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**COMUNICACIÓN  
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**Gloria Ramírez Elías  
Lilibeth Portillo Rumbo  
Javier Solano Solano  
Tirso Javier Hernández Gracia  
(coordinadores)**



## Other lines of scientific research



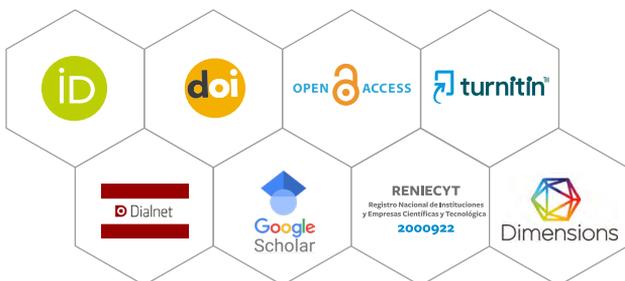
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## Prologue

The compilation presented in **Other Lines in Scientific Research** offers a multifaceted contribution to the ongoing dialogue between scientific inquiry and societal development. As the boundaries of disciplinary knowledge become increasingly porous, the imperative to explore alternative angles, neglected contexts, and interdisciplinary intersections gains momentum. This volume responds to such imperatives by bringing together a wide-ranging set of studies unified by a shared commitment to addressing problems of public relevance and structural significance.

Across its chapters, the volume highlights how empirical research, when systematically applied to pressing issues, can serve as both a diagnostic and transformative instrument for social structures. The inclusion of topics such as artificial intelligence in tax administration, the impact of Self-fulfillment in educational settings, and social accounting within microenterprises points to a deliberate editorial strategy: to foreground knowledge production that is methodologically sound, contextually anchored, and normatively oriented toward equity and efficacy.

In the current epistemological climate, where science is simultaneously revered and contested, the role of scholarly research in informing public policy has become more visible and more fragile. Policymakers seek evidence-based recommendations, yet they often operate within systems not structurally equipped to incorporate academic knowledge. In this sense, the present volume offers more than a thematic novelty; it provides applied research that can inform institutional reform, regulatory innovation, and capacity-building at multiple levels of governance.

The opening chapter, focusing on the role of artificial intelligence in the Mexican tax review process, illustrates the shift from traditional audit frameworks toward algorithmic governance. The study underscores how data mining and machine learning can enhance oversight, mitigate tax evasion, and strengthen transparency in public administration. Crucially, the chapter does not indulge in technological determinism. Instead, it provides a balanced assessment of the opportunities and constraints of adopting AI in complex institutional environments. The relevance of this analysis lies not only in its technological insight but also in its implications for policy design in contexts where public trust and resource optimization are critical challenges.

Chapter two expands the field of observation by addressing social accounting in the context of Tlaxcala, Mexico. Here, accounting is not a mere financial instrument but reconfigured as a social technology that can foster accountability, inclusiveness, and local development. The chapter's emphasis on microenterprises highlights the distributive dimensions of economic policy, especially in post-pandemic recovery. The study positions social accounting as a participatory governance and policy monitoring tool by documenting how non-financial indicators can reflect community well-being and public sector performance. Such insights are valuable in settings marked by fiscal opacity and limited institutional reach.

The third chapter examines the impact of Self-fulfillment processes in higher education institutions. It shifts the analytical lens from economic to psychological dimensions of development. The chapter's focus on university students is methodologically grounded in quantitative and qualitative approaches. Its theoretical framing situates Self-fulfillment within a broader discourse on capability development and educational quality. The chapter demonstrates that fostering self-recognition and self-determination contributes to academic performance and the formation of socially responsible individuals. These findings align with policy priorities that balance technical skills with socioemotional competencies in educational curricula.

Chapter four, offering a comparative analysis of tax regimes for self-employed medical practitioners, brings an international perspective to the volume. The comparative framework between the United States, the United Kingdom, Germany, and Mexico offers insights into how legal frameworks

shape professional behavior, income distribution, and service sustainability in healthcare. The chapter highlights the impact of differential tax burdens and administrative requirements on self-employed health professionals. It contributes to global debates on health system reform, the informal economy, and tax justice.

The studies assembled in this volume provide a cross-sectional view of emergent themes in public administration, education, economic regulation, and social development. Each chapter articulates its findings in a way that is both empirically rigorous and strategically relevant. The contributors make explicit the policy implications of their research, engaging with local conditions while drawing connections to broader theoretical and institutional frameworks. This balance between micro-level data and macro-level insight lends the volume its academic integrity and applied utility.

Beyond the individual contributions, the editorial design of the book invites reflection on the changing role of the researcher in contemporary society. No longer confined to disciplinary silos, researchers are increasingly called upon to engage with multiple stakeholders, translate evidence into action, and anticipate the societal consequences of their findings. The volume reflects this shift by foregrounding inherently dialogical research—interacting with the state, the market, and civil society. It embraces a reflective, responsive, analytical, and actionable model of science.

The volume contributes to a developing methodological sensibility that prioritizes mixed approaches, local knowledge, and policy-oriented analysis. Although the chapters vary in scope and scale, they are committed to triangulation, contextualization, and institutional relevance. This consistent approach reinforces the volume's coherence and analytical integrity in an era where methodological pluralism often leads to epistemic fragmentation. The volume thus exemplifies a form of academic coherence that does not compromise on diversity.

The publication of *Other Lines in Scientific Research* is timely. Governments, academic institutions, and civil society organizations across the Global South and beyond face intersecting crises, including economic volatility, democratic erosion, environmental degradation, and digital disruption. The demand for grounded, interdisciplinary, and socially engaged research is rising in such contexts. This volume responds to that

demand by providing answers and frameworks for asking more generative questions.

In addition, the volume is relevant to academic debates on the democratization of knowledge and research ethics. The studies included here align with broader efforts to reconfigure the relationship between science and society by engaging with issues such as transparency, public value, and human development. The contributors do not assume that research is intrinsically beneficial; instead, they examine under what conditions and mechanisms research can contribute to public goods. This critical stance distinguishes scholarship from consultancy and positions the volume as a meaningful intervention in contemporary academic discourse.

The commitment to addressing real-world challenges is evident in the chapters' thematic selections, as well as the methodological transparency and interpretive restraint that characterize each study. There is a clear effort to avoid overgeneralization, recognize limitations, and propose future research agendas. This ethical approach bolsters the credibility of the findings and enhances their potential application by decision-makers.

In conclusion, 'Other Lines in Scientific Research' offers both a repository of knowledge and a framework that guides how researchers conduct, communicate, and align their work with broader societal objectives. Its contributions extend beyond the confines of academia and institutional innovation. The book will interest scholars, practitioners, and policymakers alike—especially those committed to understanding and shaping the complex interactions between knowledge, power, and social transformation.

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# Introduction

In Chapter 1, Artificial Intelligence (AI) is reshaping industries across the globe, and the field of taxation is no exception. In Mexico, where tax compliance and enforcement are critical challenges for the government, AI presents a promising opportunity to enhance the efficiency, accuracy, and fairness of the tax review process. The integration of AI in tax administration could significantly improve oversight, reduce evasion, and streamline audits, making it a valuable tool for the Mexican tax authority, Tax Administration Service (SAT).

One of the primary benefits of AI in tax review is the ability to analyze large volumes of data in real time. SAT collects vast amounts of financial, transactional, and behavioral data from individuals and corporations. Through machine learning algorithms and data mining techniques, AI systems can detect anomalies, patterns, and discrepancies that may indicate tax fraud or underreporting. This allows for more targeted and risk-based audits, reducing the burden on compliant taxpayers and increasing enforcement where it matters most.

So, Mexico's adoption of electronic invoicing and digital tax reporting has created an ideal environment for AI applications. These digital tools provide structured data that AI systems can process effectively. With real-time access to transaction-level data, the SAT is already moving toward predictive analytics, enabling proactive interventions rather than active enforcement.

In Chapter 2, The social impact of social accounting in the state of Tlaxcala, Social accounting, also known as social and environmental accounting,

is a vital tool for assessing the social and environmental consequences of an organization's activities. In the context of Tlaxcala, one of Mexico's smallest states both geographically and economically, social accounting has gained importance as a mechanism for enhancing transparency, improving social welfare, and fostering sustainable development. This research explores the social impact of social accounting in Tlaxcala, examining how it influences public policy, business practices, and community well-being.

Social accounting in Tlaxcala has contributed to greater transparency and accountability in government and private institutions. By requiring the disclosure of non-financial information, such as labor practices, environmental management, and community engagement, social accounting empowers citizens and civil society organizations to monitor how public and private entities manage resources and contribute to social goals. For example, when local governments report on their investments in health, education, or poverty reduction, it enables communities to hold them accountable and demand improvements when necessary.

In Chapter 3, *The impact of Self-fulfillment in Higher Education Institutions*, the process through which individuals come to understand and fulfill their potential, plays a critical role in the context of higher education. As colleges and universities strive to prepare students not only for careers but also for meaningful lives, the cultivation of self-awareness and personal growth has become increasingly important. This research explores the impact of Self-fulfillment within Higher Education Institutions, focusing on its influence on student development, academic performance, and long-term well-being.

Self-fulfillment contributes significantly to student development. When students engage in introspection and begin to understand their values, passions, strengths, and limitations, they are more likely to make informed decisions about their academic and personal lives. Higher Education Institutions that support this process through counseling services, mentorships programs, and opportunities for reflection create an environment that nurtures identity formation. This sense of self-understanding helps students gain confidence and direction, which is essential during the transformative years of college.

In Chapter 4, *Comparison of Tax Regimes for Self-Employed Medical Practitioners*, Self-Employed medical practitioners play a vital role in health-

care systems across the world. However, their financial responsibilities extend beyond clinical duties to include navigating complex tax systems. Tax regimes for self-employed professionals vary considerably between countries, influencing everything from net income and business decisions to long-term career sustainability. This research compares the tax treatment of self-employed medical practitioners in three representative countries: the United States, the United Kingdom, and Germany. The comparison highlights differences in income tax structures, allowable deductions, social security contributions, and administrative burdens.

In Mexico, self-employed medical practitioners known as “Self-employed doctors” are subject to a specific set of tax obligations that differ from those of salaried professionals. The Mexican tax regime has undergone several reforms in recent years to simplify compliance, broaden the tax base, and promote formality in professional services. This research analyzes the key features of Mexico’s tax system as it applies to self-employed doctors, focusing on income tax, deductions, social security, and administrative requirements.



# Chapter 1: Scope of Artificial Intelligence in the Tax Review in Mexico

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## Abstract

The tax collection of nations is an area that is of interest for the application and use of artificial intelligence, since through this tool, data can be processed through algorithms, which facilitates the processing of high volumes of information and time-efficient reduction of tax fraud, and improvement of various administrative processes that tax authorities carry out. This research in progress was prepared in a documentary manner, with the qualitative method and descriptive approach, collecting data through the analysis of the information collected, with the purpose of generating an approach to artificial intelligence in tax collection. The results obtained show the usefulness of using this tool in tax collection, as well as the limitations and future expectations in the application of artificial intelligence for inspection in Mexico.

**Keywords:** *audit, supervision, Artificial Intelligence, review.*

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## Introduction

According to the report of the Organization for Economic Cooperation and Development (OECD), Tax Statistics in Latin America and the Caribbean 2023, in the last 20 years, the average tax collection as a proportion of gross domestic product (GDP) in our country has never exceeded 17.8%, compared to 34.1% in other member countries of that organization (Mendoza, 2023).

Generically, AI can be used to analyze relationships between taxpayers to identify hidden or simulated relationships or potentially high-risk tax non-compliance networks, which can generate new sources of information for screening rules that are not obvious.

Today Mexico is going through a crisis of public trust. If we add to this the fact that for the fiscal year 2021, Mexico has an expenditure budget of 6.3 trillion pesos,<sup>1</sup> destined to acquire goods, services and public works, indispensable to cover the collective needs and diverse government programs, which makes it the main buyer of the country, together with a deficient control of public expenditure, the risk of deviations in the processes and loss of financial resources due to corruption it is plausible.

Therefore, it is necessary to review the scope that artificial intelligence implies in its application in Mexico, since it represents substantial advances in the collection and application of taxes and public resources. Not only the benefits but also the effects on taxpayers, on the exercise of human rights and on the future regulation of this controversial and current tool in Mexico's tax collection systems should be analyzed.

## Theoretical framework

The science of complexity is located within the framework of a scientific revolution and the breaking of paradigms by the adoption of new technologies, which allows taking advantage of the benefits and promoting the development of human-centered artificial intelligence, but we must ensure that it is safe, inclusive and reliable (Palomino-Guerrero, 2023).

Increasingly, Tax Administrations (TAs) are using new ICTs to be more effective and efficient in their management, being a digitalization process that accelerated exponentially in the current circumstances. According to the document “*Adoption of artificial intelligence in tax administrations*” (Collosa, 2020), artificial intelligence is booming, and there are different countries and institutions conducting research for a common purpose, which is to improve the administrative processes of governments. In this context, European and South American countries are adopting this technology.

Eventually, all countries will adopt it because according to the findings, it improves efficiency and effectiveness in the analysis of data, compares social networks with the declared income of each taxpayer, sends alert messages in which it detects non-deductible expenses, discovers inconsistencies between declared and generated income, are multiple functions that will help improve the accounting profession, auditing, audits of tax administrations that can facilitate better tax collection and improve state revenues for social investments of each country (Duarte-Sanchez, Alegre, & Ramirez-Girett, 2023).

In the fiscal area, Mexico is a *sui generis* country because it oscillates between a deficient fiscal culture, attributable to low tax morale (i.e., low collection rates derived from a general unwillingness to pay taxes), and a governmental auditing apparatus that could be considered *avant-garde* due to its advanced technological structure, leaving aside the occasional complexity of scheduling appointments (Mendoza, 2023).

Against this backdrop, the work of the various audit agencies in Mexico has made efforts to professionalize their personnel and certify their capacities, and to a large extent they have found powerful allies in technological tools such as computers, smart cell phones, spreadsheets, user-friendly accounting systems, etc., to process and validate large volumes of information, with greater ease and accuracy in less time.

However, given the evident results, citizen demand, the requirement and priority of the Executive Branch to eradicate corruption and its effects, it is evident that more efficient control models must be adopted, supported by state-of-the-art technology (Guardiola, 2021).

In Mexico, the “*Servicio de Administración Tributaria*” (SAT), a decentralized agency of the “*Secretaría de Hacienda y Crédito Público*” (SHCP), is

responsible for facilitating and encouraging voluntary compliance with the tax obligations of individuals (citizens) and corporations (companies).

Despite the structure and goals established by the Mexican State through the SAT, some taxpayers seek to avoid an obligation imposed by the Constitution to participate in the expenses required by the nation, which are necessary for its existence and development. In this way, the phenomenon of tax evasion is generated, defined according to the SAT as “any action or omission, partial or total, tending to reduce or delay compliance with the tax obligation” (Universidad Nacional Autónoma de México in collaboration with Central European University, 2018).

The principles that promote the development of artificial intelligence delimited by Palomino-Guerrero (2023):

1. It must be supervised by humans.
2. Tamper-resistant systems.
3. Guarantee the privacy of personal data throughout the life cycle of artificial intelligence.
4. Transparency to know that artificial intelligence is interacting with.
5. Consider social diversity so as not to incur direct or indirect discrimination.
6. To value the social and environmental impact to be sustainable.
7. The results of artificial intelligence must be auditable.

These principles are aligned with various legislations in the world that seek to regulate the operation and application of artificial intelligence in each nation, given that in countries with high economic development, this tool is a fundamental part of tax collection, contributing to the operation of tax authorities and the use of public resources. It should be noted that such systems are fed and supervised by human beings and seek to safeguard compliance with fundamental human rights.

Some of the benefits of using AI in audit work in Mexico that are concluded in Guardiola's research (2021):

- AI computers would be able to locate and prevent patterns, as well as hidden trends, to support early fraud detection.

- Computers with AI would perform audit, materiality analysis and reference linkage; they would verify a larger percentage of the universe and not just a small sample; they would evaluate evidence with specific criteria.
- Computers with AI would support internal control evaluations, propose improvement actions and control activities.
- Computers with AI would improve risk identification and prevention, given access to all available information cubes.

The application of artificial intelligence in Mexico is a great challenge that implies making the processes carried out by the Tax Administration System and its administrative personnel more efficient in all its functions; however, its progress will be limited by the reforms and initiatives related to the subject, presented in the institutions foreseen for such purpose in the country.

The tax authorities must analyze the effects and benefits, as well as the respect for human rights and the principles that the application of this technology must keep, which presents unquestionable benefits, but which in the future could represent risks or dangers not only for the authorities themselves, but the main affected party would be the taxpayer due to the vulnerability of his data and the susceptibility of the frequent revision of his tax data.

## **Methodology**

For the elaboration of this first stage of the research, documentary research has been used to qualitatively support and sustain the necessary information to conclude the present research process. To this end, we resorted to the review, compilation and selection of information on the subject, in various scientific publications, books, magazines and digital newspapers, since, given the modernity of the subject, such information was discriminated against by its timeliness.

## Conclusions

Through the realization of this documentary research, it can be affirmed that auditing is the action through which the tax authorities try to prevent taxpayers from tax evasion or tax fraud and, in case of committing them, try to detect, prove and liquidate them.

In the analysis of millions of data, people need time to discover inconsistencies; instead, artificial intelligence can analyze millions of data, in which we can intervene and draw conclusions from the findings.

The use of artificial intelligence (AI) in audit work in Mexico implies, from the perspective of the authors and examples studied, understanding that cutting-edge technology can greatly improve their productivity and results, so that implementing AI is a window of opportunity that would reduce the time spent on mechanical and repetitive tasks to focus it on activities of greater value in favor of transparency and accountability in Mexico.

It is assumed that Mexico faces the following challenges in the application of artificial intelligence:

### Challenges:

- Maximizing via IA the scarce resources available to evaluate government management and being able to make valuable contributions.
- Rotating the different auditing entities with specialized software with similar professional and operational standards, with effective information exchange capabilities, to avoid duplication or omissions in auditing acts.
- Permeating a change of mentality from top management to assume the changes and understand the importance of AI and thereby build adequate and indispensable tools for the foundation of a suitable anti-corruption program.
- Modernizing management and government auditing systems with the use of AI becomes increasingly attractive to employers as a career option for millennials and Generation Z professionals.

- Harmonizing the governmental accounting of all public entities of the three levels of government to be able to monitor more effectively the exercise of public spending, via data mining.

It is recommended to other researchers to deepen the subject of studies by making inquiries in the tax collection agency of Mexico to explain the operation of artificial intelligence in the cross-referencing of data for the case of Mexico.

## References

- Collosa, A. (2020, 13 de octubre). Inteligencia artificial aplicada a la fiscalización. Centro Interamericano de Administraciones Tributarias (CIAT). <https://www.ciat.org/ciatblog-inteligencia-artificial-aplicada-a-la-fiscalizacion/>
- Duarte-Sanchez, D. D., Alegre, M., y Ramírez-Girett, V. A. (2023). Adopción de la inteligencia artificial en las administraciones tributarias: Revisión de literatura. *Ciencias Económicas*, 19-29.
- Guardiola, H. C. (2021). *Inteligencia artificial en la fiscalización en México: ¿Una ventana de oportunidades?* Dossier.
- Mendoza, A. (2023, 3 de julio). La inminente aplicación de inteligencia artificial en el aparato de recaudación fiscal. *Forbes México*. <https://www.forbes.com.mx/la-inminente-aplicacion-de-inteligencia-artificial-en-el-aparato-de-recaudacion-fiscal/>
- Palomino-Guerrero, M. (2023, 3 de marzo). Inteligencia artificial: un mecanismo para frenar la evasión fiscal sin vulnerar los derechos del contribuyente. *Cuestiones Constitucionales*. <https://doi.org/10.22201/ijj.24484881e.2022.46.17053>
- Universidad Nacional Autónoma de México en colaboración con Central European University. (2018). *Evasión en IVA: Análisis de redes*. UNAM.



## Chapter 2: The Social Impact of Social Accounting on Microenterprises in the State of Tlaxcala

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### Summary

The COVID-19 pandemic in 2020 in Mexico, which began with the health crisis, has had repercussions of national and international scope. These repercussions are from the death of people, as well as companies. We must specify that in Mexico, microenterprises are the main contributors to the Gross Domestic Product. The objective of this research project is to identify the social impact on microenterprises, the methodology used was descriptive, documentary, field, transversal, mixed approach, the methodological design mentioned allows flexibility in data collection and the results of this research are: the characteristics of microenterprises are that the members of these are from 1 to 10 workers belonging to the sector. The research concludes that the COVID-19 crisis prompted microenterprises to innovate to survive in the labor market. Initially seen as an opportunity, the use of technology quickly became a necessity, showcasing the creativity and adaptability of these businesses.

**Keywords:** *social impact, social accounting.*

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## Introduction

In Mexico, 99.5% of microenterprises contribute to the Gross Domestic Product (GDP), 60% of the population is economically active, and an even more impactful fact is that microenterprises contribute 25% of the Gross Domestic Product of Latin America and the Caribbean, to cite some contextual reference data of microenterprises. An additional characteristic of microenterprises is their difficulty in accessing credit. This challenge existed even before the COVID-19 pandemic. Of the total number of companies in Mexico (5 million 487 thousand 61 companies of which 5 million 119 thousand 909 are microenterprises), 93.30% are microenterprises, 5.42% are small enterprises, 0.98% are medium-sized enterprises, and 0.28% are large companies. In Mexico, microenterprises have a dynamic impact on the national Gross Domestic Product because they have a strong relationship with the productive sector of the country. Verifying the social impact of microenterprises is directly linked to business dynamics. In Mexico, this impact cannot be explained through a single variable, but rather through a multifactorial perspective that considers various interconnected elements (Aznar-Crespo, 2020; INEGI, 2022).

The COVID-19 pandemic began in Mexico in the fall of 2019, which began as a health alert caused by the SARS CoV-2 virus, the issue in MSMEs affected all economic sectors in itself our economic system and in itself to Society, the issue of impact was the high contagion which placed us in being one of the main countries with the highest contagion and number of deaths, The reality of this issue is that this health alert completely paralyzed the world due to the closure of borders. The pandemic generated by COVID-19 took businessmen, workers and governments by surprise. What was initially a health emergency has become a financial, economic and employment crisis on a global scale. To alleviate the economic slowdown, the world's governments have responded by relaxing monetary policy and increasingly using fiscal policy. Likewise, it is expected that they will begin to make use of tools such as the dynamics of systems that allow them to measure and control the different changes presented in demand, supply and profitability and manage to reactivate or avoid the fall in consumption and investment

in small and medium-sized enterprises (SMEs), in the hope that consumers will increase their spending. financial institutions. The health crisis caused by COVID-19, with its distancing and sanitary isolation, was considered a global crisis, in which some of the consequences are unemployment, the economic crisis, the increase in poverty and the shortage not only of medicines but also of food. One of the advantages of the pandemic has been the innovation in microenterprises of online sales, despite the origin of the COVID-19 pandemic. Microenterprises that adopted innovation saw an increase in sales compared to 2019, and this upward trend in online sales continued in the following years. However, a key disadvantage was that without proper training or investment, many businesses struggled to sustain themselves during the pandemic. Even today, those microenterprises that embraced this sales model continue to view it as an opportunity for maintaining and expanding their productivity (Gottems, 2018; Conik, 2020; Fitriasari, 2020; Aguilar, 2021).

Nowadays, the social impact of microenterprises is highly relevant to our economic reality, as they operate under various schemes—economic, social, and environmental. Many of these businesses are informal, yet their structure enables them to engage in commercial activities through the exchange of goods and services. This diversity highlights the complex and multifaceted role microenterprises play in local development (BSG, 2019; De Sa, 2019).

Over time, we have verified how the creation of microenterprises favors the business sector and finally conclude that microenterprises generate a relationship with the Economy. Several experts (Raccanello, 2014; Mungaray Lagarda *et al.*, 2015) specify the relationships generated. Given the multifactorial and dynamic nature of microenterprises, studies that attempt to explain their impact using only univariate or bivariate relationships tend to offer limited and restrictive conclusions. Therefore, it is essential to adopt a comprehensive approach with a 360-degree perspective to fully understand the scope and complexity of these relationships.

Microenterprises present a deficient control in the accounting aspect, budgets, inventories and in the fiscal issue. Several authors point out that one of the main reasons microenterprises fail in a short period is due to challenges related to economic development. These include not only struc-

tural economic problems, but also a lack of experience in applying effective development strategies and in the practical management of a business (Izcarra, 2014; De Vasconcelos-Gomes, 2018).

What actions can be taken to obtain economic and social development in microenterprises?

## **Objective**

The objective of this research is to describe the implementation of social accounting in microenterprises in such a way that it impacts economic and labor growth.

## **Research Hypothesis**

Microenterprises can contribute to the economic and social development of the regions in which they are located.

## **Null Hypothesis**

Microenterprises cannot contribute to the economic and social development of the regions in which they are located.

## **Alternative Hypothesis**

Microenterprises generate economic and social development through their economic activity in societies.

## **Theoretical Framework**

Microenterprises, generally defined as those with a small number of employees and generating limited income, have proven to be a fundamental pillar

in the economy of many countries, especially developing countries. Its social impact is significant and multifaceted, encompassing economic, labor, community, and environmental aspects. In this research, microenterprises are the main source of employment. These dimensions are explored, and it will be argued that the strengthening of microenterprises not only contributes to economic development but also to social welfare. Microenterprises play a crucial role in the local economy. In many communities, they are the main source of employment, providing job opportunities for many people who might otherwise be unemployed. Not only does this employment provide income for workers and their families, but it also encourages local consumption, which in turn can spur the growth of other businesses in the community. In this sense, microenterprises act as economic engines that help reduce poverty and improve living conditions (Bruton, 2018; Cole, 2018; Ijabadeniyi, 2020).

In addition, by being more flexible and adaptable than large corporations, microenterprises can innovate and respond to the specific needs of the local market. This fosters economic diversity and resilience to economic shocks, as an economy that includes a wide range of microenterprises can recover more quickly from adversities. Another important aspect of the social impact of microenterprises is their potential to promote social inclusion. On many occasions, these small businesses are founded by people from marginalized groups, including women, youth, and ethnic minorities. By operating in informal and community networks, microenterprises offer these individuals the opportunity to become entrepreneurs and, therefore, active economic actors (De Vasconcelos-Gomes, 2018; Lagunas, 2018).

Women's empowerment is a particularly relevant case. Often, women-led microenterprises not only contribute to their family income but also improve their social status and skills. This, in turn, can have a positive effect on future generations, as empowered women tend to invest more in their children's education and health (López-Lemus, 2018).

In terms of economic impact and social inclusion, microenterprises also play a vital role in strengthening the social fabric of communities. These companies often operate with a community approach, creating links between inhabitants and promoting a sense of belonging and cooperation. Networking among microentrepreneurs can facilitate the sharing of resources,

information and opportunities, helping to build more cohesive communities. In addition, microenterprises often get involved in community activities, supporting local events, initiating community development projects, or collaborating with non-profit organizations.

This commitment not only improves the quality of life of the inhabitants but also reinforces the sense of social responsibility, generating an environment of positive interaction and solidarity (Pérez, 2019; Saebi, 2019).

Despite their positive impact, microenterprises face numerous challenges, such as limited access to finance, lack of training, and competition from larger firms. Overcoming these obstacles is essential for them to thrive and maximize their social impact. Public policies should focus on creating a favorable environment that supports the growth of these companies, facilitating access to credit and training programs. In addition, it is essential to consider the environmental sustainability of microenterprises. Although many of them operate informally and without rigorous regulations, there is an opportunity for them to adopt sustainable practices that not only benefit the environment but also position them as socially responsible to the consumer (Aledo, 2018; Ortíz, 2020; Tantalean, 2021).

The social impact on microenterprises has its main indicator in the direction of performance as a systemic analysis, and generates a direct relationship with productivity. It is possible to generalize this perspective because microenterprises represent 90% of the business sector. In microenterprises, an indicator that specifies the social impact is related to the dimension of production in microenterprises. This allows strengthening success and occurs in two steps: the first at the planning point and the second at the development. Experts state that the social impact of microenterprises is closely linked to their competitiveness, with innovation identified as the key dimension. Furthermore, they highlight that the core characteristics of innovation lie in its radical and disruptive nature, especially in how it is conceptualized and applied within these businesses (Aguilar, 2021; Dang, 2021; León-Guizado, 2021).

Experts specify that the main dimensions that determine the social impact on microenterprises is heterogeneity, and within these are: financial performance, management, international business and entrepreneurship. The impact of microenterprises depends on resources, ecology and the

environment. These three dimensions are considered by experts as good business practices (Dabic, 2020; Reid, 2020).

## Unit of analysis

Microenterprises comprise the 99.5% in which 60% of the population is economically active and contribute 25% of the Gross Domestic Product not only in Mexico, but in Latin America and the Caribbean, we emphasize that more characteristics already mentioned have a vital importance in the social and economic sphere, microenterprises have difficulty accessing credits with a greater impact after the COVID-19 pandemic (INEGI, 2022).

According to statistics from INEGI (2022) and INADEM (2020), microenterprises are a large percentage of the economy. This large percentage includes newly created microenterprises and verifies that the main impact is on companies with low economic levels. In Tlaxcala there are 73 thousand economic units of which 99% are microenterprises, which generate 80% of employment in the state. For this reason, the Government of Tlaxcala generated strategies that improve and facilitate the conditions of this sector of the population that generates the local and regional economy. If we add to this situation the fact that these microenterprises typically have between 5 to 10 employees, the impact becomes even more significant. During the pandemic, 3 359 microenterprises were forced to close, resulting in the immediate loss of thousands of jobs and highlighting the vulnerability of this sector in times of crisis.

## Research Design

This research design incorporates various methods and techniques to answer the research question, achieve the objectives, and test the research hypotheses. The social design of microentrepreneurs allows us to identify and develop. Given the clarity of the situation and the skill with which it is addressed, this design is also considered a pre-conceived guide, plan, or strategy. The approach is mixed, quantitative, since it analyzes the certainty

of the hypothesis in numerical terms, that is, the objective and qualitative reality, allows flexibility in the collection of data and interpretation of the information and the essential characteristic of this approach is the interpretation by the characteristics of the unit of analysis, whose reality and phenomena are subjective.

The type of research has been chosen for obtaining the information, for the place where the phenomenon occurs and its characteristics. This research is non-experimental, since the variables involved in the hypotheses will not be manipulated. The unit of analysis will be observed and described. The approach is transversal, as it analyzes and describes the results within a specific period; correlational, as it examines the degree of association or dependency between variables; and deductive, as it proceeds from the general to the specific, generating new premises that lead to new knowledge. The instrument to test the null hypothesis of research is a questionnaire that gives us an answer by making known their experiences, in addition to the versatility, the time to obtain the information, the costs and the convenience for the interviewee, the answers to the questions allow us to measure the variables, in addition to allowing us to measure one or more variables, the questions are written in a coherent way, organized in sequence and structured, for this research the independent variable is social accounting and the dependent variable is development, the questionnaire is in Google forms allows us to preserve versatility, time to obtain information, The costs and convenience for the respondent, as for the sample was conventional with a finite sample, 210 microenterprises with a confidence level of 95% with a z value of 1.96, a probability of 50% applied to formal microenterprises that represent 24.31% in the municipality of Tlaxcala, applying the corresponding formula the sample is of 66 microenterprises.

The main results are as follows:

Table 1. *Gender of the respondents*

	<i>Item 1</i>	<i>Frequency</i>	<i>Percentage</i>
Valid	Male	39	59.1
	Female	27	40.9
	TOTAL	66	100

Source: Authors' elaboration with results of descriptive statistics.

In Table 1, gender of the respondents, 59.1% are male, while the remaining 40.9% are female.

Table 2. *Position held by microentrepreneurs*

	<i>Item 2</i>	<i>Frequency</i>	<i>Percentage</i>
Valid	Owner	31	47.0
	Manager	13	19.7
	Administrator	14	21.2
	Other	8	12.1
	TOTAL	66	100

Source: Authors' elaboration with results of descriptive statistics.

The results of Table 2, Position held by the microentrepreneurs are: 47.0% are the owners of the microenterprises, 21.2% are administrators, 19.7% are managers, and 12.1% have another position in the microenterprise.

Table 3. *Level of education of microentrepreneurs*

	<i>Item 3</i>	<i>Frequency</i>	<i>Percentage</i>
Valid	Basic (Primary-Secondary)	5	7.6
	High School (High School-Technical Career)	16	24.2
	Higher (Undergraduate-Postgraduate)	45	68.2
	TOTAL	66	100

Source: Authors' elaboration with results of descriptive statistics.

Table 3. The level of education of microentrepreneurs is: 68.2% have higher education, a bachelor's degree or a postgraduate degree, which helps them have better development, 24.2% have high school studies, and 7.6% have basic primary and secondary education.

Table 4. *Age of the business of microentrepreneurs*

	<i>Item 4</i>	<i>Frequency</i>	<i>Percentage</i>
Valid	0-2 years	29	43.9
	3-5 years	21	31.8
	6-10 years	11	16.7
	More than 10 years	5	7.6
	TOTAL	66	100

Source: Authors' elaboration with results of descriptive statistics.

In Table 4. Age of the business of microentrepreneurs, the results are: 43.9% of microenterprises are between 0-2 years old, 31.8% are 3-5 years old, 16.7% are between 6-10 years old, 7.6% are more than 10 years old.

Table 5. *Number of employees of microenterprises*

	<i>Item 5</i>	<i>Frequency</i>	<i>Percentage</i>
Valid	0	11	16.7
	1-3	43	65.2
	4-7	8	12.1
	8-10	4	6.1
	TOTAL	66	100

Source: Authors' elaboration with results of descriptive statistics.

Table 5. Number of employees that microentrepreneurs have: 65.2% have 1-3 employees, 16.7% have no employees, 12.1% have 4-7 employees and 6.1% have 8-10 employees in their microenterprise.

Table 6. *Acceptance percentage per item*

<i>No. Item</i>	<i>Item</i>	<i>Never %</i>	<i>Sometimes %</i>	<i>Almost Always %</i>	<i>Always %</i>	<i>Acceptance %</i>
6	Importance of accounting	6	11	17	67	83
7	Social Accounting from the start	3	6	21	70	91
8	Social Accounting Social Development	17	9	26	48	74
9	Work environment in social accounting	33	15	24	27	52*
10	Social Accounting in Social Growth	6	18	32	44	76
11	Application of social accounting	5	14	39	42	82
12	In-house development	8	15	44	33	77
13	Development in society	5	12	24	59	83
14	Client Development Method	5	24	36	35	71
16	There is responsibility in sales	27	17	33	23	56*
17	Sales control	47	23	14	17	30*
18	Use one database per customer	5	18	27	50	77
19	Benefits granted by wholesalers	3	17	33	47	80
20	Use a per-client business structure	6	17	29	48	77
21	Costs change seasonally	9	23	26	0	26*
22	Use a database on costs	5	17	33	0	33*
23	Costs change by customer	6	20	39	0	39*

\*Percentages outside the acceptance range.

Source: Own elaboration with information from Excel.

In Table 6 Acceptance by item, we verify that of the 18 items to identify acceptance ranges, the lowest percentages are: Item 9 which specifies the conformity of the relationship of the work environment with social accounting with 52% acceptance, item 16 which responds to the fact that if there is a person responsible for sales with 56% acceptance, item 17 that answers if there is a sales control with a 30% acceptance rate, item 21 that answers if costs change seasonally with a 26% acceptance rate, item 22 answers whether there is a cost control with a 33% acceptance rate and item 23 that responds to whether costs change due to customers with an acceptance rate of 39%.

Table 7. *Descriptive statistics*

<i>No. Item</i>	<i>Item</i>	<i>Media</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>
6	Importance of accounting	16.5*	18.55	12.55	20.44
7	Social Accounting from the Start	16.5*	20.35	12.55	20.44
8	Social Accounting Social Development	16.5*	11.26	12.55	20.44
9	Work environment in social accounting	16.5*	5	12.55	20.44
10	Social Accounting in Social Growth	16.5*	10.84	12.55	20.44
11	Application of social accounting	16.5*	12.39	12.55	20.44
12	In-house development	16.5*	10.96	12.55	20.44
13	Development in society	16.5*	15.92	12.55	20.44
14	Client Development Method	16.5*	9.67	12.55	20.44
15	Daily customer monitoring	16.5*	13.07	12.55	20.44
16	There is responsibility in sales	16.5*	4.65	12.55	20.44
17	Sales control	16.5*	9.98	12.55	20.44
18	Use one database per customer	16.5*	12.6	12.55	20.44
19	Benefits granted by wholesalers	16.5*	12.6	12.55	20.44
20	Use a per-client business structure	16.5*	12.01	12.55	20.44
21	Costs change seasonally	9.5*	7.93	5.55	13.44
22	Use a database on costs	9*	9.83	5.05	12.94
23	Costs change by customer	10.75*	11.52	6.80	14.69
<b><i>No Item</i></b>	<b><i>Item</i></b>	<b><i>Media</i></b>	<b><i>Standard deviation</i></b>	<b><i>Minimum</i></b>	<b><i>Maximum</i></b>
		<b>15.37**</b>	<b>3.94**</b>	<b>11.42</b>	<b>19.32</b>

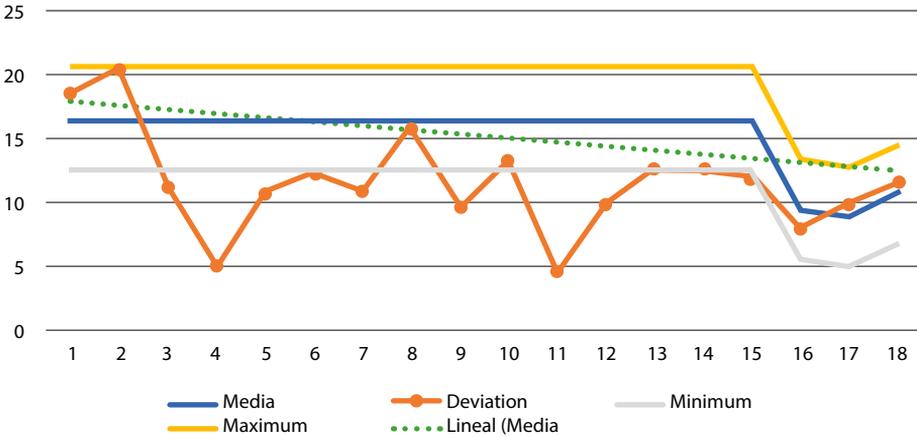
\* Stocking. Statistical value to be compared between the minimum and maximum value.

\*\* Statistical values for the calculation of acceptance or rejection of null hypotheses

Source: Descriptive statistics calculated in Excel.

In Table 7 Descriptive Statistics, the calculation of the mean, standard deviation, minimum and maximum for each of the items was carried out considering the average value of the 18 items, mean = 15.37, standard deviation = 3.94, minimum = 11.42 and maximum = 19.32.

Figure 2. Trend of the media in relation to the minimum and maximum



Source: Own elaboration with Descriptive Statistics Information in Excel.

In Figure 2, the trend of the mean about the minimum and maximum, it is possible to appreciate the acceptance of the mean in relation to the minimum and maximum, although it is more important to consider the fluctuation of the standard deviation.

## Hypothesis Testing

The testing of our hypothesis from the mean refers to a procedure which is used to test the validity of a given value based on the evidence of the sample to determine whether a research hypothesis is rejected or accepted (Gottems, 2018; Hernández, 2003; Ander, 1997).

The following are the general characteristics of the hypothesis test:

- The hypothesis in research is the factor that determines its design and subsequently responds or provides a solution to the problem; therefore, the driving force behind the research is significant.
- The purpose of hypothesis testing is to determine whether the apparent value should be accepted as credible based on the sample results.
- When carrying out a research project, more than one hypothesis must be expressed.

- When the statistical data are analyzed, it will be possible to determine whether the hypothesis is a research hypothesis, null or alternative.
- When the hypothesis is rejected, it means that the factor studied has been significantly influenced by the alternative hypothesis.

### Steps of hypothesis testing

The following are the seven steps necessary to perform the hypothesis test:

- I. Determine the hypotheses (research, null and alternative).
- II. Identify the average of each of the variables.
- III. Identify the standard deviation and perform the arithmetic function for each variable.
- IV. Determine the range of acceptance and/or rejection of the hypothesis.
- V. Conclude whether the hypothesis is accepted or rejected to make a decision.

To do this, the form of t student is applied:

$$t = \frac{\bar{x} - m}{s/\sqrt{N}}$$

Where:

$m$  = Test size

$N$  = Questions analyzed

$NC$  = Level of reliability

$NS$  = Level of significance

$x$  = Mean

$s$  = Standard deviation

The size of the test analyzed ( $m$ ) is 33, half of the 66 people surveyed according to the formulation of t student, the questions analyzed ( $N$ ) are 18 since these present greater relevance for the hypothesis test, the level of

reliability (NC) is 95, The level of significance (NS) is 5 this according to the formulation of the t student method the rest of the level of reliability (NC) to reach 100 will be the difference that will be interpreted as the level of significance (NS), the mean ( $\bar{x}$ ) will be 15.37 this taking as an average all the results obtained from the 18 questions analyzed, the standard deviation ( $s$ ) will have the value of 3.94 and finally the degrees of freedom (GL) will be obtained by subtracting 1 from the analyzed questions (N) which will be 17. The value of t student is equivalent to the one that will be represented in the t student graph as the rejection zone that will allow us to accept or, if necessary, reject our null hypothesis.

Once the intervals have been determined, they will be as follows:

$$m = 33$$

$$N = 18$$

$$NC = 95$$

$$NS = 5$$

$$\bar{x} = 15.37$$

$$s = 3.94$$

$$t \text{ student} = ?$$

According to the intervals, the application of the student t-formula gives us a negative result, which represents that it is outside the rejection zone of the hypothesis:

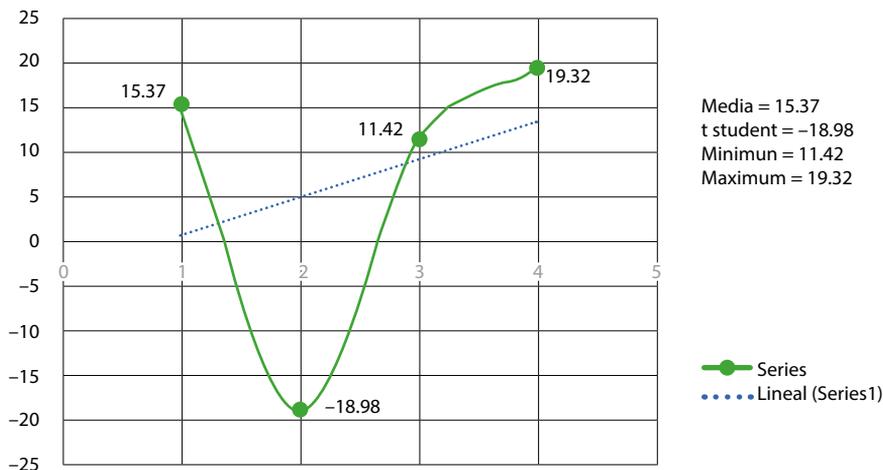
$$t = \frac{\bar{x} - m}{s/\sqrt{N}}$$

$$t = \frac{-17.63}{3.94/4.2426}$$

$$t = \frac{-17.63}{0.9286}$$

$$t = -18.98$$

Figure 3. Location of the mean and t student.



Source: Own elaboration with information from Excel statistical calculations.

In Figure 3, Location of the mean and t student, the mean has a value of 15.37, t student of -18.98, the minimum with a value of 11.42 and the maximum with a value of 19.32

According to the data obtained from the descriptive statistical calculation, it can be said, based on the data on central tendency, the form of distribution and variability, it is established that if:

Table 8. Hypothesis testing

Cases	Test Hypotheses
T student <33	Accepted Ho
T student >33	Rejected Ho

Source: Own elaboration with Descriptive Statistics Information in Excel.

Therefore, the null hypothesis is accepted.

## Research Hypothesis

Microenterprises can contribute to the economic and social development of the regions in which they are located.

## **Null Hypothesis**

Microenterprises cannot contribute to the economic and social development of the regions in which they are located.

## **Alternative Hypothesis**

Microenterprises generate economic and social development through their economic activity in societies.

Therefore, the null hypothesis is accepted and the alternative hypothesis, which states that microenterprises generate economic and social development by their economic activity in societies.

## **Conclusions**

1. The problem stated indicated that microenterprises face poor control in accounting, budgeting, inventory management, and tax matters. It also highlights that the causes of failure in microenterprises are linked to economic development challenges, inexperience with development approaches, and lack of practical business management skills. The specific actions in this research are to create a relationship between the work environment and social accounting. There is a sales manager, a sales control, seasonal cost change, a cost control manager and a record of costs by customers.
2. The fulfillment of the general objective is to describe the implementation of social accounting in microenterprises in such a way that it impacts economic and labor growth. Precisely, the items made for the contracting of the hypothesis allowed the fulfillment of the objective, since the main characteristics of the implementation of social accounting in microenterprises are social accounting, social development, the relationship in the work environment with social accounting, social growth, customers, sales, and costs.

3. The contrast of the null hypothesis is that microenterprises are not in a position to contribute to the economic and social development of the regions in which they are located, due to the result of the descriptive statistics the student value of -18.98 is outside the range of acceptance, so the alternative hypothesis is accepted, which is that microenterprises generate economic and social development by their economic activity in society.
4. It is recommended to expand the unit of analysis and verify the generalization of the characteristics, profiles and dimensions of this scientific research.

## References

- Aguilar, O. (2021). Diferencias en las prácticas de gestión entre los fundadores y herederos en las micro y pequeñas empresas. *Revista Internacional de Estudios Organizacionales*, 1-13. <https://doi.org/10.18848/25756052/cgp/v10i01/1-13>
- Aledo, A. (2018). El socio-espacio de conflicto. Un marco conceptual para el análisis de los conflictos asociados a riesgos tecnológicos. *Riesgos, gobernanza y conflictos socioambientales*, 43-68.
- Ander, E. (1997). *Técnicas de Investigación Social*. El Ateneo, México. Obtenido de <https://epiprimero.files.wordpress.com/2012/01/ander-egg-tecnicas-de-investigacion-social.pdf>
- Aznar-Crespo, P. A.-M. (2020). Social vulnerability to natural hazard in tourist destinations of developed regions. *Science of the total Environment*. <https://doi.org/10.1016/j.scitotenv.2019.135870>
- Bruton, G. Z. (2018). Examining entrepreneurship through indigenous lenses. *Entrepreneurship Theory and Practice*, 351-361.
- BSG. (2019). *The most innovate companies 2019: The rise of ai, platforms, and ecosystems*. Obtenido de Artificial Intelligence of companies. <http://bcg.com/publications/collections/most-innovate-companies-2019-artificial-intelligence-platforms-ecosystems.aspx>
- CICA. (2022). *Congreso Interdisciplinario de Cuerpos Académicos, Licenciatura en Contaduría Pública*. Obtenido de <http://www.revistacoepesgto.mx/revistacoepes19/congreso-interdisciplinario-de-cuerpos-academicos-cica-edicion-internacional>
- Cole, R. (2018). Debt financing, survival and growth of star-up firms. *Journal of Corporate Finance*, 609-625.
- Conick, J. (2020). *Perceptions and opinions on the COVID-19 pandemic in flanders, begium: Data from a three-wave longitudinalstudy, Data in Brief*. <https://doi.org/10.1016/j.dib.2020.106060>

- Dabic, M. M. (2020). Pathways of SME internationalization: a bibliometric and systematic review. *Small Business Economics*, 705-725. <https://doi.org/10.1007/s11187-019-00181-6>
- Dang, N. M. (2021). Vietnamese Small and Medium-Sized Enterprises. *New Product Development Process Management*, 1-50. [https://doi.org/10.1007/978-3-030-57065-1\\_50](https://doi.org/10.1007/978-3-030-57065-1_50)
- De Sa, P. (2019). Mining and sustainable development: territorializing the mining industry. *Mineral Economics*, 131-143. <https://doi.org/10.1007/s13563-0180149-8>
- De Vasconcelos-Gomes, L. S. (2018). How entrepreneurs manage collective uncertainties in innovation ecosystems. *Technological Forecasting and Social Change*, 164-185.
- Fitriasari, F. (2020). How do small and medium-sized enterprises survive the COVID-19 outbreak? *Journal Invasi Ekonomi* 5. <https://doi.org/10.2219/jiko.v5i3.11838>
- García, M. L. (2014). *Determinación de la competitividad de la PYME en el nivel micro: El caso del Distrito Federal, México, Licenciatura en Contaduría Pública*. Universidad Nacional Autónoma de México, México DF., México. Obtenido de [https://www.researchgate.net/publication/276184595\\_Determinacion\\_de\\_la\\_competitividad\\_de\\_la\\_PYME\\_en\\_el\\_nivel\\_micro\\_El\\_caso\\_de\\_del\\_Distrito\\_Federal\\_Mexico](https://www.researchgate.net/publication/276184595_Determinacion_de_la_competitividad_de_la_PYME_en_el_nivel_micro_El_caso_de_del_Distrito_Federal_Mexico)
- Gottens, L. C. (2018). Good practices in normal childbirth: reliability analysis of an instrument by Cronbach's Alpha. *Revista latinoamericana de enfermagem*. <https://doi.org/10.1590/1518-8345.2234.3000>
- Hernández, R., Fernández, C., y Baptista, P. (2003). *Metodología de la investigación, Licenciatura en Contaduría Pública*. Escuela Superior de Comercio y Administración, México. Obtenido de [https://www.uv.mx/personal/cbustamante/files/2011/06/Metodologia-de-la-Investigaci%C3%83%C2%B3n\\_Sampieri.pdf](https://www.uv.mx/personal/cbustamante/files/2011/06/Metodologia-de-la-Investigaci%C3%83%C2%B3n_Sampieri.pdf)
- Hopkins, J. (2021). *COVID-19*. Center for Systems Science and Engineering.
- Ijabadeniyi, A. y. (2020). Socially-Tolerated practices in environmental and Social Impact Assessment reporting: discourses, displacement, and impoverishment. *Land*, 20-33. <https://doi.org/10.3390/land9020033>
- INADEM. (2020). *Estadísticas del Instituto Nacional del Empleo 2019*.
- INEGI. (2019). *Censos Económicos, Licenciatura en Contaduría Pública*. Obtenido de Instituto Nacional de Estadística y Geografía. <https://www.inegi.org.mx/programas/ce/2014/>
- . (2022). *Indicadores de ocupación y empleo durante el primer trimestre de 2020. Cifras desestacionalizadas*.
- Izcarra, S. (2014). *Hipótesis, Licenciatura en Contaduría Pública*. Instituto Jubones. México.
- Lagunas, E. A. (2018). Factores que influyen en el emprendimiento de un micronegocio familiar en México. *Revista de Economía del Rosario*. <https://doi.org/10.12804/revistas.urosario.edu.co/economia/a.6816>
- León-Guizado, S. C.-H.-S. (2021). Production model under lean manufacturing and change awareness approaches to reduce order delays at small and medium-sized enterprises from clothing sector in Peru. *In proceedings of the 5th Brazilian technology symposium*, 391-400. [https://doi.org/10.1007/978-3-030-57548-9\\_36](https://doi.org/10.1007/978-3-030-57548-9_36)
- López-Lemus, J. (2018). Political ability and strategies of integrative and distributive

- negotiation as influential factors in entrepreneurial self-efficacy in Mexico. *Cuadernos de gestión*, 1-23. 10.5295/cdg.180943jl
- Mungaray-Lagarda, A. Osuna Millán, J. G., Ramírez Urquidy, M., Ramírez Angulo, N. y Escamilla Díaz, A. (2015). Emprendimientos de micro y pequeñas empresas mexicanas en un escenario local de crisis económica. *Frontera Norte* 27(53), 115-146.
- Noticias Minitab*. (01 de febrero de 2019). Obtenido de <https://www.addlink.es/noticias/minitab/2852-que-es-una-prueba-de-hipotesis>
- Olabuénaga, J. I. (1996). Metodología de la investigación cualitativa, Licenciatura en Contaduría Pública. *Sociología*, 74-94. <https://dialnet.unirioja.es/servlet/libro?codigo=22523>
- Ortiz, G. & Climent-Gil, E. (2020). A transdisciplinary framework for environmental impact assessment: Opportunities and resitances among practitioners in Spain. *Environmental Impact Assessment Review*. <https://doi.org/10.1016/j.eiar.2019.106339>
- Pérez, S. (2019). [www.fortuneespanol.com](http://www.fortuneespanol.com). [www.fortuneespanol.com/leadership/empresas-innovadoras-2019](http://www.fortuneespanol.com/leadership/empresas-innovadoras-2019)
- Raccanello, K. R.-B. (2014). Instituciones microfinancieras y cajas de ahorro en Santo tomás Hueyotlipan, Puebla. *Economía, Sociedad y Territorio*, 201-233.
- Reid, G. (2020). Growth and its determinants. *Small Business Enterprise*, 203-224. <https://doi.org/10.4324/9780203053171-19>
- Rojas, M. (2010). *Manual de Investigación y Redacción Científica*. Universidad Nacional Mayor, Lima, Perú. <https://mrojas.perulactea.com/wp-content/uploads/2008/04/mrc.pdf>
- Ruíz, J. D. (1978). *Las Microempresas*. <http://colpamex.com/wp-content/uploads/2018/12/11-In-Memoria.pdf>
- Saebi, T. F. (2019). Social entrepreneurship research: Past achievements and future promises. *Journal of Management*, 45(1), 70-95. <https://doi.org/10.1177/0149206318793196>
- Tantalean, T. (2021). *La epistemología de la Administración. Hermenéutica y Exégesis en la construcción de su concepto y objeto*. Letra.
- Villegas, C. (2009). *Contabilidad Social* (versión corregida). Universidad Nacional Autónoma de México. Obtenido de <http://www.economia.unam.mx/lecturas/scn-digesto.pdf>



# Chapter 3: The Impact of Self-Fulfillment in Higher Education Institutions

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## Summary

Higher education institutions are fundamental for the formation of university students, since they promote the welfare not only of students but also of researchers, teachers and administrative personnel, who are the ones who make up higher education institutions. The objective of this research is: To describe the fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala, the methodology used is descriptive, with a mixed, non-experimental and transversal approach, since the characteristics identify the dimensions of the unit of analysis, using the qualitative and quantitative approach, at a given time without manipulating the variables, the contrast instrument of the null hypothesis was a survey of 4 items, with five Likert scale point, with a conventional non-probabilistic sampling, 207 surveys were applied to students of the Autonomous University of Tlaxcala, in the period of autumn 2024, in the Faculties of: 1) Law, 2) Agrobiology, 3) Sociology, Social Work, Psychology and Psychotherapy, 4) Educational Sciences, 5) Economic Administrative Sciences, and 6) Multidisciplinary Academic Unit Campus Calpulalpan, the null hypothesis is rejected which is: self-fulfillment, the fourth substantive, transversal, and articulating axis of the Autonomous University of Tlaxcala, does not contribute to the students' academic trajectory, so the research hypothesis is

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accepted, the results are, the university students of the Autonomous University of Tlaxcala identifies 3 moments in the process of self-realization: self-recognition, self-determination and Self-Realization. The characteristics and profiles of self-realization, which are described below, are that university students display the ability to face the challenges of the future and the adaptation to change, as well as the collaboration of teamwork. As to profiles of self-fulfillment in university students, they show socioemotional skills, such as resilience, empathy and effective communication.

**Keywords:** *self-fulfillment, self-recognition, self-determination, challenges.*

## Introduction

Rapid technological progress and globalization have created a work environment characterized by uncertainty and constant change. In the context, self-fulfillment becomes a strategic advantage as it allows individuals to adapt to new circumstances, learn continuously and find meaning in their activities. Thus, self-fulfillment promotes technological advancement and supports globalization within higher education institutions (Arcos, 2022; Hernández-Rivera, 2022; Rentería, 2012).

Higher Education Institutions are privileged spaces for self-fulfillment, as they offer a diverse and stimulating space where students can grow in multiple dimensions. In addition to knowledge, Higher Education Institutions should focus on the development of socioemotional skills, such as resilience, empathy and effective communication. These capabilities are essential to face the challenges of the future, where the ability to adapt to change and collaborate with others is more important than ever. Knowledge management in universities, including models and practices implemented in the current context (García, 2021; López, 2020; Reyes, 2018).

The university stage represents one of the most significant moments in a person's life. It is a period of academic formation and an opportunity for students to develop their full potential. In this sense, the Autonomous University of Tlaxcala provides resources that help students manage emotions and cultivate well-being. Services such as psychological counseling, work-

shops, and mentoring programs are essential to create an environment where students grow not only intellectually but also emotionally. This is how the perception of students and professors on self-fulfillment becomes the substantive, transversal and articulating axis with manifestations such as: university tutoring, the impact on academic performance and its role in improving educational quality (López-Aguado, 2020; González, 2019; García-Valcárcel, 2017).

The student community faces important decisions about their future, which forces them to reflect on their interests, skills, and goals. The diversity of academic and extracurricular experiences offered by higher education institutions makes them a favorable space for students to explore and develop their talents and aspirations. The learning units are a fundamental pillar in the university experience. In a rigorous sense, students acquire the necessary skills to perform in their future professions. True college education is the transmission of knowledge and the fostering of critical thinking, problem solving and the ability to learn autonomously. The learning units are an opportunity for research, interdisciplinary project work and access to practical experiences, such as internships and professional practices. Thus, students acquire specialized knowledge and develop skills applied to real contexts (Guerrero, 2022; Alarcón, 2019).

## **Theoretical Framework**

The Autonomous University of Tlaxcala is an academic training center. It is a space where people can develop their knowledge, personal, social and emotional skills. So, our institution is a space for integral growth where students explore their potential in multiple dimensions, preparing for a competitive labor market for a full and meaningful life (Tlaxcala, 2017).

The growth of this university requires the development of emotional and social skills. Interaction in the university community creates a diverse and enriching environment, which challenges the students themselves to understand perspectives, manage conflicts and build meaningful relationships. In addition to the responsibility to promote the welfare of their community, the UATx makes professionals and responsible citizens so that their

integral growth includes the incorporation of ethical values. The Autonomous University of Tlaxcala analyzes the career paths of its students, focusing on their functions, productivity and mobility in the academic market, which reflects aspects of the institutional and academic growth of the Autonomous University of Tlaxcala (Patiño, 2024; Jiménez-Vásquez, 2014).

UATx fosters self-fulfillment in this context; therefore, individuals invest with the sole aim of achieving success that contributes to the progress of society. In this sense, the true value of university education lies in the ability to transform lives and open paths to full human potential. Thus, aspects related to human potential in the university environment are identified, including talent management, validation of capabilities, learning styles and leadership development in students (Martínez, 2020; Sánchez, 2021; González, 2019; López, 2018).

Self-fulfillment is conceptualized as the full development of a person's abilities and talent, since it is one of the highest objectives in the educational process of the institutions of higher education. Also, self-fulfillment is the ability to reach the maximum development of one's abilities, talents and individual aspirations, as it becomes a crucial objective in the process of higher education. Therefore, self-fulfillment is a process of reaching the maximum development of human potential that emerges as a key strategy to face the challenges of the future. By promoting self-knowledge, emotional well-being and the development of integral skills, UATx transforms students into agents of change capable of leading and adapting to the demands of a globalized and dynamic environment. Moreover, self-fulfillment develops a proactive and solution-oriented mindset by helping them connect their interests and skills to real problems. Thus, interdisciplinary projects and social entrepreneurship initiatives offer opportunities for students to apply their knowledge for the Benefit of their communities, contributing to personal growth (Díaz, 2017; Bornstein, 2010).

In the university framework, conceptualization acquires a particular relevance, since the Autonomous University of Tlaxcala seeks to form trained professionals and human beings aware of themselves, their values and their purpose in society. Therefore, our institution has a fundamental role in providing tools and the necessary environment for students to discover themselves, to overcome their limitations and find a purpose that allows

them to transcend. The UATx environment is designed to be more than a place where specialized knowledge is acquired, since this Maximum House of Studies is a space for social interaction, critical learning and personal exploration, so Self-fulfillment does not occur in isolation, as it is fed by experiences and challenges that students face in this diverse and stimulating environment (López, 2023; Rivera, 2019).

In this way, UATx becomes a springboard that drives professional success, as well as personal growth and the ability to positively influence others. Self-fulfillment at UATx is an integral process that encompasses academic, emotional, ethical and social development. Our institution prioritizes an approach that prepares competent professionals, committed citizens and full human beings. Therefore, learning strategies and their relationships with academic performance in university students are identified, offering perspectives on how to optimize success in the educational environment (Cabello-González, 2025; Cervantes-López, 2020; Gargallo-López, 2007).

Thus, self-fulfillment is a transformative process that enables students to reach their full potential and build meaningful lives. Through an integral approach that combines academic development, self-knowledge and emotional well-being, UATx can become a true engine of human growth. In this instance, self-fulfillment benefits the individual and strengthens society by forming people who are fulfilled, committed and prepared to face the challenges of the present and build a better future. This is how self-fulfillment addresses various perspectives on how educational processes can act as transforming agents in the formation of university students (García-Vera, 2021; Cabrera, 2020; Alvarado, 2017).

So, self-fulfillment is an educational ideal and an indispensable strategy for the future. By promoting the integral development of its university community, it trains competent professionals, conscious citizens committed to social progress. In a world that demands innovation, resilience and collaboration, self-fulfillment is positioned as a key tool to build a more human, sustainable and full of possibilities future. By prioritizing this approach, UATx becomes a true driver of personal and social transformation. Self-fulfillment addresses aspects related to ideals, values and learning processes in university students, offering perspectives on their ethical and professional formation (Islas-Torres, 2017; Barba, 2003; Barba *et al.*, 2003).

In this institution, through discussions, community projects and learning units that address ethical issues, students can reflect on their role in society. The process of self-fulfillment aligns personal goals with a broader purpose, which is key to this process. Higher Education Institutions offer tools to improve the learning strategies of students and teachers, highlighting the importance of self-assessment and realistic goal setting (Calleja, 2024).

The relationship between emotional intelligence and academic performance in university students highlights, as main dimensions, the development of emotional skills as a positive influence on academic performance and overall well-being. The purpose of self-fulfillment is essential for individual and collective well-being, as the Autonomous University of Tlaxcala cultivates an environment that fosters personal, intellectual and emotional growth of the student community. Emotional intelligence influences academic performance in university students in various disciplines and educational modalities (Alchundia-Mendoza, 2024; Gutierrez, 2024; Martinez-Rodríguez, 2023).

A central element of self-fulfillment is self-knowledge. During college life, students face multiple decisions: choosing a career, defining professional goals, and facing the uncertainty of the future. Decisions require Deep reflection on who, what they value and what they want to achieve. The decision-making process in a sample of students at the University of Huelva used the Iowa Gambling Task as a measurement instrument to evaluate the emotional and motivational processes involved. One more dimension to consider is the vocation that influences the choice of university career among students from Portoviejo, Ecuador, highlighting the importance of vocational orientation in academic decision making. The different decision-making styles among university students identify patterns such as evaluative, impulsive, analytical, superficial, autonomous and dependent, and how these influence the success of their interventions (Pin Navarro, 2023; Martínez-García, 2019; Morales, 2011).

Thus, UATx, through its integral humanistic model by capabilities, allows academic activities to foster critical thinking and problem-solving, while extra-curricular activities such as sports, art and volunteering allow exploring hidden skills and talents. The holistic approach helps the student community recognize their strengths and weaknesses, build self-confidence

and broaden their vision in the world. The importance of identifying and managing human talent at UATx, includes university students as a primary element; thus, this dimension contributes to the development of essential skills and abilities (González, 2016).

The mentoring programs, personal development workshops and career guidance activities offered by UATx are fundamental to self-fulfillment. By knowing themselves, students can align their efforts with their true passions and purpose, allowing them to move more confidently and satisfyingly toward their full potential. Self-recognition in undergraduates' career exploration and choice provides a solid foundation for vocational guidance for college students, as it helps them understand their interests, strengths, and values, leading to more informed and meaningful career decisions. The student community has reached such a high degree of self-fulfillment that they are better prepared to face the challenges of the future with the ability to lead change. This leadership is based on capabilities and an integral vision that combines knowledge with ethical values, creativity and empathy. Experts specify that aspects related to the challenges faced by university students, including student dropout, economic factors, academic pressure and organizational behaviors in higher education (Chérrez-Guerrero, 2023; De la Lama, 2019; Pereira, 2018; Berger, 2000).

Furthermore, this institution promotes a culture of care and support, and workshops on stress management as valuable tools for students to balance their responsibilities and take care of their mental health. An emotionally stable university student is likely to take full advantage of the opportunities that UATx offers to grow and self-actualize. Self-fulfillment benefits the individual and has a positive impact on society. Students who have achieved a high level of personal development are more likely to become leaders, innovators and agents of change. Moreover, by understanding and harnessing their unique talents, they can contribute significantly to the collective well-being and progress in their communities. Experts specify that university students' participation in extracurricular activities influences their integral formation and personal development, also considering dimensions such as participation, time available and institutional offerings. Since the relationship between participation in extracurricular activities and the lifestyle of nursing students, they focus on healthy habits, emotional well-

being and academic performance, showing that greater participation must be related to a better lifestyle. The role of extracurricular activities in university education highlights their importance in the development of soft skills, such as leadership, communication and teamwork. It also analyzes how Higher Education Institutions can improve the offer of complementary activities and thus performs a systematic review on the impact of extracurricular activities on the self-fulfillment of medical students. In addition to the fact that these activities contribute to the psychological well-being, motivation and academic performance of future physicians (Gordillo, 2023; Arias, 2022; Font, 2016; Pozón, 2015).

At the end of the university stage, the objective of UATx is not only to obtain a degree, but to go out into the world as a complete person, capable of adapting, innovating and contributing to the collective well-being. Self-fulfillment allows the student community to identify their strengths and use them to overcome challenges, build meaningful relationships and pursue goals that satisfy them (Álvarez-Torres, 2024; Rojas, 2023; Lomelí, 2022; Pedroza, 2021).

The academic programs at the Autonomous University of Tlaxcala allow students to delve deeper into areas of knowledge that interest them, while cultural, sports and social activities provide the opportunity to develop interpersonal and creative skills. This experience enriches students' education and helps them build a clearer and stronger identity. Research by experts shows the relationship between creative thinking and interpersonal relationships in students of the Faculty of Education and Communication Sciences, highlighting the importance of these skills in their academic and personal education (Gamarra-Moscoso, 2020).

The UATx encourages a full development of skills and talents of a person, since it is one of the highest objectives in the educational process of Higher Education Institutions, so the development of soft skills in the academic performance of university students relate the capabilities in which Self-fulfillment is included as the ability to achieve the maximum development of skills, talents and individual aspirations, as it becomes a crucial objective in the process of Self-Realization, and thus achieve the maximum development of human potential that emerges as a key strategy to meet the challenges of the future and is that the perceptions of university students is intertwined

with critical thinking skills by promoting self-knowledge, emotional well-being and the development of comprehensive skills, the Autonomous University of Tlaxcala transforms students into agents of change capable of leading and adapting to the demands of a globalized and Dynamic environment (Flores de Valgas, 2025; Avila, 2024; Velázquez, 2024).

For this reason, the UATx in this Institutional Plan for Accelerated Improvement (PIMA) specifies objectives, strategies, actions and goals related to self-fulfillment.

Table 1. *PIMA Objectives, Strategies, Actions and Goals*

<i>Objectives</i>	<i>Strategies</i>	<i>Actions</i>		<i>Goals</i>
7. To increase sports, artistic and promotion activities with the Integral Humanist Model based on Capabilities to influence the Self-fulfillment of university students.	7.1 Promote cultural, artistic and sports events as part of the integral formation of students.	7.2.1 Conduct free cultural activities for the university community and the general public.	M15* Visit 100% of the Faculties and Academic Units Multidisciplinary with presentations by UATx artistic groups.	<ol style="list-style-type: none"> <li>1. University Welcome</li> <li>2. Cultural Tuesday</li> <li>3. Film Fridays. Documentary film exhibition circuit Ambulant Presents in coordination with FUATx</li> <li>4. Plays</li> <li>5. Health Days</li> </ol>

\*Meta 15.

Source: PIMA of the UATx .

In Table 1, Objectives, Strategies, Actions and Goals of PIMA, we observe that for UATx, ensuring that the student community experiences self-fulfillment is a key objective; Higher Education Institutions are fundamental initiatives for the welfare of students, teachers and administrative staff. Thus, this research reflects the participation of the student community in the health days, which are events organized to promote physical and mental well-being through activities such as medical check-ups, health education workshops, and wellness campaigns.

## Methodology

The methodology used in this research is: descriptive, since this type of research specifically observes, analyzes and describes the characteristics,

dimensions and profiles of the object of research with a mixed approach, which combines quantitative and qualitative methods, non-experimental, transversal, since it allows describing the relationships between variables are a given time without intentionally manipulating the variables, since it refers to the observations of the relationships of the variables and the degrees of association between them. The characteristics of the Methodology used allow temporality, which is an observational, descriptive and efficient research. The method used was deductive, since it determines the dimensions of a previously observed reality and thus appreciates the particular or individual characteristics to reach general conclusions. The instrument used for the collection of information is a survey with a design of multiple-choice questions, a rating scale and simple text in printed form. The characteristics of this survey are versatility, optimization of time to obtain information, costs and convenience of applying the survey (González, M. L., 2022; González, M. A., 2019; Creswell, 2018; Hernández Sampieri, 2014; Ato, 2013).

## **Problem statement**

In a world in constant transformation, higher education institutions have the responsibility to prepare their community to respond to labor demands and build meaningful lives and contribute to social welfare. Adding to this context of global challenges such as climate change, social inequality and technological transformation, higher education institutions have a crucial role in forming leaders who are competent in their areas of specialization and committed to building a more just and sustainable world. Therefore, social responsibility in higher education institutions includes management models, curricular alignment and their role as a common Good (González, 2020; González, 2019; Flores, 1981).

Academic pressure, external expectations and the challenges of life at UATx generate stress and anxiety, which affect students' ability to fully develop. Thus, the main causes of academic stress in university students are workload and academic demands, highlighting that students in health-related careers experience higher levels of stress, as the most common consequences include anxiety, depression and concentration difficulties. One

more dimension identified is that the discipline has specific characteristics since nursing and medicine students presented higher levels of academic stress in comparison with other study programs, and women manifested higher stress levels than men (Abarca, 2023; Muñoz, 2013).

The search for self-fulfillment at the Autonomous University of Tlaxcala can be a challenge if the necessary importance is not given to the emotional well-being of the student community. Academic pressure, family expectations and the challenges of independent living generate stress and anxiety, hindering personal growth. Stress is a physiological and psychological response to situations that we perceive as challenging or threatening. In the university context, several factors can contribute to stress in students, including academic load, personal expectations, and social pressures. Recent studies have highlighted the growing concern for mental health in the university setting. For example, a 2023–2024 survey of 60 000 undergraduate and graduate students in Spain revealed that nearly half of the participants showed symptoms of depression and anxiety, with one in four reporting insomnia and one in five having suicidal thoughts (Ministry of Universities & Ministry of Health, Spain, 2023). These data underscore the need for appropriate interventions and resources to address stress and promote emotional well-being among college students. Self-fulfillment is professional or academic success and includes the development of a sense of ethics and responsibility towards others. The Autonomous University of Tlaxcala is an Institution of integral formation with the duty to promote values such as empathy, justice and sustainability. The importance of values in university students allows reflecting bioethics in education and the need to instill moral values from an early age to make informed and responsible decisions (Gracia, 2024; Oliver, 2024).

In a changing and competitive world, the ability to know oneself and act with purpose becomes a crucial advantage. University students go through a period of change as they seek new opportunities, while also facing challenges such as building resilience, adapting to new realities, and finding meaning in their activities. This shows some problematic issues that are identified in the university environment (Pereira, 2019; Banda-Ortiz *et al.*, 2018; Jiménez-Silva, 2017).

## Research question

What are the challenges of self-fulfillment as the fourth substantive, transversal and articulating axis at the Autonomous University of Tlaxcala?

## General Objective

Describe self-fulfillment as the fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala.

## Hypothesis

- Hi: Self-fulfillment, the fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala, contributes to the student's academic trajectory.
- H0: Self-fulfillment, the fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala, does not contribute to the student's academic trajectory.
- H1: The student academic trajectory of university students depends only on the three substantive axes, which are: teaching, research and dissemination of culture.

## Analysis Unit

Since 2006, the Autonomous University of Tlaxcala, with its Humanistic Educational Model Integrated by Capabilities (MHIC), has promoted an educational reform that, in addition to enriching and understanding its institutional mission and vision, proposes to participate in the solution of problems of the local, regional, national and international context through skills and abilities, attitudes and values to enhance human and sustainable development.

This MHIC defines capabilities as an orientation to the set of potentialities to be addressed throughout education in a professional form. This approach values each human being as an end in itself, and not as a means to other ends, this model promotes the integral formation of the subject, recognizing their dignity, agency and cultural diversity, as well as to boost productivity at the level that Mexican society demands, always with a social vision focused on social welfare rather than on the individual, so that education from the capabilities requires an ethical commitment to human flourishing and equity (López, 2020; Ortiz, 2018; Nussbaum, 2011).

This model is based on self-fulfillment as a substantive, transversal and articulating axis of the substantive activities of higher education; therefore, the Autonomous University of Tlaxcala assumes the formation in its social, economic, political, cultural and sustainable dimensions of contemporary life.

### **Mission of the Self-fulfillment Secretariat**

The mission of the Secretariat of Self-fulfillment is to contribute transversally and in an articulated manner, in the professional and integral formation of highly competitive men and women who impact the social, cultural, economic, ecological, scientific and human development of the state, the region and the country.

### **Vision of the Self-fulfillment Secretariat**

By the year 2027, the Secretariat will be recognized by the university community, its graduates, the society of Tlaxcala, and the broader region of the country as the entity that effectively integrates the university's core functions—teaching, research, and cultural dissemination—and contributes to the comprehensive development of students. It will emphasize institutional values and guide students toward serving the most vulnerable populations and society at large in addressing its challenges.

## Self-fulfillment in the University environment

In a world of constant transformation, higher education institutions have the responsibility to prepare their community to respond to labor demands and to build meaningful lives and contribute to social welfare.

In this context, faced with global challenges such as climate change, social inequality and technological transformation, higher education institutions have a crucial role to play in training leaders who are competent in their areas of specialization and committed to building a more just and sustainable world.

The unit of analysis is the subject of study and is made up of students at the Autonomous University of Tlaxcala, in the fall 2024 period, in the following Faculties and Multidisciplinary Academic Units (UAM), having a total of surveys, 207.

1. At the School of Law, Tlaxcala Campus.
2. Agrobiology, Xalpatlahuaya Campus.
3. Sociology, Social Work, Psychology and Psychotherapy Tlaxcala Campus.
4. Education Sciences, Tlaxcala Campus.
5. Economic and Administrative Sciences, Amaxac Campus.
6. Multidisciplinary Academic Unit Campus Calpulalpan.

The sample is non-probabilistic and based on convenience, meaning that the survey was answered by individuals who were easily accessible and available. The process is random, allows precision and accuracy, as well as a level of confidence. The sample in this research is 207 students from the Faculties and UAM already mentioned (Etikan, 2016).

## Survey

The survey is a specialized design that emphasizes the target audience to maximize the response rate and data quality. The survey is a structured instrument, which is commonly a questionnaire with closed, open or mixed

questions, that can be applied to obtain numerical data through frequencies, percentages, averages or descriptions of opinions and perceptions. It is generally applied to a representative sample of a population to make inferences, which can be probabilistic or non-probabilistic. Surveys can be applied in person, by telephone, by mail or online (Revilla, 2017; Dilman, 2014; Toutangeau, 2013).

The survey used is as follows:

SECRETARY OF SELF-REALIZATION  
HEALTH COORDINATION  
HEALTH DAYS

CONFERENCE: \_\_\_\_\_

DATE: \_\_\_\_\_

FACULTY: \_\_\_\_\_

SCHEDULE: \_\_\_\_\_

Your opinion and suggestions are important to us, since they allow us to know your degree of satisfaction, needs and expectations regarding the service we provide you, so we ask you to be so kind as to carefully and objectively answer the following questions according to the following scale:

<i>No</i>	<i>Item</i>	<i>Excellent</i> 10	<i>Very good</i> 9	<i>Well</i> 8	<i>Bad or less</i> 7
1	To what extent do you consider that the contents of the topic are applicable in your life?				
2	Do you think you can apply the services offered to yourself, your Friends or your family?				
3	Were the audiovisual media and the timing of the conference adequate?				
4	Was the attention and availability of the staff involved in the organization of the event satisfactory?				

## Analysis and interpretation of results

The analysis and interpretation of results is a key stage in the research process in which the data obtained are examined and explained to answer re-

search questions and the research hypothesis. This is how the information is organized, the data collected is processed and evaluated to discover trends, relationships or degrees of association between variables, so that the results give meaning to the research. In this way, 207 surveys were applied, and then the data were processed in Excel to determine the percentage of acceptance in each of the items. In terms of descriptive statistics, the mean and standard deviation were applied to test the hypothesis (Salkind, 2010).

Table 2. *Results by item*

<i>Item</i>	<i>10</i>	<i>9</i>	<i>8</i>	<i>7-0</i>	<i>Total</i>
1	87	92*	28	0	207
2	89	91*	26	1	207
3	67	86*	51	3	207
4	95*	74	38	0	207

Source: Own elaboration.

### Highest score result

In Table 2, Results by item, we can verify the results obtained by item. Item 1: To what extent do you consider that the contents of the subject are applicable in your life? 92 of the respondents answered very well, 87 of the respondents answered excellent and 28 of the respondents answered well. Item 2: Do you think that the services offered can be applied to your person, with your friends and your family? 91 of the respondents answered very well, 89 of the respondents answered excellent and 26 of the respondents answered good, and 1 of the respondents answered bad. Item 3: The audiovisual media and the time of the conference were... 86 of the respondents answered very well, 67 of the respondents answered excellently and 51 of the respondents answered well, and 3 of the respondents answered poorly. Item 4: The attention and availability of the personnel involved in the organization of the event were excellent. 95 of the respondents answered excellent, 74 of the respondents answered very well, and 38 of the respondents answered well.

Table 3. *Percentage of Acceptance*

<i>Item</i>	<i>% Excellent</i>	<i>% Very good</i>	<i>% Well</i>	<i>% Bad</i>	<i>Total</i>
1	42	44*	14	0	100
2	43	44*	13	0	100
3	32	42*	25	1	100
4	46*	36	18	0	100

Source: Own elaboration.

### Percentage of highest acceptance

In Table 3, the Percentage of acceptance, we can verify the percentages of acceptance per item. Item 1: To what extent do you consider that the contents of the subject are applicable in your life? 44% of the respondents answered very well, 42% of the respondents answered excellent, and 14% of the respondents answered well. Item 2: Do you think that the services offered can be applied to you personally, with your friends and your family? 44% of the respondents answered very well, 43% of the respondents answered excellent, and 13% of the respondents answered well. Item 3 The audiovisual means and the time of the conference were: 42% of the respondents answered excellent and 13% of the respondents answered well, 42% of the respondents answered very well, 32% of the respondents answered excellent, and 25% of the respondents answered well, 1% of the respondents answered poorly. Item 4: The attention and availability of the staff involved in the organization of the event are... 46% of the respondents answered excellent, 36% of the respondents answered very well, and 18% of the respondents answered well.

In Table 4, Descriptive Statistics, we identify by item the statistical data that allow the testing of the null hypothesis. Item 1: To what extent do you consider that the contents of the subject are applicable in your life? The frequency is very well with a score of 92 and 44% the mean is 9, and the standard deviation is 0.6904, in item 2, which is: Do you think that the services offered can be applied to your person, with your friends and your family? The frequency is very good with a score of 91, 44% mean of 9 and standard deviation of 0.7003, in item 3 which is: The audiovisual media

and the time of the conference were: the frequency is very good, with a score of 86, 42% mean of 9 and standard deviation of 0.7901 and item 4 which is: The audiovisual media and the time of the conference was: the frequency is very good, with a score of the 95, 46% mean of the 9 and standard deviation of 0.7546, the average mean is 9 and standard deviation of 0.7339.

Table 4. *Descriptive Statistics*

<i>Item</i>	<i>Frequency</i>	<i>Percentage</i>	<i>Media</i>	<i>Standard deviation</i>
1	92	44	9	0.6904
2	91	44	9	0.7003
3	86	42	9	0.7901
4	95	46	9	0.7546
Average			9	0.7339

Source: Own elaboration with Excel.

## Null hypothesis testing

The null hypothesis is the statement to be tested. Usually, the null hypothesis is the statement that there is no effect or no difference. The alternative hypothesis is the statement that you want to conclude is true with the research evidence.

- Hi: Self-fulfillment, the fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala, contributes to the student's academic trajectory.
- H0: Self-fulfillment, the fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala, does not contribute to the student's academic trajectory.
- H1: The student academic trajectory of university students depends only on the three substantive axes, which are: teaching, research and dissemination of culture.

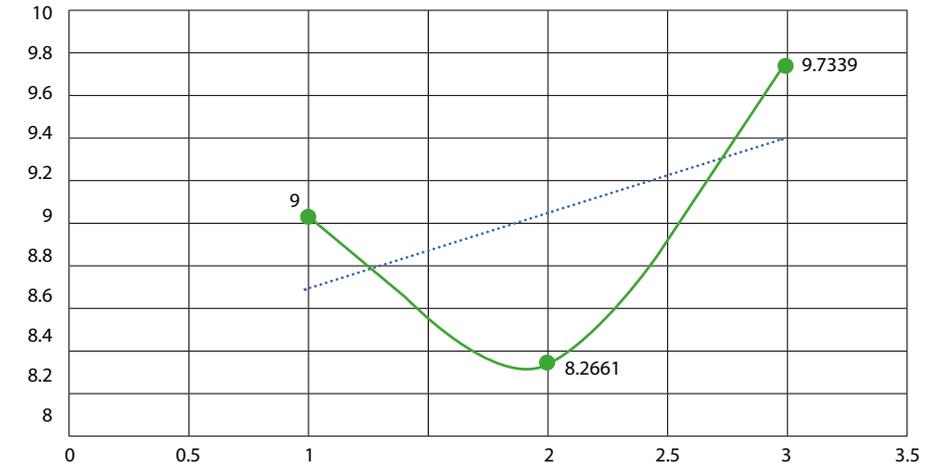
Table 5. *Statistical Data for hypothesis testing*

<i>Media</i>	<i>Standard deviation</i>	<i>Minium</i>	<i>Maximum</i>
9	0.7339	8.2661	9.7339

Source: Own elaboration.

In Table 5, Statistical Data for hypothesis testing, we verify testing the value of the mean, which is 9, the value of the Standard Deviation with a value of 0.7339, the value of the minimum of 8.2661 and the value of the maximum of 9.7339.

Figure 1. Location of the mean relative to the minimum and maximum



Source: Own elaboration with the Excel statistical package.

In Figure 1, the Location of the mean relative to the minimum and maximum, the value of the mean is 9, the minimum is a value of 8.2661 and the value of the maximum is 9.7339. This figure allows us to verify the normal distribution of the statistical data of the 4 items of the survey.

## Conclusions

The fourth cross-cutting substantive axis of the Autonomous University of Tlaxcala, refers to identifying the three moments of self-fulfillment in their student academic career, the first of them, Self-Recognition, when the student upon entering recognizes himself/herself, identifying his/her place of origin and giving answer to the questions that allows him/her to recognize Who am I? The second moment is when the student chooses one of the 46 undergraduate educational programs offered by the Autonomous Univer-

sity of Tlaxcala chooses to study one of them; it is then that they self-determine. The third moment is when students identify the professional role they are developing through their academic training. They become better equipped to address real-world societal challenges. Students report a level of self-fulfillment as they experience a greater sense of life and purpose in their academic career. Therefore, the academic environment, interpersonal relationships and intrinsic motivation are fundamental factors for the development of self-fulfillment in university students.

Through the analysis and interpretation of the results by the students of the Faculties and the Multidisciplinary Academic Unit, the following is listed:

1. The development of this research identifies the challenges of self-fulfillment at the Autonomous University of Tlaxcala, since at the national level it is a higher education institution that identifies the need for this fourth substantive, transversal and articulating axis with a trajectory in its Educational Model of almost two decades, revitalized today by capacities.
2. The general objective was fulfilled by describing the fourth substantive, transversal and articulating axis, which is self-fulfillment at the Autonomous University of Tlaxcala, providing the 3 moments of the self-fulfillment process: self-recognition, self-determination and self-realization. It was identified that university students display the ability to face the challenges of the future and adapt to change, as well as collaborate with others. In terms of profiles, socioemotional skills such as resilience, empathy and effective communication were identified in university students.
3. The contrast of the null hypothesis that specifies that self-realization, fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala does not contribute to the student academic trajectory, which is rejected, so the research hypothesis that specifies that self-realization, fourth substantive, transversal and articulating axis of the Autonomous University of Tlaxcala contributes to the student academic trajectory, since the results of the surveys applied, specify that students consider that the contents of the subjects apply to their lives, that the services offered through the Secretariat

of Self-fulfillment can be applied to them personally, the audiovisual media and the time of the conferences are very good and the attention and availability of the Self-fulfillment Secretariat staff in terms of events was excellent. Thus, through the sample average, it is specified that the answers of the 207 surveys are within the acceptance range, since the minimum level is 8.2661 and the mean is 9, and the maximum is 9.7339.

4. It is recommended to apply the surveys at various times in the academic student trajectory of the university, thus reinforcing the contrast of the research hypothesis.

## References

- Abarca, M. G. (2023). Causas y consecuencia del estrés académico en universitarios. *Revista Vitalia*, 10(2), 45-60. <https://doi.org/10.12345/vitalia.377>
- Alarcón, M. E. (2019). Elección de carrera: motivos, procesos e influencias y sus efectos en la experiencia estudiantil de jóvenes universitarios de alto rendimiento académico. *Reencuentro de análisis de problemas universitarios*, 30(77), 53-74. <https://doi.org/10.53967/REencunetro.2019.3077.53>
- Alchundia-Mendoza, M. N.-C. (2024). Inteligencia emocional y desarrollo académico de estudiantes universitarios en la modalidad virtual. *Sinergia Académica*, 7(4). <https://doi.org/10.51736/6cczb890>
- Alvarado-Cantero, L. (2017). Aprendizaje como proceso transformador: una experiencia de proyección a la comunidad. *Revista Comunicación*, 26(1), 14-29. <https://www.scielo.sa.cr/pdf/com/v26n1/1659-3820-com-26-01-14.pdf>
- Álvarez-Torres, F. J. (2024). Universidad 5.0: El futuro de la Universidad y la Alfabetización en Inteligencia Artificial. *Revista Digital Universitaria*, 10(17). <https://doi.org/10.22201/dgtic.26832968e.2024.10.17>
- Arcos, E. (2022). La globalización y tecno-globalización en la educación superior en el siglo XXI. *Ciencia UAT*, 16(1), 1-14. <https://doi.org/10.29059/cienciauat.v16i1.1615>
- Arias, U. R. (2022). Actividades extracurriculares y su relación con el estilo de vida de los estudiantes de enfermería. *Lux Médica*, 17(49). <https://doi.org/10.33064/49lm20223267>
- Ato, M. L. (2013). Un sistema de clasificación de los diseños de investigación en Psicología. *Anales de Psicología*, 29(3), 1038-1059. <https://doi.org/10.6018/analesps.29.3.178511>
- Ávila, P. P. (2024). Influencia de las competencias socioemocionales en el desarrollo de la formación por competencias en estudiantes de educación superior. *Revista de*

- Reflexión e Investigación Educativa*, 6(1), 1-8. <https://doi.org/10.22320/reined.v6i1.6465>
- Banda-Ortíz, H., López Martínez, R. E. y Almaraz, I. (2018). La educación virtual como una herramienta para el desarrollo de ventajas competitivas. *Repositorio de la Red Internacional de Investigadores en Competitividad* 7(1). <https://riico.net/index.php/riico/article/view/363>
- Barba, B. (2003). Valores en los estudiantes universitarios. Un tema con futuro. *Reencuentro*, 38, 49-53.
- . (2003). Valores universitarios en los jóvenes estudiantes de la Universidad de Guanajuato. *Revista de la Educación Superior*, 32(3), 7-22.
- Berger, J. B. (2000). *Organizational behavior in higher education and student outcomes*. Agathon Press.
- Bornstein, D. (2010). *Social entrepreneurship: What everyone needs to know*. Oxford University Press.
- Cabello-González, M. E. (2025). Estrategias de estudio, estilos de aprendizaje y rendimiento académico de estudiantes universitarios. *Revista RedCA*, 7(21), 82-106. <https://doi.org/10.36677/redca.v7i21.23233>
- Cabrera, A. F. (2020). Educación virtual como agente transformador de los procesos de aprendizaje. *Revista on line de Política e Gestao Educacional*, 24(3), 1216-1225. <https://doi.org/10.22633/rpge.v24i3.14358>
- Calleja, M. F. (21 de 11 de 2024). Aprender pensando. *El país*.
- Cervantes-López, M. J.-C.-M. (2020). Estrategias para potenciar el aprendizaje y el rendimiento académico en estudiantes universitarios. *Revista Venezolana de Gerencia*, 25(90), 579-594. <https://doi.org/10.37960/rvg.v25i90.32402>
- Chérrez-Guerrero, L. V.-Á.-Y.-P. (2023). Autoconocimiento y la orientación vocacional en estudiantes de bachillerato de la Unidad Educativa Sagrada Familia. *Revista de Ciencias Sociales*, 29(1), 167-183. <https://doi.org/10.31876/rcs.v29i1.39102>
- Creswell, J. W. (2018). *Designing and conducting mixed methods research* (3ra ed.). SAGE Publications.
- De la Lama, L. E. (2019). La paradoja de la presión académica excesiva aplicada en algunas escuelas de Educación Superior. *Revista de Educación Superior*, 48(190), 1-15. <https://doi.org/10.36857/resu.2019.190.001>
- Díaz, P. M. (2017). Desarrollo del potencial humano organizacional. *Revista cubana de Psicología*, 1-15. <https://doi.org/10.13140/RG.2.2.12345.67890>
- Díaz, R. (2020). Autorrealización y sentido de vida en estudiantes universitarios. Un estudio cualitativo. *Revista Iberoamericana de Psicología*, 16(3), 128-142.
- Dillman, D. A. (2014). *Internet, phone, mail and mixed-mode surveys. The tailored designs method* (4ta ed.). Wiley.
- Etikan, I. M. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics*, 5(1), 1-4. <https://doi.org/10.11648/j.ajtas.20160501.11>
- Flores de Valgas, F. d. (2025). Desarrollo de las habilidades blandas en el desempeño académico de los estudiantes universitarios. *Revista Científica Arbitrada Multidisci-*

- plinaría PENTACIENCIAS*, 7(1), 299-314. <https://doi.org/10.59169/pentaciencias.v7i1.1384>
- Flores, C. (1981). *Autorrealización: Revisión bibliográfica*. [Tesis de Licenciatura]. México: Universidad Autónoma de México.
- Font, P. I. (2016). Las actividades extracurriculares en la formación universitaria. *TEPEXI Boletín Científico de la Escuela Superior Tepeji del Río*, 3(6). <https://doi.org/10.29057/estr.v3i6.363>
- Gamarra-Moscoso, M. A.-M. (2020). Pensamiento creativo y relaciones interpersonales en estudiantes universitarios. *Investigación Valdizana*, 14(3), 159-168. <https://doi.org/10.33554/riv.14.3.742>
- García, M. (2021). La educación superior en la era digital: implicaciones de la globalización y la tecnología. *Revista Iberoamericana de Educación Superior*, 12(34), 123-140. <https://doi.org/10.22201/iisue.20072872e.2021.34.593>
- García-Valcárcel, A. (2017). La tutoría universitaria: percepciones de estudiantes y profesores sobre su importancia y necesidades de mejora. *Revista de Educación*(375), 34-59. <https://doi.org/10.4438/1988-592X-RE-2017-375-353>
- García-Vera, V. E. y Chiner, E. (2021). Aprendizaje transformador: oportunidad de la pandemia. *Educación Médica*, 22(4), 211-213. [https://scielo.isciii.es/scielo.php?pid=S2014-98322021000400009&script=sci\\_arttext](https://scielo.isciii.es/scielo.php?pid=S2014-98322021000400009&script=sci_arttext)
- Gargallo-López, B. S. (2007). Estrategias de aprendizaje y rendimiento académico en estudiantes universitarios. *Revista de Investigación Educativa*, 25(2), 421-439. <https://doi.org/10.6018/rie.25.2.96941>
- González, F. (2019). Factores que influyen en la autorrealización de jóvenes universitarios. *Revista Latinoamericana de Psicología Educativa*, 17(1), 72-85.
- González, J. M. (2019). Gestión del talento en los estudiantes universitarios a través del desarrollo de competencias. *Revista Iberoamericana de Educación Superior*, 10(28), 85-102.
- González, M. (2020). La responsabilidad social universitaria: misión e impactos sociales. *Perfiles educativos*, 42(168), 141-157. <https://doi.org/10.22201/iisue.24486167e.2020.168.59432>
- González, M. (2019). La responsabilidad social en la educación superior: análisis de la alineación curricular en instituciones de Oaxaca. *Revista de la Educación superior*, 48(192), 115-136. <https://doi.org/10.36857/resu.2019.192.835>
- González, M. A. (2019). El razonamiento deductivo en la investigación científica: fundamentos y aplicaciones. *Revista Electrónica de Metodología Aplicada*, 24(2), 45-60. <https://doi.org/10.17561/rema.v24i2.3021>
- González, M. F. (2016). Gestión del talento humano en organizaciones educativas. *Revista de Ciencias Sociales*, 22(2), 276-289. <https://doi.org/10.31876/rcs.v22i2.20744>
- González, M. L. (2022). Análisis descriptivo de los hábitos de estudio en estudiantes universitarios de primer año. *Revista de Investigación Educativa*, 40(1), 45-60. <https://doi.org/10.1016/j.rie.2022.01.003>
- González, M. T. (2019). Impacto de la tutoría académica en el rendimiento de los estu-

- diantes universitarios. *Educación XXI*, 22(1), 187-208. <https://doi.org/10.5944/educXX1.21344>
- Gordillo, E. E.-T.-B.-P. (2023). Impacto de actividades extracurriculares en la autorrealización de estudiantes de medicina: una revisión sistemática. *Revista Española de Educación Médica*. <https://doi.org/10.6018/edumed.592721>
- Gracia, G. D. (18 de 10 de 2024). *www.cadenaser.com*. Obtenido de <https://cadenaser.com/castillayleon/2024/10/18/un-pionero-de-la-bioetica-doctor-honoris-causa-por-la-ubu-radio-castilla/>
- Guerrero, V. M.-B. (2022). Estudio exploratorio sobre las experiencias de estudiantes universitarios de primera generación y su valoración de programas de acción afirmativa. *Praxis Educativa*, 1-26. <https://doi.org/10.19137/praxiseducativa-2022-260208>
- Gutiérrez, M. (2024). Inteligencia emocional y desempeño académico en una muestra de estudiantes universitarios: Un estudio correlacional. *Salud, Ciencia y Tecnología*. <https://doi.org/10.56294/saludcyt20241010>
- Hernández-Rivera, A. (2022). Globalización, TIC y educación superior: desafíos y oportunidades. *Journal of Development*, 6(1), 45-50. <https://doi.org/10.24215/23468971e078>
- Hernández-Sampieri, R. F.-C.-L. (2014). *Metodología de la Investigación* (6ta ed.). McGraw Hill Education.
- Islas-Torres, C. C.-A.-F.-F. (2017). Análisis del saber de los estudiantes universitarios sobre un proceso de aprendizaje. *Ciencia Ergo Sum*, 24(3), 207-217.
- Jiménez-Silva, W. R.-P.-M. (2017). Ventajas competitivas y comparativas de los emprendimientos universitarios en la región central de la República del Ecuador. *Revista Publicando*, 13(2), 1-17.
- Jiménez-Vásquez, M. S. (2014). Trayectorias profesionales de egresados del Doctorado en Educación de la Universidad Autónoma de Tlaxcala: Un análisis de las funciones, productividad y movilidad en el mercado académico. *Perfiles Educativos*, 36(144), 34-51. <https://doi.org/10.22201/iisue.24486167e.2014.144.42128>
- Lomelí, V. L. (2022). Universidad y futuro: los retos de la pandemia. *Universidad Autónoma de Tlaxcala*. <https://doi.org/10.22201/iisue.9786073064347e.2022>
- López, A. M. (2020). *Educación y justicia social: una mirada desde el enfoque de capacidades*. Editorial Educación Crítica.
- López, J. (2020). Impacto de las TIC en la internacionalización en las universidades. *Revista de Educación a Distancia*, 20(62), 1-20. <https://doi.org/10.6018/red.413011>
- López, M. (2023). Desafíos en la educación universitaria: Una revisión crítica. *Revista de Educación Superior*, 52(1), 45-62. <https://doi.org/10.12345/res.2023.52.1.45>
- López, M. J. (2018). Capacidades humanas de los jóvenes universitarios: Validación de una lista de capacidades desde el enfoque del desarrollo humano. *Revista de Estudios Sociales*, 45-59.
- López-Aguado, M. (2020). La tutoría universitaria como herramienta para la mejora de la calidad educativa: una revisión sistemática. *Revista Electrónica de Investigación Educativa*. <https://doi.org/10.24320/redie.2020.22.e12.2235>

- Martínez, M. (2015). Autorrealización y bienestar psicológico en estudiantes universitarios. *Revista de Psicología y Educación*, 10(2), 45-58.
- Martínez, P. (2020). Estilos de aprendizaje para la superdotación en el talento humano universitario. *Revista Electrónica de Investigación Educativa*, 22(3), 1-15.
- Martínez-García, C. M.-C.-S.-M. (2019). Proceso emocional de la toma de decisiones en estudiantes universitarios. *Revista de Psicología*, 5(1), 261-272. <https://doi.org/10.17060/ijodaep.2019.n1.v5.1595>
- Martínez-Rodríguez, A. (2023). Relación entre rendimiento académico e inteligencia emocional en universitarios de Grado y Máster de la Universidad de León. *Revista Complutense de Educación*, 34(4), 795-807. <https://doi.org/10.5209/rced.80128>
- Morales, P. (2011). Un estudio comparativo de estilos de toma de decisiones en estudiantes universitarios. *Revista Electrónica de Investigación Educativa*, 13(3), 1-15. <https://doi.org/10.24320/redie.2011.13.3.337>
- Muñoz, P. M. (2013). Estrés académico en estudiantes de Ciencias de la Salud. *Revista Internacional de Estudios en Educación*, 13(2), 95-99. <https://doi.org/10.37354/riee.2013.133>
- Nussbaum, M. C. (2011). *Creating capabilities: The human development approach*. Harvard University.
- Oliver, D. (07 de 09 de 2024). Alertas por la salud mental del alumnado. *El país*.
- Ortiz, R. (2018). Educación humanista y capacidades: hacia un modelo integrador. *Revista de pedagogía Crítica*, 45-60.
- Patiño, D. H. (2024). Competencias emocionales. *Revista Internacional de Educación Emocional y Bienestar*. <https://doi.org/10.48102/rieeb.2024.4.2.105>
- Pedroza, F. R. (2021). Estudios del futuro para comprender la posibilidad de la Universidad Ubicua. *Inter disciplina*, 9(25), 209-231. <https://doi.org/10.22201/ceiich.24485705e2021.25.79974>
- Pereira, D. (2018). Deserción estudiantil en la educación superior: reflexiones sobre la gestión enfocada en la retención o la permanencia. *Revista Iberoamericana de Educación Superior*, 9(25), 3-22. <https://doi.org/10.22201/iisue.20072872e.2018.25.306>
- Pereira, F. E. (2019). Factores que crean una ventaja competitiva: consonancias y diferencias entre gestores y estudiantes de instituciones educativas. *Contaduría y Administración*, 64(3). <https://doi.org/10.22201/fca.24488410e.2018.1581>
- Pin Navarro, M. F. (2023). La toma de decisiones para la elección de carrera universitaria. *Ciencia Latina Revista Científica Multidisciplinar*, 7(2), 3811-3830. [https://doi.org/10.37811/cl\\_rcm.v7i2.5612](https://doi.org/10.37811/cl_rcm.v7i2.5612)
- Pozón, L. J. (2015). Los estudiantes universitarios ante las actividades extracurriculares. *Revista Andaluza de Ciencias Sociales*, 13, 137-150. <https://doi.org/10.12795/andalali.2014.i13.08>
- Rentería, D. I. (2012). Posibilidades de autorrealización: significados de la educación superior y proyecto de vida en estudiantes universitarios de Tijuana. Posgrado COLEF.
- Revilla, M. A. (2017). Ideal and maximum length for a web survey. *International Journal of Market Research*, 59(5), 557-565. <https://doi.org/10.2501/IJMR-2017-039>
- Reyes, C. R. (2018). La Autorrealización en la UAT es un estilo de vida. *El Sol de Tlaxcala*.

- Rivera, M. (2019). Abriendo brecha. Los estudios de género en la Universidad Autónoma de Tlaxcala. *Revista de El colegio de San Luis*, 9(18), 367-390. <https://doi.org/10.21696/rcsl9182019946>
- Rojas, P. R. (2023). La educación superior para el 2050. Desafíos y oportunidades para un futuro no tan lejano. *Educación Superior y Sociedad*, 35(1), 152-178. <https://doi.org/10.54674/ess.v35i1.751>
- Salkind, N. J. (2010). Data analysis and interpretation in research. *International Journal of Educational and Psychological Assessment*, 6(2), 12-25. <https://doi.org/10.1177/0734282910385933>
- Sánchez, A. (2021). Identidad del líder como potencial en el desarrollo de competencias en estudiantes universitarios. *Revista de Psicología y Educación*, 16(2), 123-137.
- Tlaxcala, U. A. (2017). *Boletín de la Universidad Autónoma de Tlaxcala*. Obtenido de [www.uatx.mx](http://www.uatx.mx)
- Tourangeau, R. C. (2013). *The science of web surveys*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780199747049.001.0001>
- Velázquez, D. E. (2024). Percepciones de estudiantes universitarios sobre las habilidades del pensamiento crítico. *Praxis Educativa*, 28(3), 1-17. <https://doi.org/10.19137/praxiseducativa-2024-280310>

# Chapter 4: Comparison of Tax Regimes for Self-Employed Medical Practitioners

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## Abstract

This study aims to conduct a comparative analysis between the Business and Professional Activities Regime (RAEP) and the Simplified Trust Regime (RESICO), to determine which offers greater advantages for physicians providing independent professional services. The methodology used involves simulated tax calculations under both regimes, considering different income levels and expense deduction scenarios. The results indicate that RESICO is more advantageous in most cases due to its reduced tax rates and administrative simplicity. Limitations include the income cap to remain within the regime and the inability to deduct expenses. This study focuses exclusively on the analysis of Income Tax (ISR), as physicians are exempt from Value Added Tax (VAT). A limitation is acknowledged: the calculations are based on general assumptions and do not account for individual variations in each physician's tax situation. Nevertheless, the findings offer useful guidance for making informed tax decisions within the medical sector in Mexico.

**Keywords:** *taxes, self-employed physicians, tax regimes, comparative taxation.*

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## Introduction

The work of physicians is a fundamental pillar for the functioning of the healthcare system and the well-being of the population. Beyond their clinical role, doctors play a key part in prevention, diagnosis, treatment, and health promotion, all of which carry significant economic, social, and ethical implications. In this sense, the professional practice of physicians not only directly influences the quality of life of individuals but also impacts the national economy, particularly in the case of professionals who work independently. However, despite the importance of their work, self-employed physicians in Mexico face various tax challenges that affect their compliance with tax obligations and the optimization of their financial resources.

The Mexican tax system offers specific taxation options for this sector, most notably the Business and Professional Activities Regime (RAEP) and the Simplified Trust Regime (RESICO). These two regimes present substantial differences in terms of requirements, tax burdens, and administrative obligations, which can significantly influence the fiscal decisions of healthcare professionals.

According to the National Survey on Occupation and Employment conducted by the National Institute of Statistics and Geography (INEGI, 2021), the medical population in Mexico totals 305,418 individuals, 54% of whom are male and 46% female. Of this total, 67% work as general practitioners, while 33% practice a medical specialty. Regarding employment status, 76% are salaried employees, and 24% are self-employed or employers. The latter group is the primary focus of this study, given its relevance in the analysis of tax culture and formalization processes within the health sector.

Additionally, data from the Ministry of Economy (2024) indicates that there are approximately 429 000 active health professionals in Mexico, including doctors, nurses, and other specialists, with an average monthly income of 9 500 pesos. Of this group, 19.4% work under informal conditions, and 58% are women. The persistence of informality in this sector not only limits tax collection but also restricts access to legal and social benefits for the professionals themselves.

The implementation of RESICO in 2022 aimed to simplify tax compliance and promote formalization through a more accessible scheme with lower tax rates. However, its application has raised questions and controversies regarding its suitability for certain sectors, including self-employed physicians. On the other hand, while RAEP has a longer history, it entails more complex accounting practices and may result in a less favorable tax burden in certain cases.

Given this context, it is necessary to conduct a comparative analysis between both tax regimes to provide self-employed physicians with practical, well-founded tools that allow them to make informed decisions tailored to their particular circumstances, thereby contributing to their economic development and the formalization of the sector.

This article has the following primary objectives:

1. To compare the characteristics, advantages, and disadvantages of the Business and Professional Activities Regime and the Simplified Trust Regime, considering aspects such as requirements, tax burdens, and administrative obligations.
2. To provide evidence-based recommendations for self-employed physicians, based on the findings of this comparison, that help them choose the most suitable tax regime according to their needs.

Based on the above, the following research question is proposed:

*Which of the two tax regimes—the Business and Professional Activities Regime or the Simplified Trust Regime—represents a more favorable option for self-employed physicians in Mexico, considering their fiscal and administrative implications?*

## **Development**

In Mexico, the payment of taxes is a civic duty for all citizens. This obligation is established in Article 31, Section IV of the Political Constitution of the United Mexican States (2025), which states that Mexicans must contribute to public expenditures proportionally and equitably. This contribution funds

essential services such as healthcare, education, security, and public infrastructure.

Article 31: Mexicans must contribute to public expenditures, at the federal, state, Mexico City, and municipal levels, in the manner and proportion prescribed by law.

‘Proportional’ means that taxpayers should contribute based on their economic capacity, paying a fair and adequate portion of their income, profits, or earnings to the public treasury. ‘Equitable’ refers to equal treatment under tax law for all taxpayers subject to the same tax, with variations in rates only based on economic capacity.

This principle underpins the existence of tax regimes across federal, state, and municipal jurisdictions. For example, Article 73, Section XXIX of the Constitution grants Congress the exclusive authority to impose the necessary contributions to cover the federal budget in matters such as:

1. Foreign trade.
2. The exploitation of natural resources as outlined in paragraphs 4 and 5 of Article 27.
3. Credit institutions and insurance companies.
4. Public services operated by or under concession from the federal government; and
5. Specific taxes on electricity, tobacco products, gasoline and other petroleum derivatives, matches, aguamiel and its fermented products, forestry, and beer.

To enforce these obligations, the government has established a legal framework detailing how, when, and how much citizens must pay. Notable among these are the Federal Fiscal Code (CFF), which governs taxpayer relations with the tax authority, as well as specific tax laws such as the Income Tax Law (ISR) and the Value Added Tax Law (IVA). The Tax Administration Service (SAT) is the body responsible for overseeing compliance.

To streamline tax compliance, the Mexican tax system categorizes individuals and legal entities into different tax regimes based on economic activity and income level. According to the 2024 Income Tax Law, the main tax regimes for individuals are:

1. Simplified Trust Regime (RESICO): for individuals earning less than 3.5 million pesos annually.
2. Business and Professional Activities Regime: for those engaged in commercial or professional services.
3. Lease Regime: for individuals earning income from renting real estate.

These regimes ensure that each taxpayer complies in a manner appropriate to their economic activity.

Within this framework, self-employed physicians have two main options, depending on their income level and work structure:

1. Simplified Trust Regime (RESICO): ideal for physicians earning less than 3.5 million pesos annually.
2. Business and Professional Activities Regime: suitable for those with higher income or significant operating expenses seeking to optimize deductions.

### **What is a tax regime?**

A tax regime is a system of rules used by various levels of government to determine how and when a person, individual, or legal entity must pay taxes. In Mexico, this responsibility is managed by the SAT, a decentralized body of the Ministry of Finance that administers the national tax system.

According to SAT (2016), a tax regime represents the rights and obligations that apply to individuals engaged in a specific economic activity.

Although the Federal Fiscal Code (CFF, 2021) does not explicitly define 'tax regime,' it outlines important related provisions. Article 6 states:

'Taxes shall be incurred in accordance with the laws in effect at the time the taxable event occurs and shall be calculated according to the applicable laws at the time declarations are submitted.'

This confirms that tax regimes are governed by laws such as the Income Tax Law (ISR) and the Value Added Tax Law (IVA). These laws specify the different tax regimes for individuals and legal entities, and the rules for calculating and paying taxes.

Having established the two applicable regimes for self-employed physicians, the following sections will describe each in detail.

## **Business and Professional Activities Regime (RAEP)**

The Business and Professional Activities Regime is one of the most common and longest-standing tax regimes for individuals engaged in economic activities in Mexico. These activities include both business operations and the provision of professional services. The former refers to income derived from commercial, industrial, agricultural, livestock, fishing, or forestry activities, while the latter refers to compensation for independent personal services that are not classified as wages and, in general, do not fall under employment relationships.

According to the Official Gazette of the Federation (DOF) published on December 30, 1980, and effective as of January 1, 1981, the Income Tax Law initially treated business and professional activities separately: the former were regulated in Title IV, Chapter VI, and the latter in Chapter II of the same Title. However, subsequent reforms to the 1980 law, such as the one enacted in 2002, began to manage both types of activities jointly, grouping them under Chapter II of Title IV, under the concept of the “Business and Professional Activities Regime”.

Under the current law, published in the Official Gazette on December 11, 2013, and most recently amended on April 1, 2024, the Business and Professional Activities Regime is regulated in Articles 100 to 110, within Title IV, Chapter II, Section I. This legal framework allows taxpayers to calculate and pay their taxes based on their income and the nature of their professional or business activity.

Over time, the number of taxpayers enrolled in the Business and Professional Activities Regime (RAEP) has grown steadily. In 2010, the average number of taxpayers was 2,845,474, and this figure has continued to rise. By 2025, the number of enrolled individuals reached 5,653,459, representing a significant increase, nearly double compared to 2010.

Table 1. *Taxpayers registered under the Business and Professional Activity Regime for the period 2010-2025*

<i>Year</i>	<i>Number of Taxpayers</i>	<i>Growth rate compared to 2010</i>
2010	2 845 474.00	0%
2015	3 829 630.00	34.59%
2020	3 593 843.00	26.30%
2025	5 653 459.00	98.68%

Source: Own elaboration based on data from the Tax Administration Service (s.f.).

## Taxpayer Obligations

Individual taxpayers under the Business and Professional Activity Regime, in accordance with Article 110 of the Income Tax Law (LISR) and other applicable tax provisions, have various tax obligations. Among the most common or notable are:

- Registration in the Federal Taxpayer Registry (RFC).
- Keeping tax information updated, including address changes, economic activities, and obligations.
- Maintaining accounting records in accordance with the Federal Tax Code and its Regulations.
- Issuing digital tax receipts via the internet (CFDI) for income received.
- Keeping accounting records and tax receipts, as well as any documents necessary to prove compliance with tax obligations, as established in the Federal Tax Code.
- Filing monthly tax returns.
- Filing the annual tax return.
- Obtaining and using an advanced electronic signature (e.firma) for electronic tax procedures.
- Enabling and maintaining the Tax Mailbox, the official communication channel between the SAT and taxpayers.

Taxpayers under this regime must make monthly provisional payments toward the annual tax, no later than the 17th day of the month following the reporting period, through a return filed at authorized offices. In February

2025, the Tax Administration Service launched a new portal aimed at providing better service to taxpayers, along with a new application for filing tax returns for individuals engaged in business and professional activities. This new application already includes preloaded information on income and authorized deductions, thereby facilitating the filing process (Tax Administration Service, 2025).

The provisional payment is determined by subtracting from the total income obtained during the period (from the start of the fiscal year to the last day of the month to which the payment corresponds) the authorized deductions for the same period and the profit-sharing payments made to workers in the fiscal year, and, where applicable, prior year tax losses not yet applied.

The result is then applied to the tax rate determined as follows: the tax table in Article 96 of this Law is used as a basis, adding the amounts from the lower limit, upper limit, and fixed fee columns corresponding to each month in the period of the provisional payment, which match the same row identified by the same percentage applied to the excess over the lower limit. From the provisional payments determined, any prior provisional payments made during the same fiscal year may be credited.

When taxpayers provide professional services to legal entities, those entities must withhold 10% as a provisional payment from the amount paid to the taxpayer, without any deductions.

It is important to mention that income under this regime is accrued when it is effectively collected, as established in Article 102 of the Income Tax Law.

Moreover, based on Article 103 of the same law, individuals registered under this regime may deduct various authorized expenses, including:

1. Refunds received or discounts and rebates granted.
2. Purchases of goods, as well as raw materials, semi-finished or finished products used to provide services, manufacture goods, or sell them.
3. Expenses.
4. Investments.
5. Interest paid related to business or professional activities.

6. Employer contributions are paid to the Mexican Social Security Institute.
7. Payments are made for local taxes on income from business or professional services.

Regarding the annual return, taxpayers must calculate the tax for the fiscal year in accordance with Article 152 of the Income Tax Law (LISR). This involves determining the taxable income by subtracting from the total accumulated income derived from business or professional activities the authorized deductions for the same period. From this taxable income, the profit-sharing payments (PTU) made to employees during the fiscal year and, where applicable, unused tax losses from previous years are subtracted, as established in Article 109 of the LISR. The result of these operations is the taxable profit.

## Tax Determination

The taxpayers referred to in this Section shall make monthly provisional payments against the annual tax, no later than the 17th day of the month following the reporting period, through a return filed at authorized offices. Table 2 illustrates an example of this calculation using fictitious data for January and February 2025, with the following figures:

<i>Concept</i>	<i>January</i>	<i>February</i>
Income	\$150 000.00	\$120 000.00
Expenses	\$ 60 000.00	\$ 50 000.00
Investment deductions	\$ 2 500.00	\$ 2 200.00

Based on the information provided, the corresponding Income Tax calculation is carried out:

As shown, income and deductions are accumulated, since the tables and rates used for the calculation are also cumulative; therefore, the tax due is \$20 716.99 for January based on a profit of \$87 500.00, and \$35 523.98 for a cumulative profit of \$155 300.00 for January and February. After subtracting

the provisional payment made in January, the actual tax payable for February is \$14 806.99.

Table 2. *Simulated monthly tax calculation for January and February for a taxpayer registered under the Business and Professional Activity Regime (RAEP)*

<i>Concept</i>	<i>January</i>	<i>February</i>
Income from prior periods	\$ 0.00	\$ 150 000.00
Income from current period	\$ 150 000.00	\$ 120 000.00
Total cumulative income	\$ 150 000.00	\$ 270 000.00
Purchases and expenses from previous periods	\$ 0.00	\$ 60 000.00
Purchases and expenses from the current period	\$ 60 000.00	\$ 50 000.00
Total purchases and expenses	\$ 60 000.00	\$ 110 000.00
Deduction of investments from previous years	\$ 2 500.00	\$ 4 700.00
Employee profit sharing	\$ 0.00	\$ 0.00
Tax losses from previous years	\$ 0.00	\$ 0.00
Taxable base of the provisional payment	\$ 87 500.00	\$155 300.00
* ISR caused (According to the rate of article 96 LISR)	\$ 20 716.99	\$ 35 523.98
Provisional payments made previously	—	\$ 20 716.99
ISR withheld from prior periods	—	—
ISR withheld from current period	—	—
Tax withheld	—	—
ISR on charge	\$ 20 716.99	\$ 14 806.99

Source: Own elaboration based on data from the Tax Administration Service (SAT) portal (2023).

## Simplified Trust Regime

The Simplified Trust Regime is a recently created tax scheme. On September 8, 2022, the Ministry of Finance and Public Credit (SHCP) submitted to the federal legislature a bill proposing reforms, additions, and repeals to various tax provisions, including the Income Tax Law. This bill introduced the new Simplified Trust Regime, incorporating taxpayers from the Business and Professional Activity Regime as well as from the leasing regime, and replacing the Fiscal Incorporation Regime and the regime for agricultural, livestock, forestry, or fishing activities. The goal was to streamline tax filing, reduce the tax burden for these taxpayers, and effectively combat tax evasion (Center for Public Finance Studies, 2021).

Under this regime, individuals may pay taxes if they exclusively engage in business activities, professional services, or the leasing of goods, if their

annual income does not exceed \$3 500 000.00 (three million five hundred thousand pesos), according to Article 113-E of the Income Tax Law (LISR).

According to open data from the Tax Administration Service (n.d.), the Simplified Trust Regime has fulfilled its goal of expanding the taxpayer base over time. In December 2022, it registered 2 878 490 taxpayers, and this figure has shown constant growth, as shown in Table 3. By January 2025, the number of registered taxpayers reached 3 765 996, representing a significant increase nearly four years after its implementation.

Table 3. *Number of taxpayers registered under the Simplified Trust Regime from 2022 to 2025*

<i>Year</i>	<i>Month</i>	<i>Number of taxpayers</i>	<i>Growth/ decline compared to 2022</i>
2022	December	2 878 490	
2023	December	2 977 905	3.49%
2024	December	3 593 707	25.14%
2025	January	3 765 996	31.19%

Source: Own elaboration based on data from the Tax Administration Service (n.d.).

## **Taxpayer-Obligations**

Regarding the obligations of these taxpayers, they must calculate and pay the corresponding tax every month, no later than the 17th day of the month following the reporting period, as well as file their annual return following Article 113-F of the Income Tax Law (LISR).

These monthly payments are determined based on the total income received from the activities, supported by digital tax receipts (CFDIs) that have been effectively collected. No deductions or value-added tax (VAT) are applied. The applicable tax rates, as indicated in Article 113-E, are shown in Table 4.

In the case of the annual calculation, which must be filed in April of the following year, it will also be based solely on the income actually received, without applying any deductions or including value-added tax (VAT), following Table 5 below:

Table 4. Rates applicable to monthly income obtained without any deduction

<i>Tax receipts effectively collected, without value-added tax (monthly pesos)</i>	<i>Applicable rate</i>
Until 25 000.00	1.00%
Until 50 000.00	1.10%
Until 83 333.33	1.50%
Until 208 333.33	2.00%
Until 3 500 000.00	2.50%

Source: Own elaboration based on data from the Income Tax Law.

Table 5. Applicable rates on annual income received without any deductions

<i>Tax receipts actually collected, without value-added tax (annual pesos)</i>	<i>Applicable rate</i>
Until 300 000.00	1.00%
Until 600 000.00	1.10%
Until 1 000 000.00	1.50%
Until 2 500 000.00	2.00%
Until 3 500 000.00	2.50%

Source: Own elaboration based on data from the Income Tax Law.

Regarding the tax obligations of taxpayers registered under this regime, and in accordance with Article 113-G of the Income Tax Law, the following can be noted, among others:

- Request registration in the Federal Taxpayers Registry and keep it updated.

Have an active electronic signature and tax mailbox.

- Issue digital tax receipts over the Internet (CFDI) for all income effectively collected.
- Obtain and keep CFDIs that support their expenses and investments.
- File monthly tax payments no later than the 17th day of the month following the one to which the payment corresponds.
- File the annual tax return in April of the year following the one to which the return corresponds.

Finally, it is worth highlighting that when taxpayers under this regime have transactions with legal entities, the latter must withhold 1.25% of the tax and remit it on behalf of the individual. The individual may deduct the withheld tax from their tax liability, if applicable.

## Tax-Determination

In this regard, a practical exercise is carried out using simulated data corresponding to the income tax calculation for January and February, using the same data for business and professional activities.

<i>Concept</i>	<i>January</i>	<i>February</i>
Income	\$150 000.00	\$120 000.00
Expenses	\$ 60 000.00	\$ 50 000.00
Deduction de investment	\$ 2 500.00	\$ 2 200.00

In this case and under the provisions of the Income Tax Law, articles 113-E to 113 J, only the collected income is considered without considering any deduction; therefore, the calculation would be as follows:

<i>Concept</i>	<i>January</i>	<i>February</i>
Income	\$150 000.00	\$120 000.00
Monthly applicable rate	2%	2%
Tax to pay	\$3 000.00	\$2 400.00

In this case, income is not accumulated as it is under the Business and Professional Activity Regime; instead, the corresponding percentage is determined based on the monthly income obtained, without applying any deductions.

Table No. 6 below provides a summary of the obligations of each regime regarding income tax.

Table 6. Comparative Table of Obligations of Both Regimes

Obligation	Description	Business and Professional Activity Regime RAEP		Simplified Regime Trust	Legal Basis
ISR	For income derived from:	Business activities or the provision of professional services.	Art. 100 LISR	Business or professional activities or those that grant the temporary use or enjoyment of goods	Art. 113-E 1°P
	Total Annual Income of:	No income limit		Limited to \$3,500,000 annual income	Art. 113-E 1°P
	Income Accumulation Base	When the income is received	Art. 102 LISR	When the income is actually received	Art. 113-E 5°P
	Basis for determining the ISR	Collected income (-) Authorized deductions	Art. 106 LISR	Collected income (x) ISR rate	Art. 113-E 5°P
	ISR rate	From 1.92% to 35%	Art. 106 LISR	From 1.00% to 2.5%	Art. 113-E 5°P
	Statements	Monthly and annual	Art. 106 y 109 LISR	Monthly and annual	Art. 113-E y 113 F LISR
	Application of authorized deductions	Applicable	Art. 103 LISR	Not applicable	Art. 113-E 5°P
	Income Tax Withholding Rate when services are provided to Legal Entities.	10% for professional services	Art. 106 LISR	It is 1.25% for leasing, business and professional activities	Art. 113J
	Application of personal deductions	Applicable	Art. 151 LISR	Not applicable	Art. 113 F LISR
Others	Electronic Accounting DIOT	Obligated from \$4 000 000.00 of income in the fiscal year.	Art. 110 LISR and rule 2.8.1.17. of the RMF2024	Not obligated	

Source: Own elaboration based on data from the Income Tax Law (LISR) and the Tax Administration Service (SAT), 2024.

## Additional-Charges

Since doctors are exempt from paying Value Added Tax (VAT), as established in Article 15, Section XIV of the Value Added Tax Law (2021), the provision states: *“Medical professional services, when their provision requires a medical degree in accordance with the law, provided they are rendered by individuals, either independently or through civil partnerships or private assistance or charitable institutions authorized by the relevant laws.”*

However, some states have implemented their own tax collection mechanisms. Such is the case of the state of Tlaxcala, which includes a state tax called the **Tax on the Practice of Professions**, as established in the Financial Code of the State of Tlaxcala and its municipalities (2021). This tax imposes a 3% charge on income earned by doctors practicing as individuals. Regarding this, Article 121 of said code states: *“The income received by individuals from providing services through the independent practice of a profession or technical, cultural, artistic, sports, or similar activities, in accordance with the applicable laws, shall be subject to the tax on the practice of professions, provided such services are not subject to value added tax.”*

## Comparative Analysis

Based on the simulated income for the months of January and February presented previously, a comparative analysis is provided for tax determination under both the Business and Professional Activity Regime and the Simplified Trust Regime (see Tables 6 and 7).

Table 7. *Simulated Income for January and February 2025*

<i>Concept</i>	<i>January</i>	<i>February</i>
Income	\$ 150 000.00	\$ 120 000.00
Expenses	\$ 60 000.00	\$ 50 000.00
Investment's deduction	\$ 2 500.00	\$ 2 200.00

Table 8. *Comparison of taxes in both regimes*

<i>Regime</i>	<i>January</i>	<i>February</i>
Business and Professional Activity Regime	\$ 20 716.99	\$ 14 806.99
Simplified Trust Regime	\$ 3 000.00	\$ 2 400.00

As observed, in January, the Business and Professional Activity Regime (AEyP) determines a tax of \$20 716.99, despite the taxable base.e., income minus expenses, being \$87 500.00 (resulting from \$150 000.00 in income minus \$62 500.00 in deductions for expenses and investments, which represent 41.67% of the total). In contrast, under the Simplified Trust

Regime (RESICO), the tax determined is only \$3 000.00 (resulting from multiplying \$150 000.00 by 2%).

For February, the tax determined under the Business and Professional Activity Regime (AEyP) amounts to \$14 806.99, with a taxable base of \$67 500.00 (from \$120 000.00 in income minus \$52 500.00 in expenses, which represent 43.50%). In contrast, under the Simplified Trust Regime (RESICO), the tax determined is \$2 400.00, which is considerably lower than that calculated under AEyP.

In both cases analyzed, the tax determined under the Business and Professional Activity Regime (AEyP) is significantly higher: 6.9 times greater in January and 6.1 times greater in February, compared to the Simplified Trust Regime (RESICO). This demonstrates that for doctors practicing independently, RESICO represents a more viable and efficient tax option.

Finally, an annual calculation will be carried out under both regimes, considering the maximum income limit allowed in RESICO of \$3 500 000.00, with the goal of identifying the breakeven point at which the Business and Professional Activity Regime could compete with RESICO (see tables).

Table 9. Annual Calculation under the Simplified Trust Regime Simplified Trust Regime

<i>Simplified Trust Regime</i>	
Income collected	\$ 3 500 000.00
Applicable rate (annual)	2.50%
Determined tax	\$ 87 500.00

Table 10. Annual calculation for the Business and Professional Activity regime.

<i>Business and Professional Activity Regime</i>	
Total taxable income	\$ 3 500 000.00
<b>Total accumulative income</b>	<b>\$ 3 008 450.00</b>
Taxable base of provisional payment (January)	\$ 491 550.00
(-) Lower limit	\$ 374 837.89
(=) Surplus over lower limit	\$ 116 712.11
(x) Applicable rate	23.52%
(=) Tax	\$ 27 450.69
(+) fixed fee	\$ 60 049.40
(=) Caused Tax	\$ 87 500.09

Based on the above calculations, it is concluded that the Business and Professional Activity Regime (RAEP) can only compete with RESICO when deductions exceed 85.96% of income—a condition that is virtually unattainable for these taxpayers. This is because, in most cases, deductible expenses do not reach such a percentage, making the tax burden under RAEP significantly higher. Therefore, RESICO is a more convenient option for independent medical service providers, offering a lower tax burden and greater administrative simplicity.

## Methodology

This study adopts a comparative and quantitative approach to analyze the differences between the Simplified Trust Regime (RESICO) and the Business and Professional Activity Regime (RAEP) regarding tax compliance for independent medical service providers.

The research design is non-experimental and cross-sectional, based on both secondary and primary sources. Secondary sources include current tax legislation (Federal Fiscal Code, Income Tax Law, and Miscellaneous Tax Resolution), INEGI data, publications from the Tax Administration Service (SAT), and previous studies on medical taxation. Primary sources consist of tax simulations to assess the tax burden at different income levels and applicable deductions for physicians under each regime.

The analysis procedure includes identifying key variables such as tax rates, income limits, administrative ease, and the possibility of deducting expenses; simulating scenarios with varying income levels, considering the VAT exemption applicable to doctors; and conducting a quantitative comparison of the tax burden under both regimes.

Regarding scope, the study focuses on the Income Tax (ISR), providing a practical guide based on concrete data to assist in selecting the most suitable tax regime. As limitations, the calculations are based on general assumptions without considering individual particularities or future tax reforms that may change the current criteria.

## Results

The comparative analysis between RESICO and RAEP for independently practicing physicians revealed significant differences in terms of tax burden, administrative ease, and use of deductions.

Tax simulations showed that RESICO offers a considerably lower tax burden due to its reduced rates, ranging from 1% to 2.5% on total income without applying any deductions. In contrast, RAEP applies to a progressive income tax rate (ISR), which can be higher depending on the income level, although it allows for the deduction of expenses related to professional activity, potentially reducing the taxable base.

A key finding was the identification of a breakeven point between both regimes. It was determined that, considering RESICO's maximum income cap of \$3 500 000.00 per year, RAEP only becomes competitive in terms of tax burden if deductions equal or exceed 85.96% of total income. Below this deduction percentage, the ISR payable under RAEP is higher than it would be under RESICO.

From an administrative perspective, RESICO is a simpler option with lower accounting requirements, making tax compliance easier. Meanwhile, RAEP involves more complex accounting management but provides greater flexibility in tax planning.

In conclusion, RESICO is more suitable for doctors with stable income and low operating costs, while RAEP may be a viable alternative for those with high-deductible expenses exceeding 85.96% of their gross income.

## Conclusions and Recommendations

The comparative analysis between the Simplified Trust Regime (RESICO) and the Business and Professional Activity Regime (RAEP) identified key advantages and disadvantages for independently practicing doctors. It confirmed that RESICO is a more favorable option in terms of tax burden due to its lower rates and administrative simplicity. However, it also has notable

limitations, such as the inability to deduct expenses and the annual income cap of \$3 500 000.00.

In contrast, RAEP offers greater flexibility through expense deductions but is only competitive with RESICO when deductions reach or exceed 85.96% of total income. Otherwise, the ISR payment under RAEP tends to be significantly higher.

Therefore, the choice of the most suitable tax regime depends on each doctor's income and expense structure. RESICO is recommended for those with low operating costs seeking to simplify their tax and administrative burden, while RAEP may be more advantageous for those with high-deductible expenses that significantly reduce their taxable base.

Based on this analysis, the following recommendations are proposed:

- Evaluate income and expense structure: Before choosing a tax regime, it is essential to analyze annual income levels and the percentage of applicable deductions to determine the most favorable scheme.
- Promote tax awareness: Strengthening tax education among doctors is crucial, as better knowledge of their rights and obligations will allow them to make informed decisions and avoid penalties for non-compliance.
- Monitor regulatory changes: Since RESICO is a relatively new regime, doctors should stay informed about potential changes that could affect its functionality and future viability.
- Seek professional tax advice: Finally, it is recommended to consult with an accountant or tax specialist who can perform a detailed analysis of each doctor's specific situation to design an efficient and personalized tax strategy.

## References

Centro de Estudios de las Finanzas Públicas. (20 de septiembre de 2021). *Propuesta del Régimen Simplificado de Confianza para Personas Físicas, 2022 [Nota informativa CEFP/065/2021]*. Cámara de Diputados. <https://www.cefp.gob.mx/publicaciones/nota/2021/notacefp0652021.pdf>

Código Financiero para el Estado de Tlaxcala y sus Municipios. (s.f.). *Congreso del Esta-*

- do de Tlaxcala*. Publicado en el Periódico Oficial el 31 de diciembre de 2002; última reforma publicada el 16 de marzo de 2021. [https://tsjtlaxcala.gob.mx/transparencia/Fracciones\\_a63/l/leyes/\\_codigofinanciero\\_tlaxcala\\_160321.pdf](https://tsjtlaxcala.gob.mx/transparencia/Fracciones_a63/l/leyes/_codigofinanciero_tlaxcala_160321.pdf)
- Código Fiscal de la Federación. (12 de Noviembre de 2021). *Diario Oficial de la Federación, 31 de diciembre de 1981*. Última reforma publicada el 6 de mayo de 2024. <https://www.diputados.gob.mx/LeyesBiblio/pdf/CFE.pdf>
- Constitución Política de los Estados Unidos Mexicanos. (15 de abril de 2025). *Diario Oficial de la Federación el 5 de febrero de 1917*. <https://www.diputados.gob.mx/LeyesBiblio/pdf/CPEUM.pdf>
- Instituto Nacional de estadística y Geografía (INEGI). (2021). *Encuesta Nacional de Ocupación y Empleo segundo trimestre del 2021 [Archivo Word]*. Estadística a propósito de las personas ocupadas como médicos. [https://www.inegi.org.mx/contenidos/saladeprensa/aproposito/2021/EAP\\_Medico2021.docx](https://www.inegi.org.mx/contenidos/saladeprensa/aproposito/2021/EAP_Medico2021.docx)
- Ley del Impuesto al Valor Agregado. (12 de noviembre de 2021). *Diario Oficial de la Federación, 29 de diciembre de 1978*. <https://www.diputados.gob.mx/LeyesBiblio/pdf/LIVA.pdf>
- Ley del Impuesto de la Renta. (01 de abril de 2024). *Diario Oficial de la Federación el 11 de diciembre de 2013*. <https://www.diputados.gob.mx/LeyesBiblio/pdf/LISR.pdf>
- Secretaría de Economía. (2024). *Médicos, Enfermeras y otros Especialistas en Salud*. Obtenido de Data Mexico. <https://www.economia.gob.mx/datamexico/es/profile/occupation/medicos-enfermeras-y-otros-especialistas-en-salud>
- Servicio de Administración Tributaria. (2024). *Resolución Miscelánea Fiscal*. Obtenido de Diario Oficial de la Federación. [https://omawww.sat.gob.mx/normatividad\\_rmf\\_rgce/Paginas/documentos2024/rmf/rmf/RMF\\_2024-29122023.pdf](https://omawww.sat.gob.mx/normatividad_rmf_rgce/Paginas/documentos2024/rmf/rmf/RMF_2024-29122023.pdf)
- . (18 de agosto de 2016). *Conoce los tipos de régimen fiscal para personas físicas*. Gobierno de México. <https://www.gob.mx/sat/es/articulos/conoce-los-tipos-de-regimen-fiscal-para-personas-fisicas?idiom=es>
- . (s.f.). *Padrón de contribuyentes*. [https://omawww.sat.gob.mx/cifras\\_sat/Paginas/DatosAbiertos/padron.html](https://omawww.sat.gob.mx/cifras_sat/Paginas/DatosAbiertos/padron.html)
- . (sf). *Guía de usuario: Nuevo Portal del SAT [PDF]*. Gobierno de México. [https://omawww.sat.gob.mx/documentossat/Documents/PortalSAT/Guia\\_de\\_usuario\\_Nuevo\\_Portal\\_de\\_SAT.pdf](https://omawww.sat.gob.mx/documentossat/Documents/PortalSAT/Guia_de_usuario_Nuevo_Portal_de_SAT.pdf)
- Universidad Nacional Autónoma de México. (s.f.). *Régimen fiscal y contabilidad empresarial [Recurso educativo]*. Coordinación de Universidad Abierta y Educación a Distancia (CUAIEED). [https://repositorio-uapa.cuaieed.unam.mx/repositorio/moodle/pluginfile.php/2678/mod\\_resource/content/1/UAPA-Regimen-Fiscal-Contabilidad-Empresarial/index.html](https://repositorio-uapa.cuaieed.unam.mx/repositorio/moodle/pluginfile.php/2678/mod_resource/content/1/UAPA-Regimen-Fiscal-Contabilidad-Empresarial/index.html)

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PhD in Administrative Sciences, Master's degree in Tax Administration, Bachelor's degree in Public Accounting. The main lines of research are human capital, financial education and financial management. She has made international stays in Guatemala, Colombia, Peru, Chile, Havana, USA and Spain. She is a Level I member of National System of Researchers (SNII), belongs to the consolidated body of research PRODEP "Human Development", academic certified by ANFECA, member of the international academic and research network Red Gestio, member of the network The new international management and member of the National Network of research Mipymes CUMEX, her latest publications are: 2024: "Some lines of research in administrative sciences", "Financial education as a strategic tool in basic education", "The influence of the organizational climate through the Balanced Scorecard on the image of the tourist service", "Comparative Study of Phubbing between two Latin Public Universities", "Cash flow analysis of the company "Casa de Valores", "Remainging Entrepreneurship in the digital age", "Verification process of transparency obligations in Mexico", 2023: "Financial management model", "Application of the customer journey map in an SME" to mention a few.

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With a 20-year professional career, she has worked in the public, private, and independent sectors. Since 2017, she has served as a full-time professor at the Faculty of Economic and Administrative Sciences (FCEA) at UAT, while also providing independent professional services. She acts as the university's tax ombudsman before the Tax Administration Service and the Office for the Defense of Taxpayers. She currently holds the position of Coordinator of the Division of Social and Administrative Sciences at the Autonomous University of Tlaxcala.

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Dr. Portillo has been awarded first place for her doctoral thesis by ANFECA and second place for her master's-level research work.

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### **Tirso Javier Hernández Gracia**

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Dr. Hernández Gracia leads the Consolidated Academic Group “Business Management and Development” and teaches at undergraduate, master’s, and doctoral levels in the areas of Human Resources, Leadership, Research Methodology, and General Administration. His research focuses on organizational health and productivity, particularly in the textile sector of Hidalgo and Tlaxcala.

He is a Level II member of SNII and holds national certification from ANFECA. An active participant in national and international networks on MSMEs, Human Resources, and Systems, he has published numerous books and articles and has presented his work in conferences across Latin America.

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Holds a Bachelor’s degree in Law from the Universidad Autónoma de Tlaxcala and is currently pursuing a Master’s degree in Constitutional Law and Constitutional Procedural Law at the Center for Legal and Political Research. He has completed specialized diploma programs in *Amparo* Law and Human Rights, both offered by the Supreme Court of Justice of the Nation (Mexico).

In his academic career, he has served as a professor at the Faculty of Law, Political Science, and Criminology, where he has taught courses on Civic and Democratic Education, Administrative Law, Parliamentary Law, and Political-Legal Sociology.

Professionally, he has worked as a legal consultant, handling cases in administrative, labor, and property law.

In the realm of political leadership, he has served as an advisor in various political campaigns, has run for multiple elected offices, has been part of the municipal leadership structure of a local political party, and has worked as an electoral public servant at the Tlaxcala Electoral Institute.

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Holds a Bachelor’s degree in Public Accounting and is a Master’s candidate in Administration, both from the Autonomous University of Tlaxcala (Mexico). He is currently affiliated with the Faculty of Economic and Administrative Sciences

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at the same university, where he teaches courses in Government Auditing, Government Accounting, and Corporate Finance. Recently, his research has focused on topics related to internal control and the management of public resources, conducted at the Center for Research in Administrative Sciences.

He has held various positions within public administration and an autonomous public body; in the latter, he served as Technical Secretary of the Division of Social and Administrative Sciences. In the Legislative Branch, he worked as a financial compliance auditor, and in the Executive Branch, he was assigned to the Audit Coordination Office of a state-level agency.

He currently continues his professional work in the public sector, contributing his technical expertise to the analysis and oversight of public resources.

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*Other lines of scientific research* de Gloria  
Ramírez-Elias, Lilibeth Portillo-Rumbo, Javier  
Solano-Solano y Tirso Javier Hernández-Gracia  
(coordinadores) publicado por Ediciones Comunicación  
Científica, S. A. de C. V., se terminó de imprimir en septiembre de  
2025, en Litográfica Ingramex, S. A. de C. V., Centeno 162-1, Granjas  
Esmeralda, 09810, Ciudad de México. El tiraje fue de 200 ejemplares impresos  
y en versión digital para acceso abierto en los formatos PDF, EPUB y HTML.



**O**ther Lines of Scientific Research presents a compelling collection of four chapters that explore diverse yet interconnected fields of study, offering readers an engaging view of how science intersects with society, economy, and technology.

Chapter 1, *Scope of Artificial Intelligence in the Tax Review in Mexico*, examines how AI technologies can streamline tax auditing processes, reduce human error, and increase transparency in fiscal operations. The research employs a mixed-method approach, combining statistical analysis with qualitative interviews from tax professionals to assess AI's real-world viability.

Chapter 2, *The Social Impact of Social Accounting on Microenterprises in the State of Tlaxcala*, uses case studies and surveys to reveal how adopting social accounting practices enhances corporate reputation, employee satisfaction, and community trust. The data highlight that SMEs with active social accounting policies report up to 18% higher customer retention rates.

Chapter 3, *The Impact of Self-Fulfillment in Higher Education Institutions*, adopts a quantitative survey-based methodology to link faculty self-fulfillment with improved teaching quality and student outcomes, suggesting that institutional policies fostering personal growth have measurable educational benefits.

Chapter 4, *Comparison of Tax Regimes for Self-Employed Medical Practitioners*, offers a detailed comparative analysis supported by real tax records, illustrating how different regimes affect income, compliance, and administrative burden.

Blending rigorous methodology with accessible language, the book captivates first-time readers by connecting empirical evidence to everyday realities, making it not only an academic resource but also an insightful guide for policymakers, entrepreneurs, and educators.



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