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Consistency Between Higher Education Training in Tabasco and the Labor Market Demand

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Abstract: The training of an effective and qualified labor force capable of generating, applying, and transferring knowledge, constitutes a preponderant factor for innovation, technological progress, and economic growth in any country. Higher education institutions in Mexico have this mission, through their educational offer. However, they face challenges to achieve standards of relevance with the labor market and this has been demonstrated in different studies such as the one carried out by the World Bank in 2010, where 30.9% of the country's employers identified education as a restriction to achieve high levels of development since the education offer is inadequate.

This work shows that regions such as Tabasco, with higher economic lag and high unemployment rates which double the national average, offer to a great extent traditional study programs for health, administrative, economic and social sciences. This is in order to attend the tertiary sector that concentrates about 60% of the employed personnel whereas the primary sector is in greater disadvantage because only an average of 2.5% of students enroll in agricultural and veterinary science programs and this is insufficient to cover the job demand of these areas.

Key words: higher education; human capital; labor migration; educational outcomes; human resources
JEL codes: I24, I25, I26, I28, O15

1. Introduction

Harnessing the benefits of globalization is a huge challenge for all nations. With this purpose, highly developed countries have promoted actions to strengthen their higher education institutions, achieving international recognition for the quality of their teaching, research, ability to attract students and scholars from other latitudes as well as its link with the industry.

The participation of this educational level in the training of an effective and qualified workforce that can generate, apply and transfer knowledge constitutes a preponderant factor for economic growth, since it is this knowledge that generates innovations and technological progress. However, the relevance of higher education is conditioned both by government decisions and by the institutional capacities of educational centers.

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In the case of Mexico, studies carried out by international organizations such as the World Bank on higher education, describe the quality of teaching at this educational level as “deficient”, which leads to greater inequality, besides being a restriction to achieve the prosperity of businesses. This shows that despite the expansion and assurance of quality policies, the growth of human capital required by the country to influence in a higher productivity has not been achieved.

In particular, this paper analyzes the relationship between the human capital labor force according to items such as educational quality, enrollment and graduates by economic sector, considering them to be proxies for technical progress, in addition to educational investment and labor growth rate. The competitiveness indicators of the Tabasco higher education system are examined and it is observed that, being negative, they seem to lead to an unemployment rate that doubled the national average in 2017.

2. Human Capital, Labor Force and Economic Growth

Economic growth is essential for a society that wants to progress, for this reason nations are obliged to promote and strengthen those factors that generate it, such as human capital, labor force, capital, and technological progress. Components that have been constantly studied and incorporated into various economic models to explain their contribution to the technical progress and the improvement of life of the population, such as developed by Solow, Romer, Lucas, Barro & Sala-i-Martin and Rebelo (Gerald-Destinobles, 2007).

All of these theories realize the importance of the accumulation of knowledge to improve the productivity of the national economy, mainly when it is valued economically by being incorporated into the market by the labor force. According to a model developed by Lucas (1988), the sources of knowledge emanate from the school, by voluntary accumulation, and from labor practice by involuntary accumulation. Luke presents his model with two approaches, one macro where he considers the population is divided into two proportions, one dedicated to the production of goods and services and the other one dedicated to the production of knowledge through scientific and technological research. Another approach with a micro focus where an individual dedicates a proportion of his time to work and another one to study. Luke concludes that the second option is suboptimal because individual consumers do not get full benefits in order to increase the knowledge inventory of society in general, on the other hand the first option shows that in order to be socially optimal a major investment is required in the accumulation of human capital promoted by the state. Likewise, a subsidy is estimated to correct this externality and induce households to invest in the amount of human capital which is socially optimal.

For other theorists like Mankiw, such knowledge emanates from discoveries, technological and scientific published in textbooks, academic magazines, websites, among others, so it defines human capital as the reserve of knowledge transmitted from those sources through education (Mankiw, Romer & Weil, 1992).

Solow (1962), starting from the Domar model, pointed out that Domar only considered capital and the natural rate of growth dependent on the rate of saving and the labor force without technical change. Solow replaces the constant capital-product ratios (K/Y) and work-product (L/Y) for a technological representation closer to reality, determining the growth rate of the product per unit of work, Y/L, which is the productivity of labor, and that depends entirely on the rate of technological progress in the broadest sense. It also considers the variation of two inputs, capital and labor and diminishing returns so that the product grows at a lower proportion than the capital investment. When solving the model, he concludes that a change in the investment rate or in the population growth does not affect the steady state growth rate, only the level. However, a change in the growth

rate of aggregate productivity affects the rate of growth and level in his work Technical Change and the Aggregate Production Function Solow (1962) finds that the strongest source of economic growth is technological progress while acknowledging that the growth levels measured in his work, without having invested in labor and capital, asseverates that at least in the long term, technological change is the main determinant of growth product. Denison (1985) uses the Solow method and breaks down the determinants of growth into his constituent parts, in particular technological progress, the following was found basic determinants: constant level of education at work, educational qualifications of the average worker, capital, the improved allocation of factors corresponding to his productivity, economies of scale, and the growth of knowledge or technological progress in the "narrow sense".

The growth human capital which is reflected in an effective qualified workforce that affects higher productivity are a constant in the works of Jorgenson, Gollop and Fraumeni (1987), who point out the importance of increases in the effective workforce due to the changes observed in the level of education and experience, as well as in the stock of effective capital to generate the growth in output per worker.

Romer (1990) argues that raw material inputs remain the same, but the technology used, fruit of experience and scientific knowledge, allows better product results. It states that technologies are the result of experience and scientific knowledge and worker productivity offers better results, so it is the heritage of capital which induces growth. In its growth model, it uses four basic inputs: capital, work force, a technology level index and human capital, measuring the latter as the cumulative effect of education and training activities.

Rebelo's key approach (1991) on endogenous growth models considers a perpetual growth model in production, there must be a factor or a combination of factors that can be accumulated indefinitely without diminishing returns. Mankiw, Romer & Weil (1992) point out that since lives are finite, there is a maximum limit for the amount of human capital that an individual can accumulate. Thus, while increasing the human capital may extend the length of the transition period, it is not the accumulation of human capital the source of perpetual growth. Maybe it would be possible to accumulate scientific knowledge for a longer time, although it may also have a limit.

All of these theoretical contributions have contributed to look at education as an investment in Human Capital, as long as it happens in contexts that promote labor qualification and technical production for the solution of national and world problems, as well as giving the individual the capacities to compete in the labor market. For this reason, Aronson (2007) the importance of constantly renewing the stock of knowledge according to the market demands and constant technological changes.

3. Higher Education and the Labor Market: Atributes and Relationships

Higher education has been considered as a preponderant element to keep the development of a country for its relevance in training professional cadres in charge of improving processes, goods and services included in each of the productive sectors. This is how The World Economic Forum has included both education and training as one of the 12 pillars that support the competitivity of a nation. Developed countries like the United States, Canada, United Kingdom and China are a proof of this, their higher education institutions are recognized for their quality and contribution to the wellbeing of their nations[1]. Their contribution to progress and social prosperity depends on

[1] The ranking QS 2016 ranks among the top fifty universities in the world recognized for their quality, according to its indicators: 18 from the United States of America, 9 from the United Kingdom, 2 from Switzerland, 4 from Australia, 3 from China, 3 from Hong Kong, 3 from Canada, 1 from France, 2 from Japan, 2 from South Korea and 2 from Singapore, available online at: https://www.topuniversities.com/university-rankings.

the development of skills and abilities of their graduates in order to ensure equal labor opportunities in the first place (Licona & Rangel, 2013; Posso, 2010) and subsequently the output standards, competitivity and efficiency required by the employers from different productive sectors (Gómez & Hernández, 2010).

Institutions such as the Economic Commission for Latin America and the Caribbean (ECLAC); the United Nations Educational, Scientific and Cultural Organization (UNESCO); the World Bank (WB) and the Interamerican-Development Bank (IDB) as well as The Organization for Economic Cooperation and Development (OECD) point out that Latin American higher education institutions do not have international standards with substantial evidence of quality in their programs. Particularly the ones related to the effectiveness and efficiency of educational institutions of each region in order to innovate and face the challenges of a competitive and globalized world (Moreno-Brid & Ruiz-Nápoles, 2009).

Urgent calls have been made to institutions in order to reach a high level in order to train professionals and have the critical mass who are capable of working in the research that is needed to boost the economic and social development of the regions where poverty and social marginalization is present.

In Mexico the linkage problems between employers and educational institutions are evidenced by the low quality of their graduates and the lack of suitable educational opportunities at universities. Gómez and Hernández (2010) point out that graduates from universities and other educational centers do not meet with their training preparation the productivity and competitive standards they require to participate in a “Knowledge based-society” (p. 11).

Empirical studies indicate that in order to solve these difficulties it is necessary the coordinated support of the state and the private sector through coordinated joint actions with the purpose of modernizing and building up mainly teaching and research skills given that only by relating the research agenda with social and business requirements it will be possible to compete internationally, without neglecting the attributes of education as a public good, with the responsibility for equity in admission opportunities.

However, the design of educational policies in the country in this area, have only been based on the limitations or inconsistency of the educational system with the labor market, without considering the restrictions of the educational centers and what happens in the economic and labor matters in the country (Gómez & Hernández, 2010; Pérez, 2012). This has undoubtedly influenced an almost fruitless outcome in relation to accomplish the objectives formulated by the sectorial educational programs for improving quality and relevance in higher Education. Although there have been some improvements, there is still an inequality gap between the various institutions that show this service in the country.

Furthermore, Lavado and Martínez (2014) mention that the contradictions in relation to the enrollment expansion in the last 10 years are evident when they are associated with the labor demand in Mexico. The increase of students in conventional programs continues to be privileged since there are no regulations and adequate controls regarding the quality and evaluation of higher education institutions, mainly the so-called "universidades patito” universities with dubious prestige (Fernández, 2010, p. 97).

This has influenced the mood of entrepreneurs, who show little commitment to guarantee the job offer neither competitive payments for graduates, based on the justification that there is a contraction of the employment, and the failure of their businesses is due to the lack of knowledge and skills of graduates from higher education institutions (World Bank, 2010; Gómez & Hernández, 2010).

3.1 Attributes of Higher Education in Mexico and Tabasco

In Mexico, the expansion of educational services has been a priority in all educational levels and in higher education the emphasis must be oriented towards achieving competencies required for the development of the country. Quality has been postponed due to various factors like economic problems that afflict the country as well as pressures from international organizations for attending the coverage of the school levels that precedes it.

In this scenario, services continue to be provided through various institutions classified in more than 10 denominations[2]. The difference among them is centered on their financing and the way to choose their officials and not because of their area of specialization in some area of specific knowledge or their performance in additional functions related to teaching, such as research or services. Ortega Guerrero & Casillas (2014) point out that the lack of a precise definition of higher education institutions (IES) has led the federal authorities in turn, to propose new nomenclatures with a specific purpose that as time goes by it transforms to make the difference less visible between one option and other.

In this context it is important to mention the relevance of Technological Universities created to train technical professionals in a 2-year period, nevertheless nowadays they offer Bachelor level programs. The same has happened with the institutions grouped in the National Technological College of Mexico, which were founded to offer technological education however, many of them offer programs that belong to the area of social and administrative sciences. Therefore, it would be convenient to reflect on the convenience of keeping these subsystems.

Thus, the 5,311 higher education institutions that operated in Mexico during the 2016-2017 school year offered their services to 4,430,250,000 students in school and distance modality system. The participation of the State is evident by financing 70.58% of school enrollment, and the remaining percentage of 29.42%, was held privately; achieving a total national coverage of 37.3% for this period (SEP, 2017).

Although, in the last decade this indicator increased by more than 10 points (see graph), it is still far from those achieved in developed countries in Europe and the United States, to cite some, in 2007 it ranged between 58- 88% and 88% respectively (Lopez, 2006). To attend this lag, educational policies could focus on generating instruments to increase the absorption of higher education, which stood at 73%, as well as reversing the failure of students (13.7%) and the dropping out (12.8%) from higher secondary education.

Although there is a reduction in drop out and increase in terminal efficiency in the National Development Plan 2013-2018, second indicator, during the school year 2016-2017 there was a decrease of almost one percentage point from the previous cycle, standing at 69.4%. The same happens with the terminal efficiency (23 ISCD6[3] in 2014), which is still lower than that registered in Chile, Spain, and Turkey.

[2] Higher education institutions in Mexico are classified into: a) Universities that include public Federal, State, and Solidarity Support Universities; b) Public research centers; c) Intercultural universities, d) Technological universities, e) Technological institutes that include federal, research and decentralized centers, f) Polytechnic universities, g) Pedagogical universities, h) Normal schools and, i) The Open and Distance University of Mexico

[3] It refers to the International Standard Classification of Education used worldwide in the production of statistics with the aim of collecting and analyzing internationally comparable data in a consistent manner. It is part of the international family of Economic and Social Classifications of the United Nations, being its initials in English ISCED (UNESCO, 2013, p. 8).

Table 1 Evolution of Indicators of Higher Education in Mexico, From the School Year 2000-2001 to 2016 2017, Enrollment, Terminal Efficiency and Federal Spending (Number of Students)

School cycle	Enrollment (thousands of students)		Terminal Efficiency	Federal Spending	
	School	Non school		Year	Millions of pesos
2000-2001	2,047.9	149.81	70.4	2001	47,871.80
2001-2002	2,147.1	141.29	71.0	2002	53,356.30
2002-2003	2,236.8	154.47	66.4	2003	58,114.00
2003-2004	2,322.8	153.82	67.8	2004	63,116.20
2004-2005	2,384.9	153.39	67.2	2005	71,391.10
2005-2006	2,446.7	166.74	69.1	2006	73,268.00
2006-2007	2,528.7	180.59	70.9	2007	85,771.00
2007-2008	2,623.4	210.08	63.9	2008	96,679.90
2008-2009	2,705.2	243.76	68.4	2009	108,110.00
2009-2010	2,847.4	277.08	67.6	2010	113,789.10
2010-2011	2,981.3	341.33	71.2	2011	129,609.80
2011-2012	3,161.2	342.39	71.2	2012	139,507.90
2012-2013	3,300.3	432.31	73.7	2013	148,451.20
2013-2014	3,419.4	463.23	71.3	2014	169,184.50
2014-2015	3,515.4	517.59	71.9	2015	177,420.30
2015-2016	3,648.9	595.46	70.2	2016	182,179.10
2016-2017	3,762.7	667.57	69.4	2017	175,773.30

Note: Preparation with data from the statistical annex of the V Government report 2016-2017 of the federal executive and with data from the main indicators of the country's educational system, from the 2010 to 2017 school years, published by the Ministry of Public Education.

In addition to effectiveness, the quality of higher education in Mexico is a topic that needs to be addressed. In the country the indicator continues to focus on quality enrollment, which until April 2017, it has been positioned at 49.7%, that is, the percentage of students who are enrolled in assessable programs are recognized for their good quality, that is, that they have been recognized in Level 1 by the Inter-Institutional Committees for the Evaluation of Higher Education (CIEES) and / or accredited by the Accreditation Council of Higher Education (COPAES). Institutions which have used similar indicators to those used in countries with high level of education performance but whose participation has been criticized by several international organizations such as (ESMU & ECORYS, 2012).

However, measuring the quality of higher education is not an easy task, there are several models to do it, among them world rankings through measurement based on methodologies that include indicators that have to do with the academic staff such as their prestige, its international dimension and the esteem held by the companies on the graduates, among others. In this setting, the QS World University Ranking 2017-2018 placed only 2 institutions of the country among the best 200 in the world, position 122 for the National Autonomous University of Mexico and 199 for the Monterrey Institute of Technology and Higher Studies.

In the federal entities, the search to offer educational services that guarantee the training of highly competitive technicians and professionals does not take place with the same extent throughout the country (Cruz & Cruz, 2008). In Tabasco the expansion of services took place with greater intensity at the end of the 20th century with the increase of different types of institutions: technological, polytechnical and intercultural, which boosted an accelerated growth going from 13,700 students who had enrolled in the 1990-1991 school year to just over 43,000 students during the 2000-2001 cycle.

It is important to note that for the 2016-2017 school year, this service represented the 9.9% of the total number of students enrolled in the state educational system. Its total coverage reached 36.4% with an enrollment of 79,672 students from which 90.5% (72,073) correspond to the school enrollment and 9.5% to non-school enrollment according to the records of the Ministry of Education of the state (SETAB, 2017). Most students enroll in engineering, manufacturing and construction or Social or administration sciencesand Law in contrast the programs related to Agronomy and veterinary has lower demand despite one of the trades of the territory is the work in the field.

Table 2 School Enrollment in Higher Education per Knowledge Area. (School and Distance Systems). Tabasco Mexico. From School Cycle 2010-2011 to School Cycle 2016-2017. (Number of Students)

No.	Knowledge Area	School Cycle						
		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
1	Agronomy and veterinary	1,877	1,852	1,904	1,942	1,906	1,964	1,998
2	Arts and humanities	1,826	2,532	2,542	2,486	2,349	2,276	2,233
3	Natural, exact and computing sciences	1,652	6,037	5,168	4,747	4,766	5,129	5,288
4	Social sciences administration and law	19,101	19,464	22,275	23,119	22,212	23,680	23,855
5	Education	4,424	4,359	5,653	5,495	4,633	4,024	3,502
6	Engineering, manufacturing and construction	28,450	23,847	24,896	27,737	29,506	32,945	31,044
7	Health	5,684	5,480	6,797	8,193	9,421	10,206	10,980
8	Services	0	150	320	399	552	682	772
Total		63,014	63,721	69,555	74,118	75,345	80,906	79,672

Note: Preparation with enrollment data by knowledge area contained in the Statistical Yearbooks of Higher Education published by the National Association of Universities and Institutions of Higher Education.

Several studies have shown that financing is a major element of great importance to increase the quality of learning in this educational level. It has been observed that in Tabasco an increase in the amounts granted by both levels of government in 2017 reached 2,861.72 million pesos, which do not include the federal budgets destined to venues such as the University of Chapingo, the Postgraduates College and Federal Decentralized Technological Colleges: Technological College of Villahermosa, Technological College of Huimanguillo, Technological College of the Olmeca Zone, and Technological College of Chontalpa.

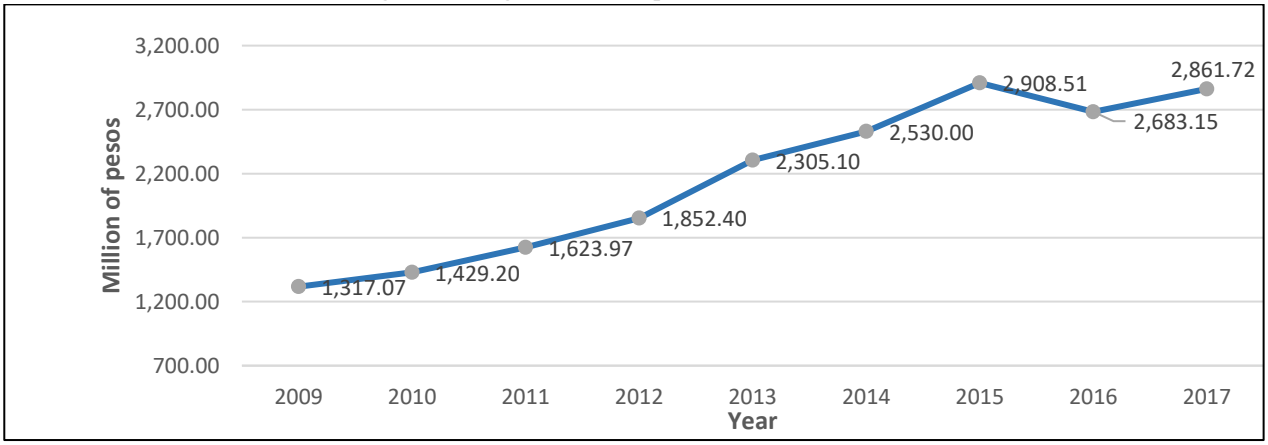

Figure 1 Tabasco. Evolution of State and Federal Financing of Higher Education Institutions Agreed Between Both Levels of Government From 2009 to 2017.

Note: Preparation based on the expenditures budget of the state of Tabasco recovered from http://spf.tabasco.gob.mx/content/presupuesto-de-egresos-del-estado-de-tabasco.

All in all, there is an inverse relationship between financing and effectiveness of the education that is taught, which is reflected in the increase in school dropout in the entity that was 11.3% during the 2016-2017 cycle. This shows the lack institutional capacity of educational centers to retain their students, and the lack public policies to encourage the permanence of students. The truth is that this indicator seems to be related to unemployment and the fall in the State Gross Domestic Product, mainly due to the fall international oil prices.

Table 3 State (Tabasco) and National Comparison of Drop-Out Indicator in Higher Education, National Position and Indicator Per Educational Cycle

School cycle	School Drop-Out		Position
	State Indicator	National Indicator	
2010-2011	Sd	7.1	Sd
2011-2012	Sd	7.7	Sd
2012-2013	9.9	7.6	18
2013-2014	11.1	7.5	23
2014-2015	10.8	7.4	22
2015-2016	11.4	6.7	23
2016-2017	11.3	6.8	23

Note: Elaboration with data of the main indicators of the National Educational System (SEP).

Despite the problem with terminal efficiency, a higher number of students requiring job opportunities graduate anually, according to their academic profiles. The engineering, manufacturing and construction areas showed the highest number of graduates together with those related to the Social, Administrative Sciences and Law, both represented 72.93% of the 12,310 graduates of the 2016-2017 school year.

With regards to the quality of the study programs offered in the entity, they have the recognition from accreditation and evaluation bodies which is a national indicator that measures this attribute. Until January 2018, there were 57 existing accredited study programs out of the 64 which had achieved this procedure as well as 14 more programs which hold level 1 CIEES in recognition of its quality. That is, only 14.40% of the study programs (493), which were offered in the school year 2016-2017, guarantee the standards of qualified graduates.

Table 4 Graduates of Higher Education Per Area of Knowledge. Tabasco Mexico. From the School Year 2010-2011 to 2016-2017 (Number of Students)

No.	Knowledge Area	School Cycle						
		2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
1	Agronomy and veterinary	242	205	255	299	236	214	338
2	Arts and humanities	64	256	261	484	420	412	330
3	Natural, exact and computing sciences	152	795	672	817	784	673	591
4	Social sciences administration and law	3,405	3,702	3,841	3,983	4,014	4,125	4,409
5	Education	1,008	895	1,032	1,004	1,153	1,179	1,049
6	Engineering, manufacturing and construction	3,550	3,034	3,210	3,759	3,826	3,989	4,569
7	Health	603	478	523	750	840	1,070	949
8	Services	0	0	0	0	60	66	75
Total		9,024	9,365	9,794	11,096	11,333	11,728	12,310

Note: Preparation based on data by area of knowledge in the Statistical Yearbooks of Higher Education published by the National Association of Universities and Institutions of Higher Education.

3.2 Labor Market in Mexico and Tabasco

In Mexico, according to the OECD, the labor market continues to show trends of inequality and inclusion, mainly because a little more than half of the population that participates in the generation of some economic goods or the provision of a service (occupied population) it is concentrated in the largest cities in the country (100,000 and more inhabitants and/or state capitals). In the second quarter of 2017, the unemployment rate reached 3.5% of the Economically Active Population (EAP), which meant that 1.87 million people did not have a job (INEGI, 2017).

In this same period, the employed population in the country reached 52,198,611 people, compared to the same period in 2016, a growth of only 1.49% can be observed. In relation to the economic sector in which people work, 12.83% of the people work in the primary sector 25.54% in the secondary or industrial sector, 61.05% are in the tertiary sector or services and the economic labor of the remaining 0.58% is not specified. The percentages that were presented from April to June 2016 were 12.86, 25.32 and 61.30%, in the same order.

Table 5 Evolution of Employed Population in Mexico, During the Period 2005-2017 (Number Of People) Note: The Calculation Uses The Data From the Second Quarter of Each Year

Year	Employed People			
	National	Annual Growth	Tabasco	Annual Growth
2005	41,676,868	Na	754,390	
2006	43,212,434	3.68%	762,228	1.04%
2007	44,050,928	1.94%	801,800	5.19%
2008	45,293,616	2.82%	829,847	3.50%
2009	45,027,104	-0.59%	835,881	0.73%
2010	46,597,624	3.49%	869,768	4.05%
2011	46,891,586	0.63%	866,873	-0.33%
2012	49,003,380	4.50%	864,195	-0.31%
2013	49,296,229	0.60%	901,709	4.34%
2014	49,301,557	0.01%	907,987	0.70%
2015	50,336,088	2.10%	914,491	0.72%
2016	51,433,590	2.18%	912,670	-0.20%
2017	52,198,611	1.49%	911,435	-0.14%

Note: Preparation with data from the 2016 National Statistical Yearbook, and data from the National Survey of Occupation and Employment (INEGI, 2017). For the calculations, the data of the second quarter of each year are used.

3.3 The Link Between Higher Education and the Labor Market in Mexico and Tabasco

Since its conception, the purpose of higher education has focused on playing a role in contributing to the development of the nation creating social and economic well-being. In this context the educational policies in Mexico have been designed in order to seek social pertinence (Gómez & Hernández, 2010) which is evidenced with the formulation of study plans and programs which meet the needs of development of the country or territory where educational centers are located, either with projects for regional development or with the job market that is offered.

In order to relate them, the enrollment of bachelor of higher education was grouped based on the criteria of the National Association of Universities and Institutions of Higher Education (ANUIES): the enrollment in the Agricultural Sciences area was related to the primary sector; the enrollment of Natural and Exact Sciences areas,

Engineering and Technology, were linked to the secondary sector; and the enrollment of Health Sciences, Social and Administrative Sciences and Education and Humanities, were associated to the tertiary sector or services.

Table 6 Mexico Comparative of Enrollment Percentage Between Bachelor's Level and High Level Technician per Area of Knowledge and the Percentage of Occupied Population From 2012 to 2017

Period	Primary Sector		Secondary Sector		Tertiary sector	
	Area 1 (%)	Employed population (%)	Area 3 and 6 (%)	Employed population (%)	Area 2, 4, 5, 7 and 8 (%)	Employed population (%)
2011/10	2.51	13.32	36.94	24.16	60.55	61.91
2012/11	2.28	13.41	35.06	23.33	62.66	62.54
2013/12	2.36	13.38	35.10	23.61	62.54	62.41
2014/13	2.43	13.55	35.00	24.30	62.58	61.59
2015/14	2.54	13.45	35.41	24.66	62.05	61.33
2016/15	2.61	12.86	35.50	25.32	61.89	61.30
2017/16	2.72	12.83	35.33	25.54	61.95	61.05

Note: Preparation with data from the Statistical Annex of the 5th Government Report of the Federal Executive and data from the 2016 National Statistical Yearbook. For Area 1: Agronomy and Veterinary. For: Area 3 y 4: Natural, Exact and Computing Sciences and Engineering, Manufacturing and Construction. For: Area 2, 4, 5, 7 y 8: Arts and Humanities, Social Sciences, Administration and Law, Education, Health and Services.

That is why when the enrollment of bachelor and high level technician at national level are related, a lower proportion of students interested in agricultural sciences can be observed compared to what is required by the labor market in order to professionalize the primary sector. In the secondary sector, the situation is completely the opposite since there is a higher concentration of students in programs related to the manufacturing and construction sector, and it has grown with the opening of technological education throughout the country.

Table 7 Tabasco. Comparative Percentage of Enrollment at Bachelor's Level and Higher Technical Education per Area of Knowledge With the Percentage of Occupied Population From 2013 to 2017

Period	Primary Sector		Secondary Sector		Tertiary sector	
	Area 1 (%)	Employed population (%)	Area 3 and 6 (%)	Employed population (%)	Area 2, 4, 5, 7 and 8 (%)	Employed population (%)
2011/10	2.98	17.40	47.77	20.41	49.25	61.98
2012/11	2.90	16.39	46.90	20.29	50.20	62.85
2013/12	2.74	16.70	43.22	19.98	54.04	62.94
2014/13	2.62	15.25	43.83	19.37	53.55	65.13
2015/14	2.53	13.42	45.49	19.89	51.98	66.14
2016/15	2.43	11.74	47.60	21.84	50.51	66.16
2017/16	2.51	15.37	45.60	19.27	51.89	64.84

Note: Preparation with data from the Statistical Annex of the V. Government Report of the Federal Executive, data from the 2016 National Statistical Yearbook and data from the Statistical Yearbooks of Higher Education published by the National Association of Universities and Institutions of Higher Education. For Area 1: Agronomy and Veterinary. For: Area 3 y 4: Natural, Exact and Computing Sciences and Engineering, Manufacturing and Construction. For: Area 2, 4, 5, 7 y 8: Arts and Humanities, Social Sciences, Administration and Law, Education, Health and Services.

In Tabasco, the relationship between the labor market and the educational offer is similar to the one at federal level in the primary sector. However, small annual percentage increases in this relationship are observed at national level on the contrary in Tabasco each school year this percentage decreases. This may be associated to the income received by workers in this sector therefore it is not attractive for students to study a bachelor or a technical university degree in the area of agricultural sciences.

4. Conclusions

Education is an engine of development for a nation. Developed countries like Switzerland, the United Kingdom, The United States of America, to name a few, rank their higher education institutions as the best of the world according to different international measurement schemes. Mainly because of their graduates who show that they possess the necessary capacities to innovate and contribute to the solution of world problems. The opinion of businessmen on this matter is that the good professional training of the workforce in these countries is a factor that allows them to grow and have competitive advantages.

For Latin America, the indicators of international organizations show that the educational services at the tertiary level are not provided with the quality that is demanded by the development of this region, this has been a serious restriction to be able to achieve the competitiveness of its productive sectors. According to studies, in Mexico about third of the businessmen in the country consider that this situation is a strong limitation to achieve innovation and progress in their markets.

Although the quality of the study programs is a preponderant factor for the labor market of the country it relevant to favor the development of the sectors of regions with more economic lag such as Tabasco. This is how a strong demand is linking the higher education institutions in the entity, with a view to ensure that their contribution may be a factor that favors the solution of the problems which impede to achieve the well-being of the population.

Based on this study, it was evident that according to the participation of the population employed in the productive sectors, the economy of Tabasco as well as the country is divided in thirds, concentrating more than two thirds of the employed population of the entity which is undoubtedly a factor for a strong concentration of enrollment in traditional programs in the areas of economics, administration, health and social Sciences.

In contrast, students prefer in lesser extent the educational agricultural science programs, which in the case of Tabasco it is the primary sector and it may represent an area of opportunity for the entity's development, as its economy is strongly related to oil prices. That is why the educational authorities must consider establishing educational policies to encourage more students to think about choosing this area of study seeking the professionalization of this economic sector in the entity.

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