

FEDERAL FUNDING AND ITS IMPACT ON ENROLLMENT AND AVERAGE COST PER STUDENT IN TO POLYTECHNIC UNIVERSITIES SUBSYSTEM IN MEXICO FROM 2014 TO 2017

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ABSTRACT

This study responds to the need of analyzing the repercussions that the federal financial funding has had on the enrollment and in the average cost per student in Mexican Public Polytechnic Universities. The main purpose is to provide evidence in order to improve the granted of the financial resources, which permits to reach the institution's objectives. We will analyze the allocation of the ordinary budget for the decentralized Institutions of the states, the extraordinary funds from the Program for Strengthening the Quality of the Educational Institution (PFCE) and the Funds to Expand the Educational Offer in Higher Education (PROXES) during the fiscal years from 2014 to 2017.

KEYWORDS: *Polytechnic Universities, Public Federal Funding, PFCE, PROXES, Enrollment, Higher Education, Mexico*

INTRODUCTION

With a Subsystem of Polytechnic Universities as a model of higher education based on competencies, it is indispensable to measure the granting of ordinary and extraordinary federal public resources, in order to determine how this affects the enrollment of academic programs and their educational indicators. Therefore, its antecedents and its structure are within the higher education system in Mexico, and in this way, we analyzed it to understand its repercussions on enrollment (Cruz & Cruz, 2008).

The Higher Education Agency through the General Coordination of Technological and Polytechnic Universities is the one that directs and regulates the subsystem, which is in charge of managing and coordinating the transfer of federal financial funding for the operation of each institution, reviewing the granting of resources from state governments (CGUTyP, 2015). Currently, the polytechnic universities are decentralized public institutions from the states governments. The Polytechnic Universities Subsystem, with legal personality and their own patrimony face the performance problems of its quality indicators, accreditation of educational programs, structural problems, and teacher training, among others. These Institutions of the country depend by the allocation of public subsidies and competition from the additional resources of different national, federal calls, being part of the question on high impact on the functioning and performance of the (SES, 2014).

In Mexico, the high public education contains several subsystems classified as follows: Federal public universities and States public universities with a solid support, technological institutions, and universities, polytechnic and intercultural universities, public development centers, which in May 2015 represented as a total of 1,038 public institutions and 350 private institutions. (SES, 2015). Currently, the Polytechnic Universities subsystem has 62 universities around of 25 states in the Mexican republic.

The polytechnic universities are an educational project created in 2001 to offer engineering careers, undergraduate and postgraduate studies at the specialty level. It's programs designed on the educational model based on competencies and oriented to apply research to technological development through agreements with the productive and social sector (CGUTyP, 2015). Due to their geographical location, the polytechnic universities provide their services to the population with economic and social disadvantages (Gaceta Parlamentaria, 2011). The educational model based on established competencies has a strong influence from international organizations such as the Inter-American Center for the Development of Knowledge in Vocational Training (Vargas, 2004), and the Inter-American Development Bank, which influence the curricular letters development of the academic programs (BID, 2003).

OBJECTIVE

The objective of the study responds to the need of analyzing the repercussions that the federal financial funding has had in the enrollment and in the average cost per student, into Mexican Public Polytechnic Universities during the fiscal years from 2014 to 2017.

METHODS

The method of study is quantitative, non-experimental, transactional, descriptive focus (Hernández, Fernández and Baptista, 2010), which the following variables analyzed were: ordinary and extraordinary public resources, enrollment, Program for Strengthening Quality in Educational Institutions (PFCE) and the Program to expand the educational offer in Higher Education (PROXES). This analysis was made considering the data provided by the General Coordination of Technological and 63 Public Polytechnic Universities from the Public Education Ministry, which were derived from the Quality Assessment Model of the Polytechnic Universities Subsystem (MECASUP), and also, from the Budget Department of this institution. The analysis limitation corresponds only to the funds granted by the federal government, during the fiscal years from 2014 to 2017.

RESULTS AND DISCUSSIONS

Federal Ordinary Public Granted

Public financing mechanisms improved to overcome the schemes that worked in the 20th century, schemes that operated by criteria that were far from measuring the results of the institutions, which were not clear, neither transparent (Valle & Maliachi, 1973). Subsequently, the government defined novel programs for the distribution of the funds, which include new criteria to take into consideration the quality and efficiency controls from the institutions (Márquez, 2004).

The Ministry of Public Education (SEP, 2014) promotes extraordinary competitive grants with the objective of raising the quality of public universities, consolidating their development and training more and better professionals in the country. The economic amount delivered to the institutions through the several financial programs from the federal

government depends on their strategic planning and to the result of the evaluation from the quality in their academic programs from the higher education institutions (Corrales, De la Garza, Gutiérrez, & Arcos, 2012). For this study, only federal financial funds are the base through the budget program called "Federal subsidies for the decentralized Institutions of the states".

Table 1: Budget Approved for Federal Funds (MXN) During the Years 2014 - 2017

	2014	2015	2016	2017
PUBLIC POLYTECHNIC SUBSYSTEM	860,626,539	865,718,314	884,768,307	927,811,572

Source: Own preparation with Subsecretaría de Educación Superior (SES) and Coordinación General de Universidades Tecnológicas y Politécnicas (CGUTyP) data.

Analyzing the economic resources assigned to the Polytechnic Universities Subsystem during the fiscal years of 2014 to 2017, we found that there was an increase in the fiscal periods from 2014 to 2017 of \$ 67,185,033 pesos, meaning an increase of 7.24% more of ordinary public resources for this subsystem (Mendoza, 2017).

Program to Strengthen Quality Education

The Ministry of Public Education, through calls, allocates the extraordinary funds, through budgeted programs of educational and administrative evaluation beneficiating to the public state universities, public state support universities, polytechnic and technological universities and other related institutions. The H. Chamber of Deputies approved resources directly for the PIFI, which has meant an important achievement for the consolidation of the program (DOF, 2013). It represented a support for the reflection and action that leads to strengthening the process of strategic and academic planning and their institutional management. PFCE Guide 2016-2017, (SES, 2016). The amount granted to the Polytechnic Universities in the fiscal year 2014 was \$ 91,515,252 MXN and in 2017 the allocation was of \$ 53,099,003 MXN, meaning a budget reduction of \$ 38,416,249 MXN, 41.97% less than in 2014 (CGUTyP, 2017). It is important to mention that even though, the Public Education Ministry uses the calls so that the Institutions participate, at the end of the day these are not obliged to do it. (MECASUP, 2015).

Enrollment in the Polytechnic Subsystem Universities.

The enrollment's increase of around 21,773 students, 22.18% versus the 7.24% of the allocated federal funds to the Polytechnic Universities generated an effect inversely proportional to the cost per student.

Table 2: Historical of Enrolled Students During the Years 2014 - 2017

	2014	2015	2016	2017
PUBLIC POLYTECHNIC SUBSYSTEM	76,391	88,811	96,040	98,164

Source: Own preparation with Subsecretaría de Educación Superior (SES) and Coordinación General de Universidades Tecnológicas y Politécnicas (CGUTyP) data.

Federal financing and the enrollment. According to the data obtained from the economic resources authorized to the main institutions, we are showing that the federal ordinary financing invested in the subsystem of the polytechnic universities for the fiscal year 2014 was \$ 860, 626,539 MXN. In addition, in the year 2017 it was \$ 927, 811,572 MXN, which showed an increase of \$ 67, 185,033 MXN and a percentage of 7.24% from 2014 to 2017.

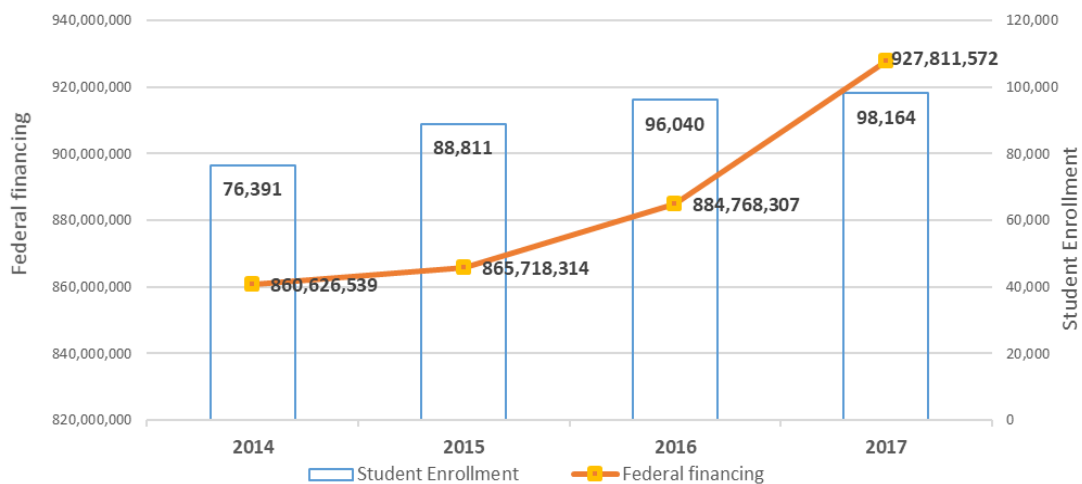


Figure 1: The Federal Financing thru Federal Government and the Total Student Enrollment in the Polytechnic Universities Subsystem During the Years 2014-2017

Source: Own preparation with sub secretaria de education superior (SES) and co-ordination, general de universidades Tecnologicas Y politecnica (CGUTyP) date

Table 3: Budget Approved (MXN) for Strengthening Educational Quality Program in the Education's Institutions 2014 - 2017 (PFCE)

	2014	2015	2016	2017
PUBLIC POLYTECHNIC SUBSYSTEM	91,515,252	72,679,580	62,413,389	53,099,003

Source: Own preparation with Subsecretaría de Educación Superior (SES) and Coordinación General de Universidades Tecnológicas y Politécnicas (CGUTyP) data.

Program to Expand the Educational Offer in Higher Education

According to the National Council for the Evaluation of Development Policy (COVENAL), the Program to expand the educational offer in Higher Education (PROXES) seeks to support, promote, and strengthen the expansion of coverage in Medium Level Education and Training for Working. The ultimate goal of the program is for a greater number of young people to continue their studies to the higher level or join the productive force (CONEVAL, 2015).

Table 4: Budget Approved for the Program to Expand the Educational Offer in Higher Education 2014 - 2017 (PROEXES)

	2014	2015	2016	2017
PUBLIC POLYTECHNIC SUBSYSTEM	13,619,618	28,748,546	49,043,566	9,204,021

Source: Own preparation with Subsecretaría de Educación Superior (SES) and Coordinación General de Universidades Tecnológicas y Politécnicas (CGUTyP) data.

The authorized budget in the fiscal year of 2017 for the Program Strengthening Quality in Educational Institutions (PFCE) was \$ 53,099,003 MXN. This amount compared with the fiscal year of 2014 suffered a reduction of 26% of the assigned resource, which represented a decrease of \$ 38, 416,249 MDP. In 2014, the allocation was for a total of \$ 91,515,252 MDP.

In regards to the Program to Expand the Educational Offer in Higher Education (PROEXES) during the fiscal year 2014, were authorized \$ 13,619,618 MXN and in the fiscal year 2017 \$ 9,204,020,021 MXN, which represents a negative effect on the already precarious budget allocation.

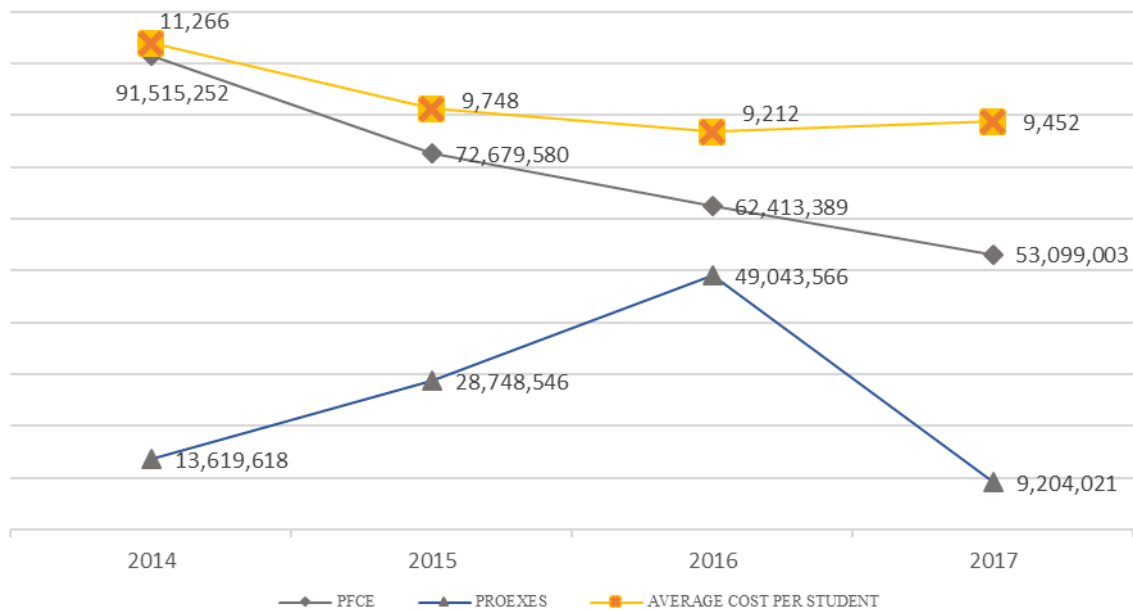


Figure 2: Average's Cost Per Student and the Budgeted Programs PFCE- PROEXES in the Polytechnic Universities Subsystem during the Years 2014-2017

Source: Own preparation with sub secretaria de education superior (SES) and co-ordinacion, general de universidades Tecnological Y politecnica (CGUTyP) date

Average Cost per Student and the Enrollment

The previous table shows us that the average cost per student with only federal resources invested in the subsystem of the polytechnic universities during the fiscal year 2014 was \$ 11,266 MXN, compared with 2017, a year where this cost represented only \$ 9,452 MXN. It means a decrease of 16.1% and the previous result of the increase in enrollment by 22.18%, versus the increase in investment in Polytechnic Universities only by 7.24%.

Although there was an increase of more than 7% in the allocation of federal funding. This economic policy includes different perspectives. The allocation of resources has been insufficient in such a way that it is not possible to cover the accumulated annual average inflation during the period 2014 to 2017 19.34%, affecting the operability of the Educational Institution (BANXICO, 2017).

The enrollment's increase of around 22.18% versus the 7.24% of the allocated federal funds to the Polytechnic Universities generated an effect inversely proportional to the cost per student. That is, lower cost divided by higher enrollment reduces the investment of resources per each student.

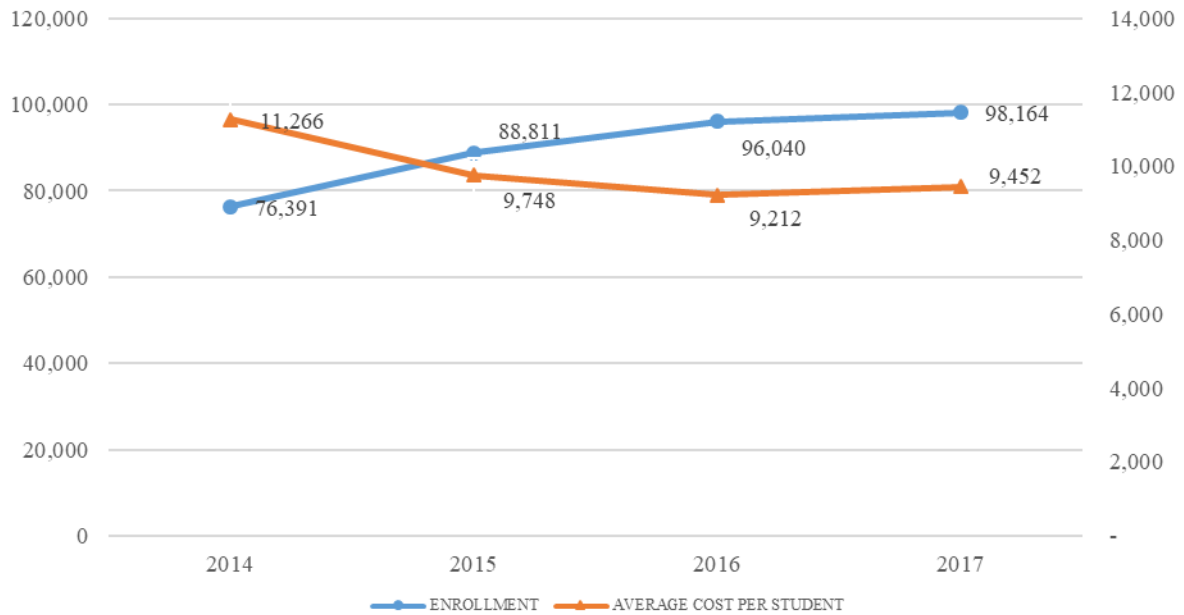


Figure 3: Enrollment and average's cost per Student in the Polytechnic Universities Subsystem during the Years 2014-2017

Source: Own preparation with sub secretaria de education superior (SES) and co-ordinacion, general de universidades Tecnological Y politecnica (CGUTyP) date

The premise mentioned in the previous point, although in financial terms could be interesting and an administratively efficient measure, unfortunately, is far from being since we are talking about the education system of a country, where the Polytechnic Universities Subsystem represents a real and unique opportunity to achieve a bachelor's degree for low-income students.

CONCLUSIONS

The operational deficit of the institutions represents a relevant conclusion, according to the data obtained about the federal funds authorized to the Polytechnic Universities in fiscal years from 2014 to 2017. The increase of \$ 67,185,033 MXN (a percentage of 7.24% from the one year 2014 to 2017) does even not cover the inflation of those years of 19.34%.

Regarding the budgeted programs for Strengthening Quality in Educational Institutions (PROFOCIE-PFCE) and the Program to Expand the Educational Offer in Higher Education (PROXES), it leads us to conclude that there is a correlation between budget and educational quality. Therefore, the budget decrease will directly affect the quality educational offer.

It is important to mention that for its part the PFCE program budget suffered a decrease from 91.5 MDP in 2014 to 52.6 MDP in 2017, representing a 26% less budget allocation, which affects the development of enrollment quality from the Polytechnic Universities.

These two budget reductions have a direct impact on the ultimate goals of federal programs: affecting the educational quality and supporting the expansion of higher education and its enrollment in the country's polytechnic universities. Therefore, the ultimate goal of the program is in risk, which means that a greater number of young people

could not continue their studies in the higher level or they could not join in the productive force (CONEVAL, 2015).

If we analyze the Economic Policy followed during this period by the Federal Government, we can see that unfortunately, the funding to the Polytechnic Universities does not constitute a permanent and sustained investment because it is the educational sector, but on the contrary, there is another type of priorities. Perhaps not less important than the education, but this reduces the future of the creation of a true knowledge society in a country. A Knowledge Society would undoubtedly represent the most viable opportunity to increase the quality of life of Mexicans.

Unfortunately, from the data collected, the cost per student decreased as we mentioned before by \$ 11,266 pesos compared to the year 2017 where the cost was only \$ 9,452 pesos. It represents a decrease of 16.1%, which means a lower financial coverage and attention to enrollment by competences.

Since the Polytechnic Universities are a subsystem of higher education with less time than the others are, it still presents many lags in different states of the country and especially in the indicators such as institutional performance like the case of quality enrollment in educational programs. Due to that, the proposal is to reactivate the federal financial funding, which at the beginning of this government period, we used to have in order to achieve the consolidation of higher education institutions.

The previous analysis symbolizes a challenge in the growth of the enrollment associated with an ordinary subsidy, ordinary and extraordinary federal subsidy in the Higher Education System and in the Subsystem of Polytechnic Universities created 17 years ago.

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