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Analysis of Ordinary Public Fund and Its Impact on the Quality of Academic Programs in the Higher Education in the Subsystem of the Polytechnic Universities in Mexico

Pedro Salazar Monroy[1], José L. Arcos-Vega[1] & Juan J Sevilla García[2]

[1] Universidad Politécnica de Baja California, Baja California, México

[2] Universidad Autónoma de Baja California, Baja California, México

Correspondence: Pedro Salazar Monroy, Universidad Politécnica de Baja California, Baja California, México. Tel: 52-686-104-2727. E-mail: pedro.salazar.monroy@gmail.com

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Abstract

In 2015, there was the need of making this study to determine the efficient and effectiveness' management for making decisions in respect to the ordinary fund allocations and their impact on the quality of the academic programs into the Polytechnic engineering universities in Mexico. This analysis is very important for providing essential evidence to improve the granting of financial resources to these institutions for the educational activities. Front to a novel educational system of higher education is essential to evaluate the quality of it to achieve its goals. The information evaluated shows important findings, in regards to the institutions for having more evaluable academic programs than non-assessable academic programs. Being the first ones, which receive a larger fund for their operation.

Keywords: public resources, higher education, Polytechnic Universities, Mexico

1. Introduction

The financial granting has not been enough in certain situations for ordinary fund in the Polytechnic Universities of the country. Unfortunately, this affects the quality of the academic higher education focused in the engineering programs. For this reason, this study proposesan analysis of the subsystem for the Polytechnic Universities.

This is a subsystem newly established with funding measurable, variables, indicators and quality programs. It seeks to understand the funding and its impact on enrollment and academic quality programs. Due to these elements, it can be possible of having a plan with the basis for designing a strategy under a scheme with financial viability to manage the resource as a factor of increasing the quality and competitiveness of the programs.

The evaluable academic programs are the ones where the institution has had one or more generations of graduates. These programs are considered evaluable because they have been restructured (as a change to plan and curriculum) and because of a self-assessment or external assessment. On the other hand, the non-assessable academic programs are the ones, which meet one of the following conditions: new creation (no graduates) and canceled or are in settlement (CGUTyP, 2015). All this assumes that it is possible to increase the evaluable academic programs at higher level for applying the measures and promotions of the educational management indicators, which would incorporate in an appropriate guidance to the use of existing public resources.

It is important to refer to the history of the public funding and its impact on the quality of the higher education programs in Mexico (Cruz, Y. & Cruz, A., 2008). In the Polytechnic Universities in Mexico and other public institutions of higher education, there was an educational project in 2001 to offer engineering degrees, undergraduate and postgraduate levels of expertise. The design of these programs was on the educational model based on competencies and it was oriented to get research and technological development. At that time, those programs took a close partnership with the productive organizations, public and social sectors (CGUTyP, 2015).

In the recent years, there is the need to increase the ordinary resources and to seek the increases of the extraordinary funds for financiering these institutions. Likewise, they have taken several measures in order to improve the public financing mechanisms on the contrary from the schemes used in the twentieth century, which

worked under the no measurement results. The new scheme is to improve their operation with the measurement of the results providing clarity and transparency to the institutions (Márquez, 2004).

The Undersecretary of Higher Education through the General Coordination of Technological and Polytechnic Universities coordinate and regulate the new educational model, as it is required by the regulations of the Federal General Direction of Professions. This Agency is responsible for management and coordination of the financial transferences to each institution. Currently, the Polytechnic Universities are state public institutionswith legal personality and own patrimony. However, the subsystem of polytechnic universities faces the problems for performing their quality indicators, the accreditation of educational programs, the structural problems, the academic plant, the training for the academic personnel, among others. All of these are being affected because the allocation of the ordinary resource and the competition of the additional resources from the different national programs, being part of the questions from high impact in the operation and performance of the polytechnic institutions in the country (SES, 2014).

Derived of this subsystem is relatively new, and because the lack of its background, it has been leaving aside responses to the different actors who coordinate it. In 2014, the National Subsystem for the Polytechnic Universities had 58 institutions in 23 states of the country, which attended up to 54,000 students along with its graduates, professors and researchers served to the productive sector of goods and services, as well as the society in general.

Subsequently, the government defined innovative programs considering the funding of the resources under the quality control of the educational programs' criteria and the efficiency of the educational institutions dedicated to the academic programs in Mexico (Valle et al., 1973).

In Mexico, the Public Higher Education has several subsystems of the Educational Government Institutions, which are Federal Public Universities, State Public Universities, State Public Universities with Solidarity Support, Technology Institutes, Technological Universities, Colleges Polytechnics, Intercultural Universities, Public Research Centers, Public Normal Schools and other public institutions. In May 2015, 1,038 summarized from Public Institutions and 350 from Private Institutions of Higher Education (CGUTyP, 2015). Currently, the subsystem of the Polytechnic Universities has 60 Institutions in 25 states of the Mexican Republic.

This model has shown to be efficient in the working environment, but the Subsystem of the Polytechnic Universities turns out to be very complex, because the ordinary fund has contributions of shared responsibility. For this reason, the results of the negotiations between the federal government and the state government where the institution is located have an ordinary fund with a 50% federal and 50% State. This is to cover the demand from public education services, therefore this type of funding responds to the problem of insufficient federal resources in order to solve the requirements of the educational institutions (CONEVAL, 2013).

The authorization of the ordinary federal fund for the Polytechnic Universities has their background in different programs of bestowal financial resources subjected to yearly agreements, between the Federal Public Education Department and the state's government. Previously, the public resources belonged to the state governments for transferring to the institutions of higher education (IES) which operated in the state. In the present date, they transfer in a direct manner to the ISE. These resources constitute the major income for them, which cover the 50 percent of the total ordinary fund assigned to the IES.

Between the 85 and 90 percent of the funds are destined to pay salaries and wages, and the rest for operational costs. This program finances institutions created previously. The funds of the Subsystem constitute a 1.0% of the public funds, which in 2011 were the equivalent to $ 521.4 MDP (Mexican pesos).

According to the federal government, all the programs budgeted for the education will have as a priority to make assure that they are instruments for their strengthening. The ordinary public fund has had a small increase for the Polytechnic Universities Subsystem in 2015 (Mendoza, 2017).

1.1 Background of the Subsystem of Polytechnic Universities

The challenge of these new universities is to train senior professionals who represent the detonator for Mexico's development needed at this time. To do this, the Polytechnic Universities have established as priority the next objectives:

1) To provide an education with high quality at the undergraduate and graduate levels of technological specialties.

2) To train professionals, teachers and researchers with high social commitment.

3) To execution of research programs and technological development in the knowledge's areas where the Polytechnic Universities can offer their programs. This will depend of the vocation of the state where the university is located.

4) To Promote the relationships of the University through the bonding, cooperation and exchange with the states, national, foreign educational institutions as well as public, private, social sectors.

5) To establish programs for diffusion, university extension for institutional strengthening and the links community.

Because of their geographical location, the Polytechnic Universities distinguish because their particular attention to the segments of the population with social and economic disadvantages (Gaceta Parlamentaria, 2011).

1.2 Program for the Strengthening of Quality in Educational Institutions (PROFOCIE) 2014-2015

The PROFOCIE formerly called Integral Program for Institutional Strengthening (PIFI) has contributed since 2001 to support the Strategic planning of Higher Education Institutions provided under the allocation of extraordinary funds obtained through the competition between the Universities. It was consolidated in 2010 because the Union of the Federal Fund for the Modernization of Higher Education (FOMES) and the Investment Fund of the State Public Universities, under the evaluation of the ANUIES (National Association of Universities and Higher Education Institutions), and COPAES (Council for the Accreditation of Higher Education).

In 2011, these funds disappeared and the Mexican Congress approves resources directly for the PIFI, which has meant an important achievement for the consolidation of this program, where have been beneficiated the State Public Universities, the State Public Universities with Solidarity Support, the Polytechnic Universities, the Technological Universities and other related institutions (DOF, 2013).

PROFOCIE represents a strategy from Federal Public Education Department (SEP, 2014) in order to achieve better levels of education through the increase in the quality of the academic programs and in the services offered. Because of this program, the Institutions receive resources for covering their priorities, which are determined from a participatory strategic planning exercise.

From 2016 to 2017, PROFOCIE had a change in its name transforming into the Program for strengthening of educational quality (SES, 2016), presented for supporting the strengthening of the strategic and academic planning process and the institutional management, whose objectives are:

- The achievement of the Educational Quality and the services offered by Public Higher Education Institutions;
- To contribute to the strengthening of the quality and the relevance of the basic education;
- Higher education and training for working so that they contribute to the Economic development for Mexico;
- The implementation of Plans and study programs with points of emphasis: Coverage with Equity, Flexible and Comprehensive Programs, Relevant Real-Life Teaching, Information and Communication Technologies, Internationalization, Linkage, Transversal of Gender Equality, Accountability in PFCE Guide 2016-2017 (SES, 2016).

1.3 Competency Based Education Model

A key factor that led the implementation of the Based on Competencies Educational Model in the Polytechnic Universities was the project with the Inter-American Development Bank (PROFORHCOM) (BID, 2003). This project promotes the operation of educational models based on competencies particularly those oriented for training to the work. Experiences of the National Council for the Standardization and Labor Competencies (CONOCER) have the objective of expanding the certified standards for the key industries such as the country's competitiveness strategy that is critical for their production processes, as well as some Latin American countries such as Chile and Argentina.

There is a strong influence of the International Organizations like the Inter-American Center for Knowledge and Development in Vocational Training, where labor competency rules are into the curricular design process, as a validation source about the content relevance (Vargas, 2004).

The educational model was oriented in order to provide to the graduated students from upper secondary education an alternative of professional training so that they are able of joining to the productive work no later than forty months. In addition, the model provides to its graduates with the training tools so that they have the

possibility of establishing their own business, which generates labor spaces for the operational levels (CGUTyP, 2015).

One of the main reasons for designing educational programs under competencies' model was to build bridges that strengthened the relationship with labor markets in order to guarantee the relevance of the educational offer. The main characteristic of this educational program is that this has three training cycles. At the end of each cycle, there is a training space in the companies (stays) where the student develops a project in a full time (stay). The Students have spaces where they can apply knowledge, do, attitudes, skills and values learned in schools, to face real situations and problems of working and also, the flexibility and relevance of educational programs, which cover the third cycle of training (Arguelles, 1996).

The benefits of the competencies' model are:

- Characteristics of full-time teachers at a minimum level of mastery;
- A strong relationship with the productive sectors;
- A high percentage of graduates working in their training area, which has allowed lateral exits in educational programs;
- Clearly differentiation of the profile because the professional level associated with a license of engineer;
- To allow to the Educational Institution to meet local needs during the third cycle of training in order to improve their Educational Offer (CGUTyP, 2015).

2. Method

The method utilized was descriptive following variables analyzed such as Academic Programs Evaluable, Non-Assessable Academic Programs, Quality of Education and Financial Subsidies. This study represents the subsystem of the Polytechnic Universities in Mexico with programs focused in the engineering area. The analysis is limited to the evaluable study programs, non-assessable study programs, and the funds provided by the Federal and State Government. The source for collecting the information was the database from the General Coordination of Technological Universities and Polytechnics into the Mexican Federal Government (Hernández et al., 2014).

3. Results

The management of the educational offer into the institutions of higher education in Mexico is still deficient. The achievement of the quality, which is above of the average, must be included into an efficient institutional policy. Also, this must be aligned with the objectives of the Public Education Federal Department, because the need of improving the evaluation of the academic processes, policies and management of the institution under the Inter-Institutional Committee for the Evaluation of the Higher Education (Corrales et al., 2012).

One of the main objectives from COPAES is to assure the assignment of the administrative tasks into the educational programs. These programs are informed by the organization shaving the full support from the institutions and representing a good investment for accomplishing the policies from the credit organizations in a confident, transparent, efficient and effective method taking the quality of education in the first place (COPAES, 2012).

The growth of enrollment in the Polytechnic Universities has been determined from this study, since there is the need of having a progress in meeting the educational public policy. In addition, the expansion of the enrollment and quality of their educational programs under the Inter Institutional Committee of Higher Education (CIEES) or the Council for Accreditation of Higher Education (COPAES, 2012) are evaluating this policy. This is in order to know the needs that the academic institutions have and to allow them better competition for extraordinary resources when they receive the calls for getting the federal extraordinary resources. These calls consider the indicators, processes and results associated to a good strategic planning focused in the operating rules.

This study shows the limitation on the Polytechnic Universities' subsystem, using statistical information obtained from the Public Education Federal Government in Mexico. There were 58 institutions of higher education, which in December 2014 had 293 academic programs in the country, including 150 evaluable programs certified in turn and with 143 programs considered non-assessable. This generates 51% of certified programs in the country (Figure 1).

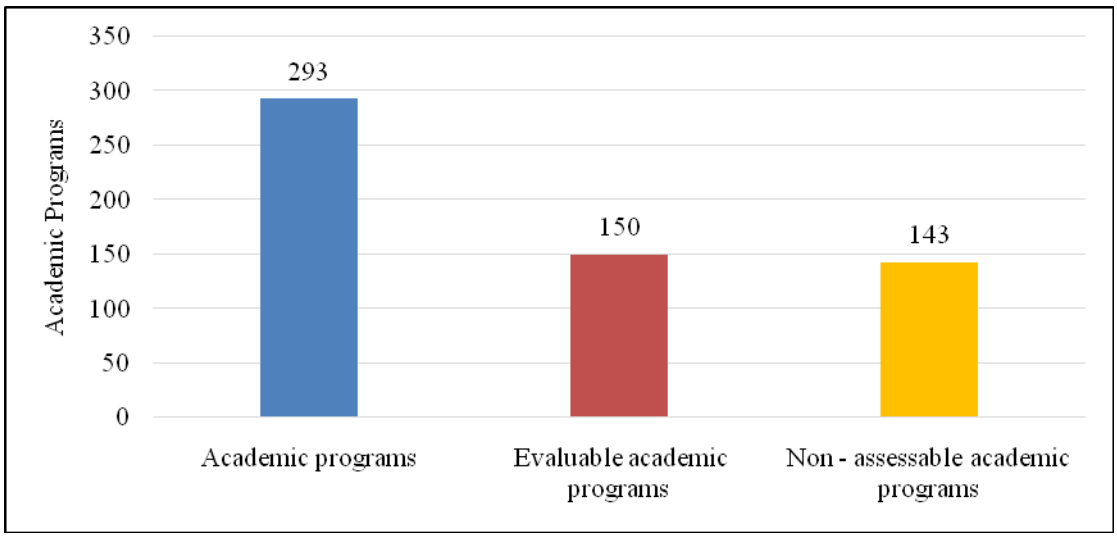

Figure 1. Evaluable academic programs versus non-assessable academic programs in the subsystem of the Polytechnic Universities in Mexico for 2014

Source: General Coordination of Technological and Polytechnic Universities (CGUTyP, 2014).

There was a comparison from the total enrollment as a certified process in programs where 72% from the total enrolled population concentrated in the Polytechnic Universities (Figure 2).

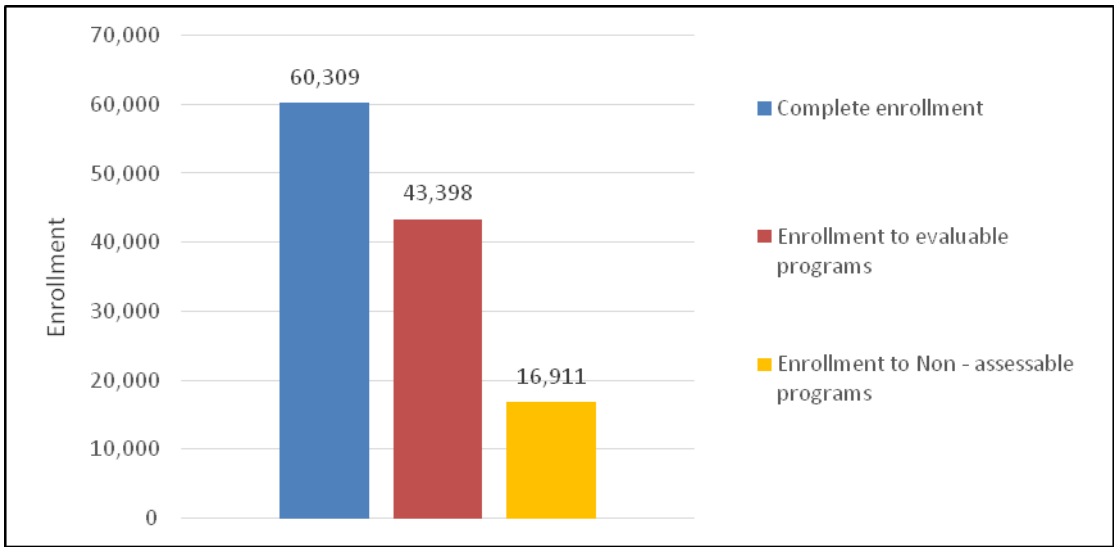

Figure 2. Enrollment to evaluable and/or non-assessable academic programs in the subsystem of Polytechnic Universities in Mexico for 2014

Source: General Coordination of Technological and Polytechnic Universities (CGUTyP, 2014).

This creates a need for the analysis of the factors that have kept non-assessable academic programs, as it represents a large number of existing programs and a very low demand. Whereas the programs consider their relevance as a based, this analysis confronts such relevance versus the quality of the programs. From the 58 Polytechnic Universities created until December 2014, and in order to measure the results of the quality's indicators versus the funding, we have selected the following indicators: Evaluable academic programs, non-assessable academic programs and the use of the federal and state ordinary public fund.

Table 1. Evaluable academic programs in the Polytechnic Universities (Mexico, 2014)

Polytechnic University	Evaluable academic programs	Enrollment	Graduation
Pachuca Polytechnic	10	1445	223
Chiapas Polytechnic	6	1199	125
Valle Toluca Polytechnic	6	2133	82
Tlaxcala Polytechnic	5	2615	443
Puebla Polytechnic	5	1391	324
Sinaloa Polytechnic	5	861	151
Estado de Morelos Polytechnic	5	1475	172
Zacatecas Polytechnic	5	1105	141
Querétaro Polytechnic	5	1160	93
Tulancingo Polytechnic	5	604	113
San Luis Potosí Polytechnic	4	2976	119
Francisco I. Madero Polytechnic	4	1141	197

Source: General Coordination of Technological and Polytechnic Universities (CGUTyP, 2014).

Table 2. Evaluable academic programs in the Polytechnic Universities (Mexico, 2014)

Polytechnic University	Enrollment total	Public fund (MXK)	Cost for any student(MXK)
Pachuca Polytechnic	2735	99,110	36,2
Chiapas Polytechnic	1199	51,2	42.7
Valle Toluca Polytechnic	2507	8,488	3,3
Tlaxcala Polytechnic	3252	N/D	N/D
Puebla Polytechnic	1571	42,000	26,7
Sinaloa Polytechnic	1720	46,435	26,9
Estado de Morelos Polytechnic	1598	48,137	30,1
Zacatecas Polytechnic	1105	40,202	36,3
Querétaro Polytechnic	1160	49,699	42,8
Tulancingo Polytechnic	1259	73,370	58,2
San Luis Potosí Polytechnic	2976	N/D	N/D
Francisco I. Madero Polytechnic	1528	25,810	16,8

Source: General Coordination of Technological and Polytechnic Universities (CGUTyP, 2014).

It is noteworthy that, although it is true, the success of academic programs and their quality related to the level of financial resource allocated to them. It is interesting to note the case of certified programs at the Polytechnic University from Pachuca, which it is the first one in the country with 10 evaluable certified academic programs, followed by the University from Chiapas with six evaluable certified programs.

Table 3. Non-assessable academic programs in the Polytechnic Universities (Mexico, 2014)

Polytechnic University	Non-assessableacademic programs	Enrollment	Graduation	Enrollment Total	Public fund (MXK)	Cost for any student (MXK)
Tulancingo Polytechnic	6	655	7	1259	73,370	58,2
Sinaloa Polytechnic	5	859	0	1720	46,435	26,9
Tapachula Polytechnic	5	399	0	399	9,637	24,1
Durango Polytechnic	5	561	62	750	24,338	32,4
Pachuca Polytechnic	4	1290	22	2735	99,110	36,2
Santa Rosa Jáuregui Polytechnic	4	413	0	413	N/D	N/D

Source: General Coordination of Technological and Polytechnic Universities (CGUTyP, 2014).

For non-assessable academic programs but certified, we found that the Polytechnic University from Tulancingo is the one that has more non-assessable programs but certified as Level 1, followed in second place the Universities from Durango, Sinaloa and Tapachula with 5 programs each one. This indicates that there is ample scope from opportunities to improve for the evaluators of the quality of the academic programs for engineering at the Polytechnic Universities of the country. These universities have an interesting variety of certified programs; however, according to the International quality's standards, these do not have enough elements in its structure and design for their evaluation.

3.1 Analysis of Engineering Programs Assessable and Non-Assessable, Certified and Uncertified

From the analyzed universe, we notice that from 232 existing programs for careers in engineering at the Polytechnic Universities of the country, 53.90% properly certified programs and recommended by the Inter-Institutional Committee for the Evaluation of Higher Education and the Council for accreditation of Higher Education, and of course highly evaluated in quality, this represents 125 Programs. These programs include an enrollment of 33,714 students, from which 11.80% has already concluded corresponding curriculum (Figure 3). On the other hand, a large number of these programs, even though these are certified, these are not evaluable for quality purposes according to different agencies. The percentage rises to 46.10% and represents 107 engineering programs at the Polytechnic Universities. As a reference and compared to the previous paragraph, in this case we are talking about an enrollment of 11,696 students, where at the moment only 1.4% is over the curriculum. Of the 125 evaluable programs, the 87.20% that is 109 certified programs as level one, considering quality programs and only 12.80%, 16 programs classified as level two.

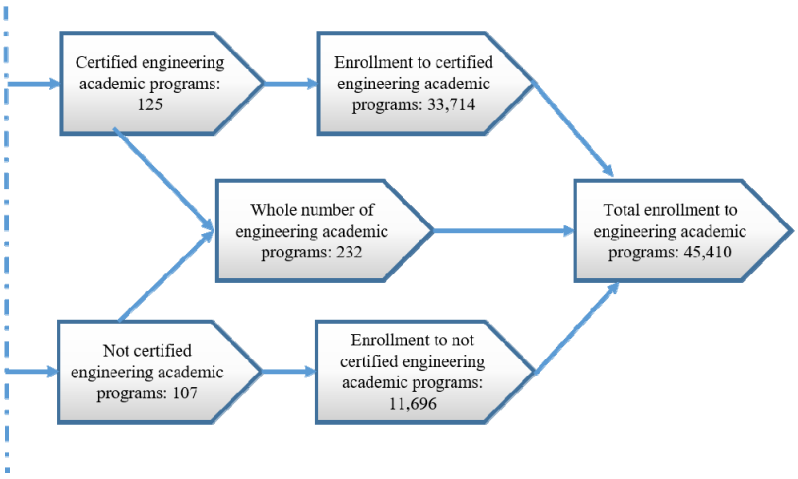

Figure 3. General coordination of technological and Polytechnic Universities (CGUTyP, 2014)

Source: Engineering academic programs and the total enrollment in the subsystem of Polytechnic Universities in Mexico 2014.

3.2 Analysis of Ordinary Public Subsidy in the Subsystem of the Polytechnic Universities in Mexico

As for ordinary public fund is concerned and as we mentioned in the above paragraphs, the relationship of the economic resource and the quality of the academic engineering programs at the Polytechnic and Technological Universities in Mexico, is an indisputable and necessary premise. At performing the analysis of the financial resources allocated to major technology's universities (object of this study), found that the Polytechnic University from Pachuca who is the one with the highest number of evaluable academic programs is who receives more funding having a cost of $ 36,237.83 pesos per student. In addition, the statistical information shows the case of the Polytechnic University from Morelos State with high enrollment in academic programs evaluable; where we found that, the cost per student is $ 36,123.50. Making the comparison between both Universities, Morelos versus Pachuca, we can notice that there is higher enrollment with half of the budget. Undoubtedly, the Polytechnic Universities with the highest number of academic programs (mostly evaluable) and with considerable number of enrollment are those with more funding. Therefore, we can justify the importance of the financial resources for maximizing the quality of the academic programs (CGUTyP, 2014).

Table 4. Polytechnic Universities which more evaluable academic programs through 2014

Polytechnic University	Evaluable academic programs	Enrollment	Graduation	Non-assessable academic programs	Enrollment
Pachuca Polytechnic	10	1445	223	4	1290
Tulancingo Polytechnic	5	604	113	6	655
Valle México Polytechnic	3	2527	300	1	300
Guanajuato Polytechnic	4	1348	101	2	303
Querétaro Polytechnic	5	1160	93	ND	ND
Morelos Polytechnic	5	1475	172	1	123
Sinaloa Polytechnic	5	861	151	5	859
Puebla Polytechnic	5	1391	324	1	180

Source: General Coordination of Technological and Polytechnic Universities (CGUTyP, 2014).

Table 5. Polytechnic Universities, which received higher subsidy for their operation through 2014

Polytechnic University	Graduation	Sum academic programs	Enrollment total	Public Subsidy (MXK)	Cost for any student (MXK)
Pachuca Polytechnic	22	14	2735	99,110.5	36.2
Tulancingo Polytechnic	7	11	1259	73,370.0	58.3
Valle México Polytechnic	0	4	2827	71,613.1	25.3
Guanajuato Polytechnic	0	6	1651	61,094.9	37.0
Querétaro Polytechnic	ND	5	1160	49,699.4	42.8
Morelos Polytechnic	0	6	1598	48,137.4	30.1
Sinaloa Polytechnic	0	10	1720	46,436.0	27.0
Puebla Polytechnic	0	6	1571	42,000.0	26.7

Source: General Coordination of Technological and Polytechnic Universities (CGUTyP, 2014).

4. Conclusions

After analyzing the current data, we can see that those institutions, which have greater resources, are those, which achieve greater quality in their valuable and non-assessable academic programs. According to the results shown, it is possible to increase the top-level academic programs assessable quality accrediting engineering by applying follow-up measures and promotion of educational management indicators incorporating appropriate guidance to the use of the existing public resources.

It is important to provide feedback to the Polytechnics Universities and their educational actors on how they are influencing their teaching and school management in student outcomes practices. The evidence to bring them to the educational authorities will assess how to improve educational quality and how it is affecting the implementation of its policies. For the granting of ordinary and extraordinary fund, there is the need of establishing the criteria of that the institutions that have been most beneficiated from the resources are those with proven quality academic programs.

This creates a need for analysis of the factors that have kept non-assessable academic programs, as it represents a large number of existing programs and a very low demand, considering that the programs have as a base their relevance. This analysis confronts such relevance and program's quality. A national subsystem such as the recent creation of the technology's universities has had economic repercussions, which represent complex problems in their institutional stability with a lag in granting resources.

Another challenge facing by the technology's universities is the continuous evaluation of the educational programs in engineering which have a lower ordinary fund to assess and meet enrollment quality measurement of academic performance and fundraising by the calls from the federal extraordinary resources.

The big challenge considers the policies merging ordinary public funds for regular operation, which will represent a greater enforcement of educational indicators focused on the quality.

References

Arguelles, A. (1996). La estrategia de México para la formación y capacitación basada en competencia laboral. In *Trabajo presentado en Seminario Internacional sobre Formación Basada en Competencia Laboral: Situación Actual y Perspectivas, I, Guanajuato, México, 1996* (pp. 203-208). Montevideo: Cinterfor. Retrieved from http://www.oei.es/etp/formacion_basada_competencia_laboral.pdf

Banco Interamericano de Desarrollo-BID. (2003). *Programa Multifase Formación de Recursos Humanos Basada en Competencias*. Retrieved from http://www.iadb.org/es/proyectos/project-information-page,1303.html?id=ME0250

Consejo Nacional de Evaluación de la Política de Desarrollo Social-CONEVAL. (2013). Informe de la Evaluación Especifica de Desempeño 2012-2013. In *Valoración de la información de desempeño presentada por el programa. Subsidios federales para organismos descentralizados estatales. Modalidad: U006*. México. Retrieved from http://cgut.sep.gob.mx/2014/Transparencia/CONEVAL/Evaluacion2013/u006.zip

Consejo para la Acreditación de la Educación Superior, A.C.-COPAES. (2012). *Marco general para los procesos de acreditación de programas académicos de nivel superior*. Retrieved from http://www.copaes.org/wp/wp-content/uploads/2015/07/MARCO_DE_REFERENCIA_COPAES-2012.pdf

Coordinación General de Universidades Tecnológicas y Politécnicas-CGUTyP. (2015). *Programa Institucional de Desarrollo 2013-2018*. Subsistema de Universidades Politécnicas, México. Retrieved from http://cgut.sep.gob.mx/PIDUP/Programa%20Institucional%20de%20Desarrollo%2020132018%20Politecnicas%20Version%20para%20Imprimir.pdf

Coordinación General de Universidades Tecnológicas y Politécnicas-CGUTyP. (2014). *Prontuario Estadístico, Modelo de Evaluación de la Calidad del Subsistema de Universidades Politécnicas, MECASUP 2014*. Retrieved from http://cgut.sep.gob.mx/PIDUP/Programa%20Institucional%20de%20Desarrollo%202013-2018%20Politecnicas%20Version%20para%20Imprimir.pdf

Corrales, V., de la Garza, J., Gutiérrez, E., & Arcos, J. L. (2012). *Reconocimiento de la calidad de las instituciones de educación superior*. México: Universidad Autónoma de Sinaloa.

Cruz, Y., & Cruz, A. (2008). LA EDUCACIÓN SUPERIOR EN MEXICO, TENDENCIA Y DESAFÍOS. *Avaliação Revista da Avaliação da Educação Superior*, *13*(2), 293-311. https://doi.org/10.1590/S1414-40772008000200004

Diario Oficial de la Federación. (2013). *ACUERDO número 710 por el que se emiten las Reglas de Operación del Programa de Fortalecimiento de la Calidad en Instituciones Educativas*. México. Retrieved from http://www.dof.gob.mx/nota_detalle.php?codigo=5328394&fecha=29/12/2013

Gaceta Parlamentaria, Cámara de Diputados LXI Legislatura. (2011). *Punto de acuerdo, por el que se exhorta al Ejecutivo Federal a implantar por la SEP medidas que permitan crear una unidad responsable de las Universidades Politécnicas del país, a cargo del Diputado Jorge Romero Romero, Grupo Parlamentario del*

PRI. México. Retrieved from http://gaceta.diputados.gob.mx/Black/Gaceta/Anteriores/61/2011/mar/20110317-VI/Proposicion-9.html

Hernández, R., Fernández, C., & Baptista, L. (2014). *Metodología de la investigación, sexta edición*. México: McGraw-Hill/Interamericana Ed.

Márquez, A. (2004). Calidad de la educación superior en México. Es posible un sistema eficaz, eficiente y equitativo? *Revista Mexicana de Investigación Educativa*, *9*(21), 477-500. Retrieved from http://www.redalyc.org/articulo.oa?id=14002109

Mendoza, M. (2017). Financiamiento de la educación superior en la primera mitad del gobierno de Enrique Peña Nieto: Fin del periodo de expansión? *Revista Perfiles Educativos*, *39*(156).

Secretaría de Educación Pública-SEP. (2014). *Programa de fortalecimiento de la calidad en Instituciones Educativas*. México. Retrieved from https://www.sep.gob.mx/work/models/sep1/Resource/5010/1/images/diagnostico_del_programa_s245.pdf

Subsecretaría de Educación Superior, Coordinación General de Universidades Tecnológicas y Politécnicas-SES. (2016). Programa de Fortalecimiento de la Calidad Educativa 2016-2017. In *Anexo 9C Convocatoria*. México. Retrieved from http://cgut.sep.gob.mx/2016/PFCE/CONVOCATORIA_PFCE2016.pdf

Valle, F., & Maliachi, E. (1973). Criterios para la Asignación de Recursos a las Instituciones Mexicanas de Educación Superior. *Revista de Educación Superior*, *2*(8), 6. Retrieved from http://publicaciones.anuies.mx/pdfs/revista/Revista8_S1A3ES.pdf

Vargas, F. (2004). 40 Preguntas sobre competencia laboral. In *Serie: Papeles de la oficina técnica* (p. 19). Retrieved from http://www.chilevalora.cl/wp-content/uploads/2016/08/40preguntassobre-competencia-laboral.pdf