing family-based primary health services in an integrated manner, with health teams equipped with the necessary training and skills. In order to strengthen primary health services in our country, to organize and provide primary health care services in a quality, effective, efficient and equitable manner, a Family Medicine Model unique to our country, taking into account other countries' examples and our country's conditions and needs, is the way to achieve the goals of the Health Transformation Program. has been created. In this context, the first regulations regarding family medicine practice were made, Law No. 5258 on Family Medicine Pilot Practice published in the Official Gazette No. 25650 dated 24.11.2004, Regulation on Family Medicine Pilot Practice published in the Official Gazette No. 25867 dated 06.07.2005, The basic procedures and principles regarding the practice of family medicine have been determined by the Regulation on Payments and Contract Conditions to be Made to the Personnel Employed by the Ministry of Health within the Scope of the Family Medicine Pilot Practice, published in the Official Gazette dated 12.08.2005 and numbered 25904.

It was started as a pilot application in Düzce province in Türkiye in 2005; 6 provinces in 2006, 7 provinces in 2007, 17 provinces in 2008, 4 provinces in 2009, and 46 provinces in 2010. With the implementation throughout Türkiye, taking into account scientific and technological developments and changes in service needs, efforts have been focused on improving the physical conditions and technical equipment of service spaces, increasing the quantity and quality of the scope of family medicine services, and improving the knowledge, experience and capacity of family medicine staff.

Within the scope of family medicine practice, it has been ensured that each person is a family physician in order to carry out regular follow-up and evaluation of individuals, to resolve and manage health service applications through a physician who has full knowledge of the individual's health history and in which the physician-patient relationship is established in mutual trust. In the first transition to the application, family physicians of individuals were made by the Ministry, taking into account their place of residence, but individuals were given the right to choose and change their family physician.

3. Family Health Center

Family Health Center in Türkiye; It can be opened by one or more family physicians who have made a contract, based on the population criteria stipulated by the Ministry of Health. A separate contract is made for each family physician and family health worker position in the same family health center. In order to assist with health services, family physicians may employ additional health care personnel such as midwives, nurses, health officers, medical secretaries, and may individually or jointly employ personnel or purchase services for security, cleaning, heating, secretariat and similar services. An additional health personnel (such as midwife, nurse, health officer, medical secretary) may be assigned by the directorate for every three family medicine units in the family health center. The working procedures and principles of the personnel to be assigned in this way are determined by the Institution. Educational family health centers and family health centers deemed appropriate by the Institution can be used for educational purposes. Duties, powers and responsibilities of the family doctor The family doctor is obliged to manage the family health center, supervise the team he works with and provide in-service training, and carry out personal health services required by the special health programs carried out by the Ministry and the Institution. The family physician is authorized and responsible for treating the people registered with him as a whole and providing preventive, treatment and rehabilitative health services for the individual within a team approach (Kaygusuz, 2023).

4. Research

4.1. Aim and Method

This study was conducted in order to evaluate the status of the Family Medicine System, which is the main actor of primary health care services in Türkiye, in the current health system.

The research data were obtained from the health statistics yearbook of the Ministry of Health of the Republic of Türkiye for the year 2021, and the obtained data were analyzed by years and provinces, and evaluations and suggestions were made.

4.2. Findings

In this chapter; The findings are summarized within the scope of the data obtained from the Health Statistics Yearbook of the Ministry of Health of the Republic of Türkiye for 2021. According to Table 1, there are 26928 family medicine units in 8057 family health centers in 2021. Almost all applications made in primary health care services are made to family medicine units.

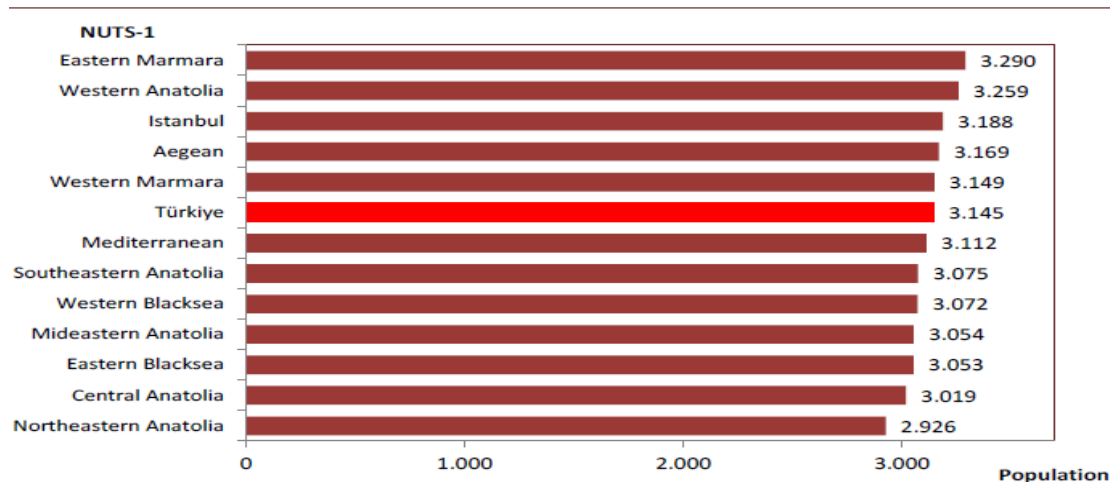
Table 1. Primary Health Care Facilities by Years, Ministry of Health

	2002	2017	2018	2019	2020	2021
Health Center	5.055	-	-	-	-	-
Family Medicine Unit	-	25.198	26.252	26.476	26.594	26.928
Family Health Center	-	7.774	7.979	7.997	8.015	8.057
Community Health Center	-	972	776	778	779	778*
Health House	2.899	5.320	5.259	5.078	5.027	4.983
Child, Adolescent, Women and Reproductive Health Unit (CEKUS)	298	177	172	167	166	96
Tuberculosis Control Dispensary	277	177	173	174	173	173
Cancer Early Diagnosis, Screening and Training Centers (KETEM)	84	164	175	178	175	336**
E2-E3 Integrated District State Hospitals	-	189	196	200	198	200
Number of Public Health Laboratories	-	83	83	83	84	84

Source: The Ministry of Health of Türkiye Health Statistics Yearbook, 2021

According to Table 2, Türkiye's average population per family medicine unit is 3,145. According to the regions, Eastern Marmara has the highest population with 3,290, while Northeastern Anatolia has the lowest population with 2,926.

Table 2. Population per Family Medicine Unit by NUTS*-1, 2021



Source: The Ministry of Health of Türkiye Health Statistics Yearbook, 2021

*NUTS: Nomenclature of Territorial Units for Statistics

Looking at Table 3, it is seen that the lowest population per family medicine unit is in Ardahan province with 2,637, and the highest population is in Yalova province with 3,549 population.

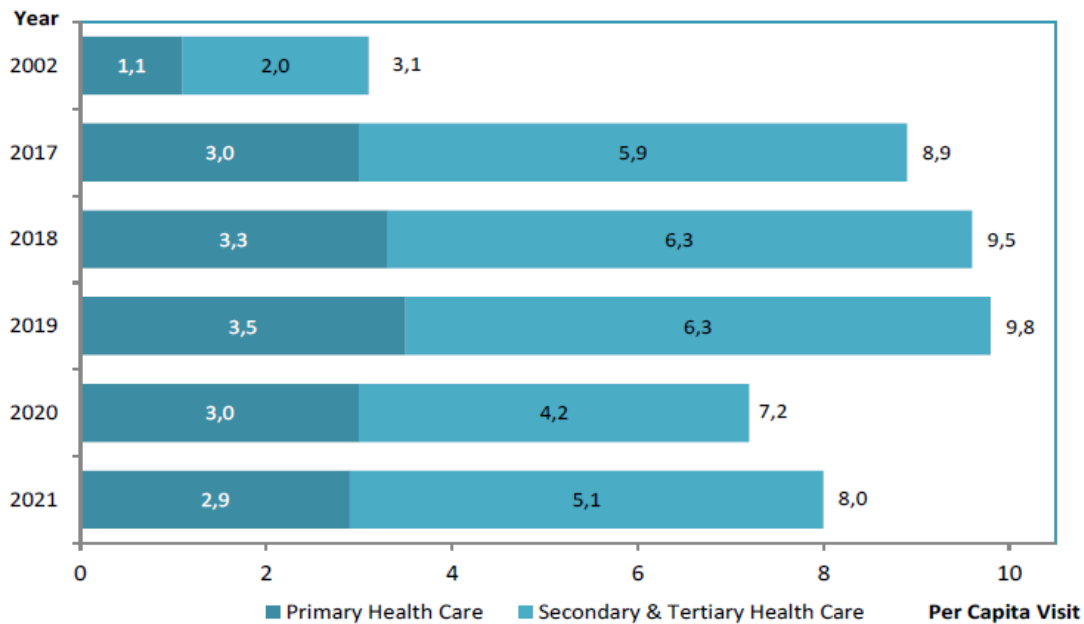
Table 3. Family Medicine Unit Populations, Lowest and Highest Provinces and Average

City	Number of Hospital	Number of Bed	Number of Hospital Bed per 10.000 Population	Number of Qualified Bed	Number of Intensive Care Unit Bed	Proportion of Qualified Bed *	Intensive Care Unit Bed per 10.000 Population	Number of Family Medicine Unit	Population per Family Medicine Unit
Ardahan	3	215	22,6	184	26	97,4	2,7	36	2.637
Yalova	7	733	25,2	448	195	83,3	6,7	82	3.549
Türkiye	1.547	254.497	30,1	163.993	48.753	79,7	5,8	26.928	3.145

Source: The Ministry of Health of Türkiye Health Statistics Yearbook, 2021

When Table 4 is examined, the number of applications to a physician per capita in 2021 was 8, and 2.9 of these were made to family medicine units.

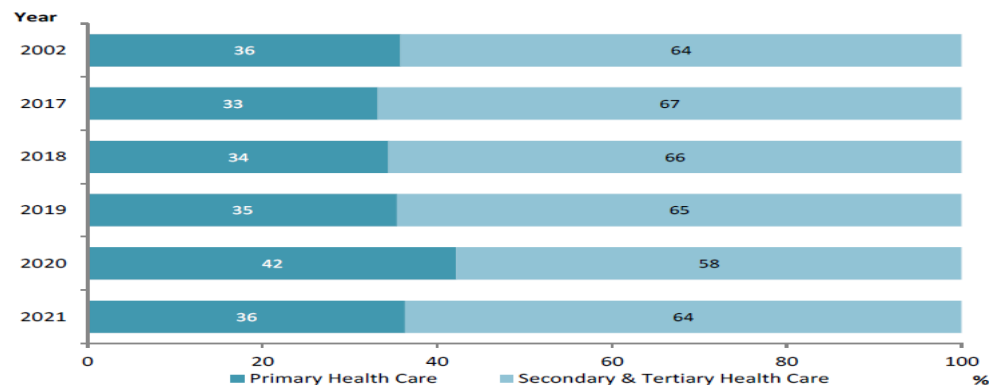
Table 4. Total Number of per Capita Visits to a Physician in Health Care Facilities by Years



Source: The Ministry of Health of Türkiye Health Statistics Yearbook, 2021

In Table 5, it is seen that the rate of applications to family medicine units is 36% among the number of applications to doctors per person or in total.

Table 5. Ratio of Total Number of Visits to a Physician in Health Care Facilities by Years



Source: The Ministry of Health of Türkiye Health Statistics Yearbook, 2021

In Figure 1, the referral rate to the family medicine unit by years is shown; It was 0.6% in 2021. It has been observed that the delivery rate has been between 0.2% and 0.6% since 2014. While it was 22% in 2002, it decreased at a high rate to 1% in 2009.

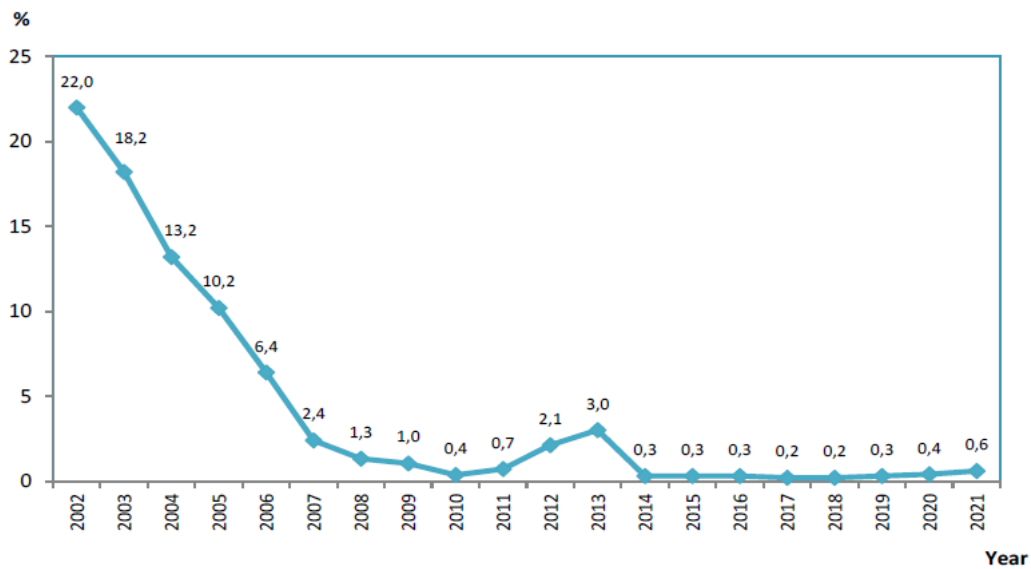


Figure 1. Referrals from the Family Medicine Unit by Years, MoH, (%)

Source: The Ministry of Health of Türkiye Health Statistics Yearbook, 2021

In Table 6, where the satisfaction rate with the services of health institutions is shown, Family Health Centers are ranked after Private Practices and City Hospitals with a satisfaction rate of 70.1%. Family medicine units generally have a higher satisfaction rate than other hospitals.

Table 6. Satisfaction Ratio with Healthcare Services, (%), 2021

	Satisfied	Neither Satisfied Nor Unsatisfied	Not Satisfied	No Idea
Hospitals				
State	69,1	13,3	17,2	0,5
City Hospital	72,7	10,6	16,7	0,0
University	65,0	18,1	16,5	0,4
Private	58,4	15,0	26,1	0,5
Family Health Center	70,1	15,1	14,5	0,3
Private Polyclinic	56,6	13,6	29,7	0,0
Organization's Doctor	52,0	24,7	23,4	0,0
Private Medical Centers	87,1	0,0	12,9	0,0

Source: The Ministry of Health of Türkiye Health Statistics Yearbook, 2021

5. Conclusion

In this study, which summarizes the current situation of the family medicine system in Türkiye, it can be mentioned that there is an imbalance in the numerical distribution of family medicine units. While Türkiye's average head of family medicine is 3,145, there is a significant population imbalance between 2600 and 3500. This situation may cause access to family physicians in highly populated regions or cities and may also reduce the quality of family medicine services. Considering that family medicine services are first-degree polyclinic services with the provision of preventive health services for the individual and society, this huge scale must be reduced. In this context, measures should be taken to ensure a more balanced distribution of family medicine units.

When the data obtained is analyzed, it is said that the society is more satisfied with the family medicine system than the hospital services, but the very low referral rate is attributed to the high number of direct applications of the society to inpatient treatment institutions. In this context, improving the system, especially within the scope of the referral system, has been deemed important for the management of health expenditures. In addition, improving the qualifications of provincial physicians will significantly reduce the number and rate of referrals and may reduce applications for hospital services.

In order to increase the qualifications of family physicians, it is recommended that all family physicians undergo specialization training in the short term or that the quotas for family medicine specialties are increased and specialist family physicians are brought into the system.

References

- Aktas, E.O. and Çakır, G., (2012), Family Physicians' Views on Family Medicine Practice: A Survey Study, Türkiye Aegean Medical Journal, Volume: 51, Issue: 1
- General Directorate of Public Health, Department of Family Medicine Practice and Development, (2023), Family Medicine in Türkiye, <https://hsgm.saglik.gov.tr/tr-aile-hekimligi.html> (Access: 06.09.2023)
- General Directorate of Public Health, Department of Family Medicine Application and Development, (2023), Registration and Change to a Family Physician, <https://hsgm.saglik.gov.tr/tr/ah-kayit-degisikligi.html> (Access: 06.09.2023)
- Kaygusuz, S. (2023), Public Health Service Units Monitoring and Evaluation Personnel Certified Training Program Training Guide, Ministry of Health, Ankara. (<https://hsgm.saglik.gov.tr/tr/dokumanlar-1/rehberler-ahaidb.html>, Access: 05.09.2023)
- Ministry of Health, (2021), Health Statistics Yearbook, Ministry of Health General Directorate of Health Information Systems, Ankara.
- Turhan, E.S., (2014), World and Türkiye Practices of Family Medicine: A Field Study on the Role of Communication in the Physician-Patient Relationship in Family Medicine and Its Effects on the Satisfaction of the Parties, Ufuk University, Institute of Social Sciences, Department of Business Administration, Master's Thesis in Health Institutions Management, Ankara.
- Turkish Family Physicians Specialty Association website, (2023), (Tüzün S. Kaya Ç. A. "History of Family Medicine as a Specialty", Turkish Family Physicians Specialty Association, Marmara University Hospital Family Medicine, <http://www.tahud.org.tr/>, (Access: 07.09.2023).

