Tax Education and Contributory Capacity Among University Students in Mexico

Cruz Garcia Lirios

Abstract: *This study analyzes the relationship between tax education and contributory capacity among senior university students enrolled in Business Administration and Public Accounting programs in Mexico. A quantitative, nonexperimental, crosssectional, and correlational design was employed to examine how dimensions of tax education, including citizen formation, comprehension and participation, tax awareness, and knowledge of public spending, relate to dimensions of contributory capacity, comprising economic ability, compliance aptitude, and knowledge of tax rights. Data were collected through a structured questionnaire subjected to expert evaluation, with seven judges confirming high content validity. The proposed relationships were examined through partial least squares structural equation modeling, allowing the assessment of both measurement and structural components of the model. Findings indicate that tax education constitutes a relevant multidimensional factor associated with contributory capacity. Tax awareness showed particular relevance because of its relationship with compliance aptitude, suggesting that understanding tax responsibilities may strengthen students' readiness to comply with fiscal obligations. The results also indicate that students' contributory capacity is shaped not only by formal educational experiences but also by selflearning and informal sources of tax information. Limited exposure to systematic tax education and insufficient institutional outreach represent important challenges for strengthening fiscal knowledge among university students. The study contributes a capabilityoriented perspective by connecting educational processes with students' economic, compliance, and rightsrelated capacities. The findings support curricular integration of tax education and stronger collaboration between universities and tax institutions to promote informed, responsible, and sustainable participation in public finance.*

Keywords: *Tax education, contributory capacity, tax awareness, compliance aptitude, university students*

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Introduction

Tax education constitutes a strategic mechanism for strengthening the relationship between citizens and the state because taxation involves not only the transfer of economic resources but also knowledge, civic responsibility, institutional trust, and participation in public affairs. Contemporary approaches to taxation increasingly recognize that sustainable revenue mobilization cannot depend exclusively on inspection, sanctions, and coercive enforcement. Instead, voluntary compliance requires citizens to understand their fiscal obligations, recognize their rights, evaluate the use of public resources, and perceive taxation as part of a broader reciprocal relationship with public institutions (OECD, 2021). From this perspective, tax education represents more than the transmission of technical information about taxes; it constitutes a process through which individuals develop cognitive, civic, and participatory capabilities that may influence their disposition and capacity to comply with fiscal obligations.

The international literature provides evidence that taxpayer education can contribute to the development of tax morale, tax knowledge, and voluntary compliance. The OECD (2015, 2021) identifies taxpayer education as a bridge between tax administrations and citizens because it can reduce informational barriers, strengthen awareness of rights and responsibilities, and promote a culture of voluntary compliance. Tax education may therefore operate through several interconnected mechanisms: acquisition of knowledge, development of civic responsibility, understanding of the relationship between taxation and public services, and increased capacity to interact with tax institutions. Importantly, these mechanisms suggest that educational interventions should not be evaluated exclusively according to the amount of information transmitted, but according to their capacity to transform knowledge into practical competence and responsible fiscal behavior.

This problem becomes particularly relevant in higher education because university students approaching entry into professional and economic life represent a population that will increasingly interact with taxation as employees, professionals, entrepreneurs, consumers, and future taxpayers. Mexico has implemented initiatives directed toward taxpayer education in higher education, demonstrating institutional recognition of the importance of preparing future taxpayers before they enter the labor market (OECD, 2015). Nevertheless, the existence of institutional initiatives does not necessarily guarantee systematic exposure to tax education or the development of sufficient contributory capacity among university students. The persistence of gaps between formal educational provision, institutional outreach, informal learning, and practical tax knowledge raises an important empirical question concerning whether tax education is actually associated with the capacity of students to understand and fulfill their fiscal responsibilities.

The problem is especially relevant in Tlaxcala, where the development of a stronger fiscal culture requires greater articulation between educational institutions, tax authorities, and citizens. In this context, students enrolled in Business Administration and Public Accounting constitute a particularly significant population because their future professional activities may involve direct interaction with accounting, financial, administrative, and fiscal processes. However, professional proximity to economic and administrative knowledge should not be assumed to be equivalent to tax literacy. Students may acquire fiscal knowledge through formal courses, independent study, professional experiences, digital sources, or interpersonal networks, producing heterogeneous levels of knowledge and preparedness. Consequently, it is necessary to distinguish between the existence of information and the development of an integrated capacity to understand, exercise, and comply with fiscal responsibilities.

The epistemological foundation of the proposed model is postpositivist. From this position, tax education and contributory capacity are treated as theoretical constructs that cannot be observed directly in their entirety but can be approximated through observable indicators. Empirical relationships are consequently understood as probabilistic rather than deterministic. This epistemological position is compatible with structural equation modeling because latent constructs can be operationalized through multiple indicators while recognizing measurement error and the partial nature of empirical knowledge. PLS-SEM is particularly appropriate when the objective is explanatory and predictive modeling involving multidimensional constructs and when theoretical relationships require empirical examination in a specific population (Hair et al., 2022).

The first theoretical axis of the model derives from human capital theory. Education increases individuals' knowledge, skills, and capabilities, thereby improving their ability to perform activities that require specialized competencies (Becker, 1964). Applied to taxation, this perspective implies that tax education may enhance the cognitive resources necessary for understanding fiscal obligations, identifying tax rights, interpreting public expenditure, and recognizing the practical consequences of compliance and noncompliance. Tax education can therefore be conceptualized as an investment in fiscal human capital, while contributory capacity represents an outcome associated with the acquisition and application of that knowledge.

The second theoretical axis is provided by the Theory of Planned Behavior, which explains behavior through attitudes, subjective norms, perceived behavioral control, and behavioral intentions (Ajzen, 1991). Although the theory does not reduce behavior to knowledge, knowledge can facilitate the formation of more informed attitudes and increase perceived behavioral control. Within the proposed model, citizen formation and tax awareness may contribute to students' understanding of why compliance matters, while comprehension and participation may strengthen their perceived ability to act correctly within the tax system. Compliance aptitude consequently represents a behavioral-capability dimension through which tax knowledge can be translated into practical readiness for fiscal compliance.

A third theoretical axis emerges from the fiscal social contract perspective. Taxation involves a reciprocal relationship in which citizens contribute resources while expecting public institutions to provide collective goods, services, accountability, and legitimate governance. Tax morale research indicates that trust in government, perceptions of public services, and institutional performance are relevant to citizens' willingness to comply with taxation (Daude et al., 2012; OECD, 2019). Knowledge of public spending is therefore theoretically relevant because citizens who understand how public resources are collected and allocated may develop a more comprehensive conception of the relationship between taxation and collective welfare. This dimension expands tax education beyond individual obligations and places fiscal knowledge within the broader institutional relationship between citizens and government.

A fourth theoretical axis is represented by the psychological approach to tax compliance. Kirchler et al. (2008) argue that compliance is influenced by the interaction between institutional power and trust, distinguishing coercive mechanisms from voluntary forms of compliance. Similarly, Feld and Frey (2007) conceptualize compliance as part of a psychological tax contract in which citizens' perceptions of fairness, legitimacy, and reciprocal treatment influence their relationship with authorities. These approaches challenge purely economic explanations of taxation. Classical models of tax evasion emphasize expected utility, detection probability, and penalties (Allingham & Sandmo, 1972), but subsequent research has demonstrated that fiscal behavior also involves social, psychological, informational, and institutional mechanisms. Tax education can therefore be positioned as a mechanism that potentially reduces informational uncertainty and supports more autonomous forms of compliance.

The conceptual integration of these perspectives allows tax education to be defined as a multidimensional latent construct composed of citizen formation, comprehension and participation, tax awareness, and knowledge of public spending. Citizen formation refers to the development of civic responsibility regarding taxation and public finance. Comprehension and participation concern the capacity to understand fiscal processes and engage with them as a citizen. Tax awareness refers to recognition of fiscal responsibilities and their social implications. Knowledge of public spending concerns understanding the relationship between tax collection, government expenditure, and public services. These dimensions collectively represent the cognitive and civic foundations through which educational experiences may contribute to fiscal competence.

Contributory capacity is conceptualized as a multidimensional latent construct encompassing economic ability, compliance aptitude, and knowledge of tax rights. Economic ability refers to the perceived capacity to meet fiscal obligations in relation to available economic resources. Compliance aptitude represents the practical readiness to understand and fulfill tax obligations correctly. Knowledge of tax rights refers to awareness of the protections, procedures, benefits, and institutional mechanisms available to taxpayers. This conceptualization moves beyond a strictly economic interpretation of contributory capacity by recognizing that the ability to contribute depends not only on resources but also on knowledge and competence. In this sense, a person may possess economic resources while lacking the knowledge necessary to comply effectively, whereas adequate tax education may strengthen the cognitive and behavioral dimensions of contributory capacity.

The resulting conceptual logic establishes a theoretical sequence from education to fiscal capability. Human capital theory explains why educational exposure can increase knowledge and competencies; the Theory of Planned Behavior explains how knowledge and awareness may contribute to perceived control and behavioral readiness; the fiscal social contract perspective explains why understanding public expenditure can connect individual obligations with collective benefits; and psychological theories of tax compliance explain how knowledge, trust, legitimacy, and institutional relationships may support voluntary compliance. These theoretical perspectives converge without becoming theoretically redundant: education provides cognitive resources, civic formation provides normative orientation, institutional knowledge provides contextual understanding, and compliance aptitude represents the behavioral expression of these resources.

The empirical problem is therefore not simply whether university students possess tax knowledge, but whether the different dimensions of tax education form a coherent explanatory structure associated with their contributory capacity. This distinction is important because previous approaches frequently examine tax knowledge, tax morale, or tax compliance separately. A multidimensional PLS-SEM model makes it possible to examine the relationships between latent constructs simultaneously and to determine whether tax education constitutes an explanatory antecedent of contributory capacity. It also permits the assessment of whether the proposed dimensions adequately represent their respective constructs and whether the structural relationship remains meaningful after measurement reliability and validity have been established.

Within the proposed structural model, tax education functions as the exogenous construct, whereas contributory capacity functions as the endogenous construct. The measurement model represents tax education through citizen formation, comprehension and participation, tax awareness, and knowledge of public spending. Contributory capacity is represented through economic ability, compliance aptitude, and knowledge of tax rights. The structural model proposes that greater tax education is associated with greater contributory capacity. At the dimension level, tax awareness is expected to have a particularly meaningful association with compliance aptitude because awareness provides a cognitive and normative basis for recognizing and accepting fiscal responsibilities. This proposition is consistent with evidence indicating that taxpayer education may influence compliance indirectly by strengthening tax morale and reducing informational barriers (OECD, 2021).

The study is delimited to senior students enrolled in Business Administration and Public Accounting at the Faculty of Economic and Administrative Sciences of the Universidad Autónoma de Tlaxcala. It adopts a quantitative, non-experimental, cross-sectional, and correlational design. This delimitation is methodologically important because the objective is to estimate associations among latent constructs rather than establish experimental causality. Accordingly, the proposed PLS-SEM model should be interpreted as an explanatory and predictive representation of relationships observed within the selected population and not as definitive evidence of causal effects.

The empirical context further indicates a potential disconnection between formal tax education and students' actual fiscal preparedness. Limited exposure to formal tax education, restricted institutional outreach, and reliance on self-learning and informal information sources may produce uneven levels of fiscal competence. Such conditions make higher education a critical institutional space for strengthening tax literacy before students assume broader professional and economic responsibilities. The OECD (2021) emphasizes that taxpayer education is most effective when it is integrated with broader institutional strategies and when educational initiatives are evaluated according to their capacity to strengthen tax morale and compliance. Thus, the problem is simultaneously educational, institutional, and fiscal.

The central analytical question is whether tax education is significantly associated with contributory capacity among senior students in Business Administration and Public Accounting at the Universidad Autónoma de Tlaxcala, and whether the proposed dimensions provide an empirically coherent structure for explaining this relationship.

Accordingly, the proposed model assumes that tax education is positively associated with contributory capacity. More specifically, citizen formation is expected to be positively associated with contributory capacity; comprehension and participation are expected to be positively associated with contributory capacity; tax awareness is expected to be positively associated with contributory capacity; and knowledge of public spending is expected to be positively associated with contributory capacity. In addition, tax awareness is expected to be positively associated with compliance aptitude. These propositions establish the structural relationships to be tested through PLS-SEM and provide an integrated empirical framework connecting educational formation, fiscal knowledge, civic understanding, and contributory capacity.

Tax education represents a strategic tool for fostering citizens' understanding of public finance, government accountability, and voluntary compliance with fiscal obligations. Despite national initiatives in Mexico promoting tax literacy, significant gaps persist, particularly in states with low tax collection such as Tlaxcala. This study examines the relationship between tax education and contributory capacity among senior students enrolled in Business Administration and Public Accounting at the Faculty of Economic and Administrative Sciences of the Universidad Autónoma de Tlaxcala. Using a quantitative, non-experimental, correlational design, data were collected through a structured questionnaire assessing dimensions of tax education (citizen formation, comprehension and participation, tax awareness, and knowledge of public spending) and contributory capacity (economic ability, compliance aptitude, and knowledge of tax rights). Results show limited exposure to formal tax education, low institutional outreach from PRODECON in Tlaxcala, and moderate levels of contributory capacity influenced largely by self-learning and informal knowledge sources. Significant correlations were found between tax awareness and compliance aptitude. The findings highlight the need for curricular reforms and institutional partnerships to strengthen tax literacy in higher education. Tax systems rely fundamentally on citizens' willingness and capacity to contribute to public expenditures. International organizations such as the European Commission (2024) emphasize that tax education from early ages is crucial to prevent fraud, strengthen civic responsibility, and enhance public trust. In Mexico, the Secretariat of Public Education and the Tax Administration Service (SEP, 2019) promote tax education to improve fiscal culture and compliance. However, empirical evidence suggests persistent challenges: complex tax procedures (Ramírez, 2021), low trust in government, and insufficient dissemination of tax education programs across states.

In Tlaxcala, these issues appear particularly relevant. The state remains among the lowest in national tax collection (IMCO, 2021; Coutiño , 2024), and no higher-education institution in Tlaxcala requested PRODECON's tax-education workshops during 2023–2024, despite national availability (PRODECON, 2024). The absence of institutional initiatives raises concerns regarding university graduates' preparedness to meet fiscal obligations and exercise tax rights.

Previous literature describes tax education as a multidimensional construct involving citizen formation, understanding of fiscal systems, awareness of public spending, and voluntary compliance (Barrera, 2024; González et al., 2019). Contributive capacity, likewise, relates to individuals' economic ability, legal obligations, and willingness to comply (Irigoyen, 2018; Matijevic et al., 2023). Both constructs directly influence public revenue and the legitimacy of fiscal policies.

This study addresses the following research question: What relationship exists between tax education and contributory capacity among senior students in Administration and Public Accounting at the Universidad Autónoma de Tlaxcala? Drawing on the conceptual and empirical background reviewed in the original thesis document, this paper aims to contribute to the understanding of tax literacy in university settings and its implications for public finance.

Method

Research design

The study adopted a quantitative, non-experimental, cross-sectional, correlational design. This design was appropriate because the objective was to estimate the statistical association between tax education and contributory capacity without manipulating the study variables or assigning participants to experimental conditions. The observational nature of the design allowed the constructs to be examined as they occurred naturally within the academic population under study. The methodological structure was also consistent with transparent reporting principles for quantitative research, particularly regarding participant characteristics, measurement procedures, inclusion and exclusion criteria, and the planned analytical strategy (American Psychological Association, 2024).

The analytical framework was based on partial least squares structural equation modeling. Tax education was specified as the exogenous latent construct, whereas contributory capacity was specified as the endogenous latent construct. The model was designed to examine the relationship between the multidimensional educational construct and the multidimensional capacity construct, while simultaneously evaluating the quality of their measurement. The use of latent variables was justified because the principal concepts cannot be directly observed through a single manifest variable and therefore require operationalization through multiple indicators.

Participants and setting

The target population comprised senior students enrolled in the Business Administration and Public Accounting programs at the Faculty of Economic and Administrative Sciences of the Universidad Autónoma de Tlaxcala. The population was selected because students approaching completion of professional training are increasingly exposed to employment, entrepreneurship, accounting, financial management, and other activities involving fiscal responsibilities. The setting therefore provided an appropriate context for examining the relationship between formal and informal tax education and perceived contributory capacity.

Participant recruitment followed a non-probabilistic availability procedure based on accessibility to the target population. Participation was voluntary and was not associated with academic grades, institutional benefits, or penalties. The methodological decision to report participant selection explicitly follows quantitative reporting recommendations emphasizing transparency concerning recruitment, eligibility, sample characteristics, and exclusions (American Psychological Association, 2024).

Inclusion and exclusion criteria

Eligibility was established before data collection. Participants were included when they were formally enrolled in the Business Administration or Public Accounting programs, were senior students at the time of data collection, were able to understand the questionnaire independently, received the information necessary to make an informed decision about participation, and voluntarily provided informed consent. These criteria ensured that participation was restricted to individuals belonging to the population defined by the research objectives.

Participants were excluded when they did not belong to the specified academic programs or were not senior students, declined participation, withdrew consent, submitted an incomplete questionnaire that prevented calculation of the principal construct scores, or provided responses that could not be reliably interpreted because of substantial missing information. Questionnaires lacking sufficient information for the measurement of the latent constructs were removed before structural analysis. These criteria were established to protect methodological validity while avoiding arbitrary exclusion based on the substantive direction of participants' responses.

The ethical criteria were grounded in the principles of respect for persons, beneficence, and justice. Respect for persons required voluntary participation and informed consent; beneficence required minimizing potential risks and protecting participants from unnecessary harm; and justice required equitable selection of participants without exploiting their institutional position. The Belmont principles specifically connect these principles with informed consent, risk and benefit assessment, and fair subject selection (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

Participation was therefore independent of academic evaluation. The questionnaire did not request information unnecessary for the research objectives, and participants were informed that they could decline to answer or discontinue their participation without academic or institutional consequences. Data were treated confidentially and analyzed in aggregate form. No individual participant was identified in the analytical database or in the reporting of results.

Instrument development and operationalization

Data were collected through a structured questionnaire developed from the conceptual definitions established in the theoretical model. The instrument used ordered response categories suitable for measuring perceptions, knowledge, awareness, and behavioral capability. The items were formulated to represent the conceptual domain of each latent variable and were subsequently reviewed for relevance, comprehensiveness, and comprehensibility. These dimensions are central to contemporary approaches to content validity because an instrument should adequately represent the construct it is intended to measure and remain appropriate for the population and context in which it is administered (Mokkink et al., 2010).

Tax education was operationalized as a multidimensional latent construct comprising four dimensions. Citizen formation was defined through indicators assessing the extent to which students recognize taxation as a civic responsibility and understand the relationship between fiscal obligations and collective welfare. Comprehension and participation were operationalized through indicators addressing understanding of fiscal procedures, opportunities for citizen participation, and the capacity to interact with fiscal institutions. Tax awareness was measured through indicators concerning recognition of tax responsibilities, relevance of compliance, and awareness of the social implications of taxation. Knowledge of public spending was operationalized through indicators addressing students' understanding of the relationship between tax collection, public expenditure, public services, and governmental accountability.

Contributory capacity was operationalized as a multidimensional latent construct comprising economic ability, compliance aptitude, and knowledge of tax rights. Economic ability was represented by indicators addressing the perceived capacity to assume fiscal obligations according to available economic resources. Compliance aptitude was operationalized through indicators assessing the perceived ability to identify, understand, and fulfill tax obligations correctly. Knowledge of tax rights was measured through indicators addressing awareness of taxpayer rights, institutional procedures, available protections, and mechanisms for obtaining fiscal assistance or resolving tax-related situations.

The operational structure consequently established two higher-order conceptual domains. The first domain, tax education, contained citizen formation, comprehension and participation, tax awareness, and knowledge of public spending. The second domain, contributory capacity, contained economic ability, compliance aptitude, and knowledge of tax rights. This operationalization enabled the theoretical concepts to be translated into observable indicators suitable for measurement-model and structural-model assessment.

Expert evaluation

Before administration to the study population, the questionnaire underwent expert evaluation to establish evidence of content validity. Seven judges with relevant academic and professional expertise independently reviewed the instrument. The evaluation considered the correspondence between each item and its intended construct, conceptual relevance, clarity of wording, coherence with the theoretical definitions, and adequacy for the target population. The resulting assessment indicated high content validity, supporting the subsequent administration of the questionnaire.

The expert-review procedure was based on the premise that content validity requires systematic judgment regarding whether the items adequately represent the conceptual domain being measured. In particular, relevance concerns whether an item corresponds to the intended construct, comprehensiveness concerns whether the construct domain is sufficiently represented, and comprehensibility concerns whether the items can be understood appropriately by the intended respondents (Mokkink et al., 2010).

The judges' evaluation was treated as a methodological stage preceding statistical validation. Items considered conceptually ambiguous, insufficiently representative, or inadequately formulated were subject to revision before field administration. This procedure reduced the possibility that subsequent statistical results would be attributable primarily to deficiencies in item formulation rather than to the theoretical relationships under investigation.

Data collection procedure

Data collection was conducted after defining the eligibility criteria, preparing the informed-consent procedure, and completing the expert review of the questionnaire. Potential participants received an explanation of the study purpose, the voluntary nature of participation, the approximate requirements associated with completing the questionnaire, and the confidentiality procedures applied to the information provided.

The questionnaire was administered only after participants had agreed to participate. No identifying information unnecessary for the research objectives was incorporated into the analytical dataset. Completed questionnaires were reviewed for completeness, coded, and prepared for statistical analysis. Records that met the predetermined exclusion criteria were removed before estimation of the measurement and structural models.

The procedure sought to preserve autonomy throughout the research process. Informed consent was understood as a process requiring adequate information, comprehension, and voluntariness rather than merely the formal acceptance of participation. Participants were therefore informed of their right to refuse participation or discontinue it without academic consequences, consistent with the ethical framework for research involving human participants (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979).

Data analysis

The analysis was organized into two sequential components: evaluation of the measurement model and evaluation of the structural model. The measurement stage examined whether the observed indicators adequately represented their corresponding latent constructs. Reliability and validity were assessed before interpreting the structural relationships. Internal consistency was examined using appropriate reliability coefficients, while convergent validity was evaluated through the relationship between indicators and their corresponding constructs. Discriminant validity was assessed to determine whether the constructs represented empirically distinguishable theoretical domains.

The structural stage examined the hypothesized relationship between tax education and contributory capacity. The analysis considered the magnitude and statistical significance of the estimated path coefficient, explained variance of the endogenous construct, and predictive relevance of the model. The specific association between tax awareness and compliance aptitude was also examined because the theoretical model proposed that awareness of fiscal obligations should be particularly related to the practical capacity to comply.

The analytical sequence followed the principle that structural interpretation should not precede evidence that the measurement model is adequate. This distinction is important in latent-variable research because unreliable or conceptually overlapping measures can distort the estimated relationships among constructs. The reporting strategy also followed the general APA principle that quantitative research should provide sufficient methodological information to permit evaluation of measurement characteristics, participant selection, exclusions, and analytical procedures (American Psychological Association, 2024).

Ethical considerations

The study was considered minimal risk because it involved the administration of a questionnaire concerning educational experiences, tax knowledge, fiscal awareness, and perceived contributory capacity, without experimental manipulation or intervention. Nevertheless, ethical safeguards were applied because the research involved human participants. The study respected autonomy through voluntary informed consent, sought to minimize possible psychological or social discomfort, and applied equitable participant-selection procedures.

Particular attention was given to the possibility that students could perceive participation as related to their academic relationship with the institution. To prevent undue influence, participation was explicitly separated from academic assessment. No instructor or researcher was permitted to use participation status as a criterion for grading or academic recognition. Confidentiality procedures were applied during data handling, and results were reported only at an aggregated level.

The ethical protocol also incorporated the principle of proportionality between potential risks and scientific value. The Belmont framework establishes that research involving human participants should minimize unnecessary risks, maximize potential benefits, and ensure equitable selection of participants (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979). The study therefore excluded the collection of unnecessary personal information and restricted the dataset to information required to address the research objectives.

Design

A quantitative, correlational, non-experimental design was adopted, consistent with methodological recommendations by Hernández et al. (2018) for relational studies in social sciences.

Participants

Participants were students in their eighth semester of the Bachelor's programs in Administration and Public Accounting at the Universidad Autónoma de Tlaxcala, who began their studies in 2021 and are expected to graduate in 2025.

Instrument

A structured questionnaire was developed based on the variables and dimensions identified in the thesis document:

Tax Education: citizen formation, comprehension and participation, tax awareness, and understanding of public spending.

Contributive Capacity: compliance aptitude, economic capacity, and tax/legal awareness.

Items used a Likert scale from 1 (strongly disagree) to 5 (strongly agree).
Procedure

Data were collected between August 2024 and September 2025. Institutional permissions were obtained, and students were invited to respond online. Responses with missing data were excluded, as noted in the limitations of the original study.

Analysis

Descriptive statistics, mean comparisons, and Pearson correlations were conducted to examine relationships between tax education and contributory capacity.

Results

Table 1. Participation of Public and Private Universities in PRODECON Tax-Education Workshops (2023–2024)

Type of University	Number of Institutions	Examples
Public	4	UNAM, IPN, UTPN
Private	4	La Salle, Intercontinental, UDEM

As shown in Table 1, a total of eight universities nationwide requested PRODECON's tax-education workshops during 2023–2024. However, no university from Tlaxcala participated, indicating a structural absence of institutionalized tax education in the region.

Table 2. Attendance to the National "Youth and Taxes" Workshops (2023–2024)

Year	Number of Workshops	Total Attendees	Type of Institutions Involved
2023	6	874	Public and private universities
2024	8	495	Public and private universities

Despite national efforts to expand outreach, Table 2 shows uneven participation. While institutions such as UNAM and La Salle reported high workshop attendance, Tlaxcala reported zero activity, reinforcing the hypothesis that local students lack access to formal tax education programs.

Table 3. Descriptive Statistics of Key Variables

Variable	Mean	SD	Scale (1–5)
Tax Awareness	3.12	.84	Moderate
Knowledge of Public Spending	2.76	.91	Low- moderate
Compliance Aptitude	3.45	.79	Moderate
Tax Rights and Obligations	2.58	.88	Low

Table 3 shows that students report moderate compliance aptitude but low knowledge of tax rights and public-spending mechanisms, reinforcing the educational gap identified in the qualitative analysis.

Table 4. Descriptive statistics of the dimensions

Variable / Dimension	Average	Std . Dev .	Minimum	Maximum
Civic education	3.42	0.71	1.80	4.90
Understanding and participation	3.18	0.65	1.90	4.80
Tax awareness	3.55	0.74	1.70	5.00
Contributions to tax expenditure	2.94	0.80	1.40	4.80
Compliance ability	3.61	0.69	2.10	4.90
Economic capacity	3.02	0.77	1.50	4.70
Tax and financial law	2.88	0.82	1.30	4.80

Table 4 shows that the highest-rated dimension was Compliance Aptitude (M = 3.61), indicating a moderate-to-high willingness to comply with tax obligations. In contrast, the dimension with the lowest values was Tax and Financial Law (M =

2.88), suggesting a deficit in regulatory knowledge of the tax system. Among the Tax Education dimensions, Tax Awareness stands out (M = 3.55), while Contributions to Tax Expenditure has the lowest average (M = 2.94), which aligns with studies reporting a limited understanding of the allocation of public spending.

Table 5. Pearson correlations between dimensions

Variable	Civic education	Understanding and participation	Tax awareness	Contributions to spending	Compliance ability	Economic capacity	Tax and financial law
Civic education	1.00	.52**	.48**	.41**	.44**	.29*	.33*
Understanding and participation	.52**	1.00	.55**	.39**	.47**	.31*	.36**
Tax awareness	.48**	.55**	1.00	.46**	.59**	.34**	.38**
Contributions to tax expenditure	.41**	.39**	.46**	1.00	.42**	.28*	.31*
Compliance ability	.44**	.47**	.59**	.42**	1.00	.33**	.40**
Economic capacity	.29*	.31*	.34**	.28*	.33**	1.00	.26*
Tax and financial law	.33*	.36**	.38**	.31*	.40**	.26*	1.00

Note: $p < .05$; $p < .01$.

Table 5 shows that the strongest correlation is between Tax Awareness and Compliance Aptitude ($r = .59$, $p < .01$), suggesting that students who develop greater sensitivity to the importance of taxes tend to have a more favorable attitude toward tax compliance. Furthermore, the dimensions of Tax Education are significantly correlated with each other, indicating that they form part of a common construct. The weakest correlations appear between Economic Capacity and other dimensions, which is logical given that this variable depends more on material conditions than on educational processes.

Table 6. Multiple linear regression
Dependent variable: Compliance aptitude.
Predictor variables: Dimensions of Tax Education.

Preachers	B	HE	Beta	t	p
Civic education	0.18	0.07	.21	2.54	.013
Understanding and participation	0.11	0.08	.12	1.37	.172
Tax awareness	0.35	0.09	.38	3.89	0.000
Contributions to tax expenditure	0.09	0.06	.10	1.49	.140
$R^2 = .46$					
Adjusted $R^2 = .43$					
$F(4, 195) = 40.12, p < .001$					

Table 6 shows that the regression model is significant (F = 40.12, p < .001) and explains 46% of the variance in Compliance Aptitude . The dimension with the greatest weight is Tax Awareness (β = .38, p < .001), confirming its role as the main predictor of tax compliance. In contrast, Understanding and Participation and Contributions to Tax Expenditure do not show significant effects, indicating that their influence is less pronounced once the other dimensions are controlled for. Civic Education shows a moderate but significant effect. The model suggests that strengthening tax awareness is key to improving compliance attitudes among university students (see Fig. 1).

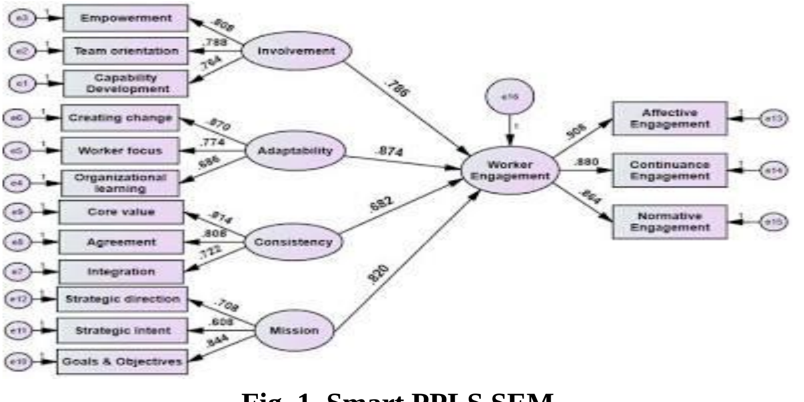

Fig. 1. Smart PPLS SEM

The hypothetical trajectory contrasts are understood as the empirical examination of the relationships proposed between the latent constructs and their observable indicators. In the proposed PLS-SEM model, the central structural trajectory connects tax education with contributory capacity. Tax education is represented through citizen formation, comprehension and participation, tax awareness, and knowledge of public spending, whereas contributory capacity is represented through economic ability, compliance aptitude, and knowledge of tax rights. The contrastation therefore has two complementary levels: the first evaluates whether the indicators adequately represent their respective constructs, and the second determines whether the relationships hypothesized between the constructs are statistically supported.

At the measurement level, the first contrastation concerns the relationship between citizen formation and its indicators. A positive and sufficiently strong indicator loading would indicate that the corresponding item captures an important portion of the common variance associated with citizen formation. If several indicators show consistent loadings, the construct can be interpreted as a coherent representation of the civic dimension of tax education. Conversely, weak loadings would suggest that particular indicators do not adequately represent the construct and could indicate that the item measures a different aspect of fiscal knowledge or civic behavior. The interpretation should not be based on an isolated indicator but on the overall coherence of the measurement model.

The relationship between comprehension and participation and its indicators evaluates whether the observed responses adequately represent students' ability to understand fiscal processes and participate in matters associated with taxation. Strong indicator loadings would suggest that the items converge on a common underlying dimension involving comprehension, interaction, and participation. This trajectory is particularly important because tax education is not restricted to the passive acquisition of information. A student may know the definition of a tax without being able to interpret fiscal procedures or identify opportunities for institutional participation. Therefore, the indicators should collectively reflect the transition from knowledge acquisition toward practical understanding and participation.

The contrastation of tax awareness with its indicators examines whether the observed items consistently represent recognition of tax responsibilities, the importance of compliance, and the social implications of taxation. When the indicators exhibit substantial positive loadings, the latent construct can be interpreted as a coherent representation of students’ awareness of their fiscal responsibilities. This dimension is especially relevant to the structural model because awareness is theoretically closer to compliance-related behavior than purely informational dimensions. Consequently, the measurement evidence for tax awareness provides the basis for examining its specific relationship with compliance aptitude.

The relationship between knowledge of public spending and its indicators evaluates whether students’ understanding of government revenue allocation is empirically represented as a distinct dimension of tax education. Strong loadings would indicate that the indicators consistently capture knowledge concerning the relationship between taxation, public expenditure, public services, and governmental accountability. This dimension allows tax education to extend beyond the individual taxpayer and incorporate the collective dimension of fiscal activity. If the indicators demonstrate adequate convergence, knowledge of public spending can be interpreted as an integral component of a broader tax education construct rather than as an isolated measure of governmental information.

On the other side of the measurement model, the trajectory between economic ability and its indicators examines whether the observed items adequately represent the economic dimension of contributory capacity. Positive and substantial loadings would indicate that the indicators capture a common perception of the individual's ability to assume fiscal obligations in relation to available economic resources. This dimension is conceptually different from tax knowledge because a person may understand tax obligations while having limited economic resources with which to fulfill them. Therefore, the measurement model must preserve the distinction between financial capacity and informational or behavioral capacity.

The trajectory between compliance aptitude and its indicators evaluates whether the observed items represent students’ perceived ability to identify, understand, and fulfill fiscal obligations. Adequate loadings would indicate that these indicators converge around a latent capacity for practical compliance. This construct is particularly relevant to the proposed model because it represents the point at which fiscal knowledge and awareness can potentially become practical readiness. If the indicators demonstrate adequate reliability and validity, compliance aptitude can be interpreted as an empirically identifiable dimension of contributory capacity rather than merely a repetition of tax knowledge.

The trajectory between knowledge of tax rights and its indicators evaluates whether students' awareness of taxpayer protections, procedures, institutional mechanisms, and available rights is consistently represented by the observed variables. Strong loadings would indicate that students who demonstrate greater knowledge in one aspect of tax rights tend to demonstrate greater knowledge across the other indicators. This dimension is important because contributory capacity should not be conceptualized exclusively as the capacity to comply with obligations. An adequately informed taxpayer should also be capable of identifying and exercising the rights associated with the tax system.

Once the measurement relationships have been established, the structural contrastation examines the principal hypothetical trajectory from tax education to contributory capacity. A positive path coefficient would indicate that higher levels of tax education are associated with higher levels of contributory capacity. The magnitude of the coefficient would determine the strength of this relationship, while its statistical significance would indicate whether the observed association is sufficiently different from zero according to the predefined inferential criterion. A significant positive trajectory would provide empirical support for the proposition that students with greater civic formation, fiscal comprehension, tax awareness, and knowledge of public spending tend to exhibit greater economic, behavioral, and rights-related contributory capacity.

The trajectory from citizen formation to contributory capacity examines whether the civic dimension of tax education is associated with students' overall ability to assume fiscal responsibilities. A positive relationship would indicate that students who perceive taxation as part of their civic responsibilities tend to report greater contributory capacity. Such a result would suggest that fiscal competence is not exclusively determined by technical knowledge but is also associated with the development of a broader civic orientation. A nonsignificant relationship, by contrast, would indicate that civic formation alone may be insufficient to explain contributory capacity and that other dimensions of tax education may have greater explanatory relevance.

The trajectory from comprehension and participation to contributory capacity evaluates whether understanding fiscal procedures and participating in fiscal matters are associated with greater contributory capacity. A positive and significant coefficient would suggest that students who possess greater understanding of taxation and greater willingness or ability to participate in fiscal processes also perceive themselves as better prepared to fulfill fiscal responsibilities and exercise their tax rights. A weak or nonsignificant relationship would suggest that comprehension and participation may contribute to tax education without necessarily translating into broader contributory capacity.

The trajectory from tax awareness to contributory capacity is expected to represent one of the most substantively relevant relationships in the model. A positive coefficient would indicate that students with greater awareness of fiscal responsibilities tend to present higher levels of contributory capacity. This relationship would be particularly meaningful because awareness represents a dimension that connects cognitive recognition with normative acceptance. If the relationship is statistically significant, the result would indicate that recognizing the importance and consequences of fiscal obligations is associated with greater preparedness to meet those obligations.

The trajectory from knowledge of public spending to contributory capacity examines whether understanding the destination and social function of public resources is associated with greater fiscal capacity. A positive relationship would indicate that students who understand how tax revenues contribute to public services and government activities tend to demonstrate greater overall contributory capacity. Such a finding would suggest that fiscal education may be strengthened when taxation is presented not simply as an individual obligation but as part of a broader public finance system. If the trajectory is weak, the result would suggest that knowledge of public expenditure may constitute an important component of fiscal literacy without being sufficient by itself to explain contributory capacity.

A particularly important specific trajectory is the relationship between tax awareness and compliance aptitude. This relationship tests whether greater awareness of tax obligations is associated with greater practical readiness to comply. A positive and significant coefficient would provide direct support for the proposition that awareness is translated into compliance-related capability. If the relationship is stronger than the relationships involving the other dimensions of tax education, tax awareness could be interpreted as a particularly influential component of the proposed explanatory structure. However, this interpretation should remain associative rather than causal because the research design is cross-sectional and non-experimental.

The contrastation of the structural trajectories should also consider the explained variance of contributory capacity. The coefficient of determination indicates the proportion of variance in contributory capacity that is statistically explained by the antecedent construct or constructs included in the model. A higher value would indicate greater explanatory power, whereas a lower value would indicate that substantial variation in contributory capacity remains associated with factors not represented in the proposed model. Therefore, statistical significance of the path coefficient alone is insufficient to evaluate the substantive adequacy of the model. The magnitude of the effect and the explained variance must be considered jointly.

The interpretation of the indicator trajectories and structural trajectories must also remain conceptually distinct. An indicator loading answers the question of whether an observed variable adequately represents a latent construct, whereas a path coefficient answers the question of whether one latent construct is statistically associated with another. A strong loading does not automatically imply a strong structural relationship. For example, the indicators of tax awareness may represent that construct very well while the relationship between tax awareness and contributory capacity may nevertheless be weak. Conversely, two constructs can exhibit a meaningful structural relationship even when individual indicators vary in their strength of representation. This distinction is essential for avoiding incorrect interpretation of PLS-SEM results.

The complete hypothetical structure therefore proposes a progression from observable manifestations of tax education toward the latent educational construct and subsequently from tax education toward the latent construct of contributory capacity and its dimensions. At the indicator level, the model establishes whether the empirical items adequately capture citizen formation, comprehension and participation, tax awareness, knowledge of public spending, economic ability, compliance aptitude, and knowledge of tax rights. At the structural level, it examines whether the resulting latent constructs are statistically connected in the expected positive direction. The model consequently provides an integrated framework in which fiscal education is interpreted as a multidimensional construct potentially associated with the development of broader contributory capacity.

The final contrastation consists of determining whether the empirical evidence supports, partially supports, or fails to support each proposed trajectory. A supported trajectory requires a statistically meaningful coefficient in the hypothesized direction together with an effect that is substantively interpretable within the theoretical framework. A partially supported model may occur when the general relationship between tax education and contributory capacity is significant but some specific dimensional relationships are not. An unsupported trajectory occurs when the estimated relationship does not reach the predefined significance criterion or moves in a direction inconsistent with the theoretical proposition. This distinction allows the results to be interpreted with greater precision and prevents the entire theoretical model from being considered confirmed merely because one structural relationship is statistically significant.

Discussion

The results provide empirical support for interpreting tax education as a multidimensional construct associated with contributory capacity among senior students in Business Administration and Public Accounting. The adjusted model indicates that the relationship cannot be adequately understood by reducing tax education to the acquisition of technical tax information. Instead, the empirical structure suggests that citizen formation, comprehension and participation, tax awareness, and knowledge of public spending constitute complementary dimensions through which students develop a broader capacity to understand, assume, and exercise fiscal responsibilities. This interpretation is consistent with recent evidence showing that taxpayer education can affect compliance through improvements in knowledge and reductions in the perceived complexity of fiscal procedures. In particular, evidence from Rwanda demonstrates that taxpayer education increased several compliance outcomes and that improved taxpayer knowledge was an important mechanism connecting education with compliance.

The central trajectory of the adjusted model, from tax education toward contributory capacity, therefore extends the traditional interpretation of fiscal behavior. Conventional approaches to tax compliance have frequently emphasized deterrence, expected sanctions, enforcement intensity, and the probability of detection. However, the present results are more compatible with a broader conception in which individuals require cognitive and practical resources to transform fiscal obligations into feasible actions. The empirical association between tax education and contributory capacity indicates that the ability to comply should not be interpreted exclusively as an economic characteristic. It also incorporates knowledge, awareness, practical competence, and recognition of taxpayer rights. This interpretation is particularly relevant for university students because they are approaching professional and economic contexts in which fiscal responsibilities become increasingly concrete.

The adjusted model also contributes to the state of the art by distinguishing between tax education and contributory capacity rather than treating tax education as synonymous with tax compliance. This distinction is analytically important. Tax education represents an educational and cognitive antecedent, whereas contributory capacity represents a broader condition that includes economic ability, compliance aptitude, and knowledge of tax rights. The model therefore proposes a conceptual sequence in which educational resources are associated with the development of capabilities required for responsible fiscal participation. This differs from studies that use tax compliance itself as the principal dependent variable. The distinction permits the analysis to identify whether students are developing the prerequisites for compliance before they become full participants in the tax system.

The relationship between tax awareness and compliance aptitude is particularly relevant when compared with previous evidence. The empirical findings indicate that tax awareness has a significant association with the practical capacity to comply. This result is consistent with the growing literature emphasizing that tax behavior is influenced by individuals' perceptions, knowledge, social norms, and understanding of the fiscal system rather than by enforcement alone. Evidence from Latin America shows that perceptions concerning the prevalence of tax evasion are associated with tax morale, while education and perceptions of institutional performance also contribute to differences in fiscal attitudes. The present model adds to this perspective by positioning tax awareness as an identifiable component of tax education and by linking it directly to compliance aptitude.

This finding is also compatible with evidence from higher education. Research comparing university students in Turkey and Spain has treated tax morale as a phenomenon influenced by educational and socioeconomic factors and has emphasized the importance of tax education for future taxpayers. Similarly, research involving accounting students in Malaysia found an association between taxation education and tax compliance, suggesting that exposure to taxation courses may contribute to basic tax knowledge and compliance-related attitudes. The present model advances these findings by incorporating tax education as a multidimensional latent construct and by examining its relationship with a broader construct of contributory capacity.

The adjusted model also helps explain why the results should not be interpreted simply as evidence that more tax information automatically produces greater compliance. Previous research has produced a more complex picture. Education can influence tax morale differently depending on institutional quality, perceptions of fairness, and individuals' relationships with the welfare state. Research on education and tax morale has found that the effect of education is conditional on institutional and distributive contexts, with better services, fairer tax systems, and stronger institutions strengthening the positive relationship between education and tax morale among highly educated individuals. This evidence is important for interpreting the present findings because tax education may provide the cognitive resources required for fiscal participation, but those resources operate within an institutional environment that shapes whether citizens perceive taxation as legitimate and worthwhile.

Consequently, the adjusted model should be understood as a capability-oriented model rather than a deterministic compliance model. Tax education may strengthen contributory capacity by improving knowledge, awareness, and practical understanding, but it does not eliminate the influence of institutional trust, perceived fairness, social norms, economic conditions, or the quality of public services. The empirical relationship identified in the study therefore represents an important explanatory pathway without implying that tax education is the only determinant of fiscal behavior. This interpretation is particularly appropriate given that the study used a cross-sectional design.

The dimension of knowledge of public spending provides another important contribution to the adjusted model. Its inclusion suggests that tax education involves not only understanding what citizens owe but also understanding what happens to the resources collected by government. This dimension establishes a connection between individual fiscal responsibility and public accountability. The relevance of this relationship is supported by experimental evidence showing that information about the progressivity of taxation can alter tax morale. In a large multi-country experiment involving developing countries, information indicating that taxes were progressive increased tax morale, whereas information indicating that they were not progressive reduced it. These findings imply that citizens' fiscal attitudes respond to information about how the tax system operates and distributes resources, reinforcing the importance of public-finance knowledge within tax education.

The model consequently differs from a narrowly technical conception of fiscal literacy. If tax education were limited to knowledge of tax rates, filing procedures, or legal definitions, the relationship with contributory capacity would be expected to operate primarily through technical competence. The adjusted model instead incorporates knowledge of public spending and citizen formation, suggesting that fiscal education also has a civic and institutional dimension. This interpretation is important in the Mexican context because the development of a sustainable fiscal culture requires citizens to understand not only their obligations but also the reciprocal relationship between taxation, public expenditure, government accountability, and collective welfare.

The results also provide a possible explanation for the moderate levels of contributory capacity observed among the students despite their university-level education. Higher education by itself does not necessarily constitute tax education. Students may possess substantial general academic knowledge while having limited exposure to fiscal procedures, taxpayer rights, public expenditure, or the institutional mechanisms through which tax obligations are fulfilled. The reliance on self-learning and informal sources identified in the study is therefore theoretically meaningful. It suggests that general educational attainment and specific fiscal competence are distinct phenomena. This interpretation is consistent with evidence that taxpayer confusion and compliance costs can constitute important barriers to compliance and that educational interventions may improve knowledge precisely by reducing such barriers.

The adjusted model further indicates that the relationship between education and fiscal capability should be interpreted as multidimensional. Citizen formation may contribute primarily to the normative and civic component of fiscal responsibility. Comprehension and participation may contribute to the practical understanding of fiscal processes. Tax awareness may provide the motivational and cognitive connection with compliance aptitude. Knowledge of public spending may connect taxation with public accountability and collective outcomes. Together, these dimensions form a more comprehensive educational architecture than a conventional single-factor measure of tax knowledge.

The comparison with previous research also reveals an important distinction concerning the role of tax education. Evidence from Hong Kong has shown that tax education may affect compliance through mechanisms involving the perceived fairness of the tax system, moral considerations, and the ability to comply. The present findings converge with this argument in emphasizing ability as an important component of fiscal behavior. However, the adjusted model places ability within the broader construct of contributory capacity and explicitly incorporates knowledge of tax rights and economic ability. This modification allows the model to recognize that taxpayers need both resources and institutional knowledge to participate effectively in the tax system.

The inclusion of knowledge of tax rights is particularly relevant because tax compliance should not be conceptualized exclusively from the perspective of government demands. A mature fiscal culture requires reciprocal knowledge. Citizens need to understand what they are required to contribute, but they also need to know the rights, protections, procedures, and institutional mechanisms available to them. Consequently, contributory capacity includes an element of fiscal citizenship. The adjusted model therefore shifts the analytical focus from the passive taxpayer toward an informed participant in the public finance system.

The findings also have implications for interpreting the relatively limited institutional outreach observed in the study context. If students receive little direct interaction with tax institutions, the development of fiscal knowledge may depend disproportionately on informal learning, independent searching, family experiences, or isolated academic content. This can generate fragmented knowledge because informal sources may explain individual tax procedures without providing an integrated understanding of public finance, taxpayer rights, institutional accountability, and compliance responsibilities. The adjusted model suggests that institutional outreach should therefore be conceived as an educational process rather than merely as an information campaign.

The state of the art increasingly supports this interpretation. Recent research on taxpayer education has demonstrated that structured educational interventions can generate measurable changes in knowledge and compliance-related outcomes, while experimental evidence among young people indicates that tax information can improve basic tax knowledge and compliance attitudes. These findings strengthen the plausibility of the present model because they demonstrate that fiscal education can produce measurable changes in the population before or during entry into active economic life. At the same time, the present study contributes a structural perspective by modeling several dimensions simultaneously rather than examining isolated educational outcomes.

The adjusted model can therefore be interpreted as a synthesis between the educational and behavioral strands of the literature. The educational strand explains how fiscal knowledge and civic formation are developed, while the behavioral strand explains how these resources may be associated with compliance-related capacity.

The empirical findings connect both strands through a latent structural relationship. Tax education is positioned upstream as a multidimensional educational resource, whereas contributory capacity is positioned downstream as a multidimensional capability. Tax awareness occupies a particularly important position because it provides the closest conceptual connection between knowledge and practical compliance.

An important implication of the model is that the strengthening of tax education should not be limited to adding isolated tax-related topics to university curricula. The results suggest the need for an integrated educational strategy that combines civic formation, fiscal comprehension, institutional participation, awareness of tax responsibilities, knowledge of public spending, economic decision-making, compliance procedures, and taxpayer rights. Such an approach would be more consistent with the multidimensional structure identified by the PLS-SEM analysis. It would also reduce the risk of treating tax literacy as a purely technical subject detached from citizenship and public accountability.

The model also provides a basis for interpreting the role of universities as institutional intermediaries between future taxpayers and the fiscal system. Business Administration and Public Accounting programs are particularly relevant because their graduates are likely to occupy professional positions involving accounting, financial management, entrepreneurship, organizational administration, and interaction with public institutions. Nevertheless, the findings imply that professional specialization alone cannot guarantee adequate fiscal preparedness. Tax education must be deliberately incorporated into professional formation if universities are expected to contribute to the development of a sustainable fiscal culture.

From a policy perspective, the adjusted model suggests that partnerships between universities and fiscal institutions should focus on continuous educational interaction rather than occasional informational activities. The objective would be to create opportunities for students to develop practical knowledge, understand taxpayer rights, interpret public financial information, and connect taxation with public services. This recommendation is supported by evidence showing that educational interventions can reduce compliance costs and that improvements in knowledge can persist beyond the immediate intervention period.

The results should nevertheless be interpreted within the methodological boundaries of the study. Because the research is cross-sectional, the significant trajectory between tax education and contributory capacity should not be interpreted as definitive evidence that tax education causes greater contributory capacity. Reciprocal relationships and unobserved variables cannot be completely excluded. For example, students who are already more interested in public affairs may independently seek more tax information and simultaneously report greater contributory capacity. Future longitudinal or experimental studies could examine whether changes in tax education precede changes in contributory capacity and whether specific educational interventions generate measurable effects.

A second limitation concerns contextual specificity. The model was estimated among senior students in two professional programs at a particular Mexican university. Therefore, its structural configuration should not automatically be generalized to all university students, taxpayers, or regions. The relatively specific population is nevertheless a strength for understanding future professionals who are approaching active participation in the fiscal system. Replication in other Mexican states, academic disciplines, and student populations would allow researchers to determine whether the same measurement and structural relationships remain stable across contexts.

A third consideration concerns the distinction between perceived contributory capacity and observed fiscal behavior. The model measures students' reported knowledge, perceptions, and capabilities rather than their future tax declarations or actual tax payments. This distinction is important because intention, perceived ability, and actual behavior are not necessarily equivalent. The model should therefore be understood as explaining an educational and capability-based precursor of fiscal participation rather than directly measuring long-term taxpayer compliance. Overall, the adjusted model is consistent with the principal direction of the contemporary state of the art while extending it in three relevant ways. First, it conceptualizes tax education as a multidimensional latent construct rather than a simple measure of tax knowledge. Second, it conceptualizes contributory capacity as broader than compliance, incorporating economic ability, compliance aptitude, and knowledge of tax rights. Third, it identifies tax awareness as a particularly relevant pathway toward compliance aptitude. These contributions provide a more differentiated explanation of how university-based fiscal education may contribute to the formation of future taxpayers.

The final interpretation is therefore that tax education should be understood as an institutional and educational investment capable of strengthening the conditions under which voluntary and informed fiscal participation can develop. The adjusted PLS-SEM model does not imply that education alone determines fiscal behavior. Rather, it demonstrates that the educational, cognitive, civic, and informational dimensions represented by tax education are meaningfully connected with the capabilities required for responsible fiscal participation. The comparison with previous empirical evidence reinforces the plausibility of this interpretation while also demonstrating that the strength and direction of educational effects depend on knowledge, institutional conditions, perceived fairness, public-service quality, and the broader fiscal environment.

The findings align with previous scholarly discussions on the importance of tax education in shaping voluntary compliance and contributing to public finance (Barrera, 2024; Ramírez, 2021). Consistent with OECD reports (2023), the absence of transparency and lack of educational interventions may reduce citizens' tax morale.
The data reveal a structural problem: although national institutions such as PRODECON promote tax literacy, their outreach does not reach states with historically low tax-collection capacity, such as Tlaxcala. This geographic inequality mirrors patterns identified by ECLAC (2017) regarding taxpayer trust and state legitimacy.

The moderate levels of tax awareness and contributory capacity observed among students suggest that curricular exposure is insufficient, as the Administration and Accounting programs at UATx include only minimal civic education content, with tax-education subjects absent from final-semester coursework.

In line with Sabino (2014) and Rebolledo (2022), the methodological justification for this research lies in generating actionable knowledge to improve tax-education frameworks. The study also confirms theoretical perspectives on tax morale (Ortiz, 2020; Alarcón, 2021), demonstrating that voluntary compliance correlates with perceived fairness and understanding of fiscal duties.

Conclusion

The study concludes that tax education constitutes a relevant multidimensional factor associated with contributory capacity among senior students in Business Administration and Public Accounting. The adjusted model indicates that fiscal preparation should not be understood exclusively as the acquisition of technical information about taxes. Rather, it encompasses citizen formation, comprehension and participation, tax awareness, and knowledge of public spending, which together provide a broader foundation for developing the cognitive, civic, economic, and practical capabilities required for responsible fiscal participation.

The empirical structure indicates that greater tax education is associated with greater contributory capacity. This relationship suggests that students who receive more comprehensive fiscal education are better positioned to understand their obligations, recognize their taxpayer rights, evaluate the relationship between taxation and public expenditure, and develop greater readiness to comply with fiscal responsibilities. The specific relationship between tax awareness and compliance aptitude is particularly relevant because it demonstrates that recognizing fiscal responsibilities is closely connected with the practical capacity to address them.

One of the principal contributions of the study is the distinction established between tax education and contributory capacity. Tax education operates as an educational and cognitive resource, whereas contributory capacity represents a broader capability that incorporates economic ability, compliance aptitude, and knowledge of tax rights. This distinction allows the proposed model to move beyond an exclusively punitive or compliance-centered interpretation of taxation and toward a framework in which fiscal citizenship depends on knowledge, awareness, institutional understanding, and practical capability.

The scope of the study includes the development and empirical examination of a multidimensional structural model that can be used to analyze fiscal education within higher education. The model provides an analytical framework for identifying which dimensions of tax education are most closely associated with contributory capacity and offers a basis for designing educational interventions aimed at future taxpayers. It also establishes a conceptual bridge between university education and the broader institutional objective of strengthening fiscal culture.

The study has practical scope for universities, academic programs, and fiscal institutions. Universities can use the model as a basis for incorporating systematic tax education into professional curricula, particularly in programs whose graduates are likely to interact frequently with accounting, financial, entrepreneurial, and administrative processes. Fiscal institutions can use the findings to strengthen institutional outreach to university students through educational programs that combine technical information with taxpayer rights, public expenditure, civic responsibility, and practical compliance procedures.

The findings also suggest that institutional outreach should not be limited to occasional dissemination of fiscal information. A more effective approach would involve continuous educational collaboration between universities and fiscal institutions. Such collaboration could include workshops, practical tax simulations, fiscal literacy modules, institutional guidance, public finance exercises, and activities that allow students to understand how tax collection is connected with public services and government accountability. This approach would transform tax education from an isolated informational activity into an integrated component of professional and civic formation.

Nevertheless, the conclusions must be interpreted within the limits of the research design. The cross-sectional nature of the study makes it possible to identify statistical associations but does not establish definitive causal relationships. Although the adjusted model indicates a positive relationship between tax education and contributory capacity, it cannot demonstrate that changes in tax education necessarily produce subsequent changes in contributory capacity. Longitudinal and experimental research would be necessary to establish temporal precedence and evaluate the effects of specific educational interventions.

Another limitation concerns the characteristics of the study population. The analysis was restricted to senior students from Business Administration and Public Accounting at the Universidad Autónoma de Tlaxcala. Consequently, the findings should not automatically be generalized to students from other academic disciplines, universities, educational levels, or geographic regions. Differences in socioeconomic conditions, institutional environments, professional training, and previous exposure to taxation may modify the observed relationships.

A further limitation concerns the measurement of contributory capacity. The construct incorporates perceived economic ability, compliance aptitude, and knowledge of tax rights rather than direct evidence of future or actual fiscal behavior. Consequently, the model represents an important dimension of fiscal preparedness but does not constitute a direct measurement of long-term tax compliance. Future studies should incorporate behavioral and administrative indicators when ethically and legally feasible.

The reliance on self-reported information also constitutes a potential limitation. Participants may provide responses influenced by social desirability, personal perceptions, or limited recall. This possibility is especially relevant when questions concern civic responsibility and compliance because respondents may report attitudes that differ from their actual future behavior. Future research should therefore consider combining questionnaires with objective knowledge assessments, behavioral scenarios, practical fiscal exercises, or longitudinal behavioral measures. The study recommends that tax education be incorporated systematically into higher education rather than treated as an occasional complementary topic. Curricular strategies should integrate fiscal knowledge with civic formation, tax awareness, public expenditure, taxpayer rights, and practical compliance competencies. Such integration would provide students with a more comprehensive understanding of taxation and could reduce the dependence on fragmented informal sources of fiscal information.

It is also recommended that future interventions prioritize tax awareness because its relationship with compliance aptitude identifies this dimension as particularly relevant within the adjusted model. Educational activities should therefore encourage students not only to memorize fiscal concepts but also to understand why compliance matters, how fiscal obligations operate, what rights taxpayers possess, and how public resources are connected with collective welfare.

Future research should replicate the model in other universities and states to determine its stability across different institutional and socioeconomic contexts. Comparative studies could examine whether the relationships differ according to academic discipline, professional orientation, socioeconomic background, previous fiscal education, or degree of interaction with tax institutions. Multi-group analysis could subsequently determine whether the structural paths remain equivalent across these populations.

Longitudinal research is additionally recommended to examine whether university-based tax education produces sustained changes in fiscal knowledge, awareness, and compliance aptitude. Experimental or quasi-experimental studies could compare students receiving structured tax education with students following conventional curricula, allowing researchers to determine whether targeted interventions produce measurable improvements in the dimensions represented in the model.

Finally, future versions of the model could incorporate additional constructs such as institutional trust, perceived tax fairness, tax morale, social norms, perceived enforcement, digital tax literacy, and perceived quality of public services. These variables could provide a more comprehensive explanation of contributory capacity and clarify whether the relationship identified between tax education and contributory capacity is strengthened or weakened by institutional and social conditions.

In conclusion, the study demonstrates the analytical value of understanding tax education as a multidimensional educational process associated with the development of contributory capacity. The adjusted model provides a structured explanation connecting civic formation, fiscal comprehension, tax awareness, and knowledge of public spending with economic ability, compliance aptitude, and knowledge of tax rights. Its principal implication is that strengthening fiscal culture requires more than increasing access to tax information. It requires educational systems and fiscal institutions to develop informed, capable, and civically responsible future taxpayers who can understand both their fiscal obligations and their rights within the public finance system.

The study demonstrates that tax education plays a critical role in the development of contributory capacity among university students. The absence of tax-education initiatives in Tlaxcala's higher-education institutions significantly limits students' knowledge of fiscal rights and responsibilities, potentially contributing to the state's historically low tax-collection levels.

While students exhibit moderate willingness to comply, their limited understanding of public spending, tax rights, and the broader role of taxation in social development suggests the need for urgent curricular reform. Institutional collaboration between UATx , PRODECON, and the SAT would offer a practical pathway to strengthening tax culture in the region.

Future research should examine comparative cases in other Mexican states and evaluate the impact of targeted educational interventions on tax morale and fiscal behavior.

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Variable: Tax Education

Construct	Dimension	Operational definition	Indicators	Measurement scale
Tax Education	Citizen Formation	Degree to which students recognize taxation as a civic responsibility and understand its relationship with collective welfare and responsible citizenship.	Recognition of fiscal responsibility; civic responsibility toward taxation; understanding of taxation as a contribution to collective welfare.	Five-point Likert scale
Tax Education	Comprehension and Participation	Degree to which students understand fiscal processes and perceive themselves as capable of participating in matters related to taxation and public finance.	Understanding of tax procedures; ability to interpret fiscal information; participation in fiscal matters.	Five-point Likert scale
Tax Education	Tax Awareness	Degree to which students recognize their tax obligations and understand the relevance and	Awareness of tax obligations; recognition of the importance of compliance;	Five-point Likert scale

Construct	Dimension	Operational definition	Indicators	Measurement scale
		social consequences of compliance.	awareness of the social consequences of taxation.	
Tax Education	Knowledge of Public Spending	Degree to which students understand the relationship between tax collection, public expenditure, public services, and governmental accountability.	Knowledge of public expenditure; understanding of the destination of tax revenues; relationship between taxation and public services.	Five-point Likert scale

Variable: Contributory Capacity

Construct	Dimension	Operational definition	Indicators	Measurement scale
Contributory Capacity	Economic Ability	Degree to which students perceive themselves as economically capable of assuming fiscal obligations according to their available resources.	Perceived economic capacity; availability of resources for fiscal obligations; ability to assume tax-related financial responsibilities.	Five-point Likert scale
Contributory Capacity	Compliance Aptitude	Degree to which students perceive themselves as capable of identifying, understanding, and fulfilling fiscal	Ability to identify obligations; ability to understand compliance procedures; readiness to fulfill fiscal responsibilities.	Five-point Likert scale

Construct	Dimension	Operational definition	Indicators	Measurement scale
		obligations correctly.		
Contributory Capacity	Knowledge of Tax Rights	Degree to which students understand their rights, protections, procedures, and institutional mechanisms as taxpayers.	Knowledge of taxpayer rights; knowledge of institutional procedures; awareness of mechanisms for assistance and protection.	Five-point Likert scale

Structural specification

The measurement model specifies Tax Education as the exogenous construct and Contributory Capacity as the endogenous construct. Tax Education is represented by Citizen Formation, Comprehension and Participation, Tax Awareness, and Knowledge of Public Spending. Contributory Capacity is represented by Economic Ability, Compliance Aptitude, and Knowledge of Tax Rights. The principal structural relationship specifies that Tax Education is positively associated with Contributory Capacity. An additional specific relationship examines the association between Tax Awareness and Compliance Aptitude.