Approach of Processes for the Distribution of Economic Resources in Public University of Ecuador

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Abstract

The objective of the study was to analyze the process approach in the context of university management, applied to the economic and financial process, as a contribution to the fulfillment of the criteria of the formula of distribution of resources for the Ecuadorian Higher Education Institutions, describing the criteria and parameters based on current regulations. The research that was developed is empirical, descriptive in scope, using as methods, historical logic, analysis, and synthesis of the documentary sources linked to the study object, induction - deduction and mapping for the graphical representation of the information collected. The results allow identifying that the Ecuadorian public universities as of 2013 have an instrument that weighs the quality of the distribution of resources.

Keywords: Quality; Processes; Efficiency; Excellence; Economic; Financial;

1. Introduction

Many countries concentrate their strengthening plans on education, recognizing in the academy one of the strategic sectors for economic and social development. The Institutions of Higher Education (IES) assume a fundamental role in the formation and development of human talent and the transfer of knowledge that accumulate throughout their preparation. The indicator that is used internationally to measure the effort made in the countries for the training of advanced human talent is the public expenditure on Higher Education (ES) as a percentage of the comparatively higher Gross Domestic Product (GDP).

The management of financial resources in public IES has been a topic analyzed by different authors. The importance of its analysis lies in the level of specificity that it contributes to the preparation and execution of its...
The Ecuadorian State took measures of great effect for university education; the IES were categorized and the work was oriented to the improvement of the quality through the Organic Law of Higher Education (LOES) of 2010, the creation of the Higher Education Council (CES) as the governing body, and the Evaluation Council, Accreditation and Quality Assurance of Higher Education (CEAACES), the latter being the entity responsible for the evaluation, accreditation, and assurance of quality. The Secretariat of Higher Education, Science, Technology, and Innovation (SENESCYT) was also created; and the National Plan for Good Living 2013-2017 (PNBV) was formulated, also proposing innovation, science, and technology, as foundations for the change of the productive matrix conceived as a different way of producing and consuming.

On April 2013, the CES approved the formula for distributing financial resources in favor of IES, as an instrument of economic policy, which links quality with the allocation of funds, since the proposed model aims for each IES to receive resources financial services depending on the following parameters: quality, excellence, administrative efficiency and academic efficiency measured through relevance.

Derived from the above, the following question arises: how the process approach benefits the increase of budgets through the application of the distribution formula of economic resources in Ecuadorian public IES. The object of study covers the process approach, its methodological and practical foundations applied in university management environments, as well as the deployment of its strategies to all areas, and especially those of economic-financial management. The aim is to integrate the concepts analyzed and the existing regulations, as a contribution to the quality management system of Ecuadorian IES in the current economic-financial field.

2. Research Methods

From a bibliographic analysis related to the development of the management in the universities in the linking processes, teaching makes an assessment of the utility of these processes at the educational level and for the future development of the higher education sector, for the methodological development parameters were analyzed where other elements that enriched the study were taken into account.

In order to assess the economic-financial management of the university, different proposals from different authors from other universities were analyzed, using integrated management tools that allowed the certification of higher education institutions to comply with these purposes and purposes. The models of knowledge used are the specific principles and tools to make the concept of quality in the process of supporting the economic-financial management in the strategic process of university organizational management and the sub-processes that disaggregate the objectives of the management university in the direction of finance. The budget lines of several years in the UTM were also analyzed and compared with the executed budgets.

3. Results and Analysis

The university management. Process Approach

The development of management in universities from its substantive functions of teaching, research and linkage with society, has been addressed by several authors, as expressed by Hernández, Medina & Nogueira, express that the process approach after many years of being applied, constitutes a tool of great utility because the success of the organizations be they of production of goods or services, lucrative or without For profit, it depends on the efficient and effective management of its processes, it extends these concepts, stating that the processes and their approaches represent the common thread that makes the organization a dynamic and complex system, that is why, by managing them in an integrated manner they have become a need, by providing managers with a systemic vision, which provides greater effectiveness in decision making in the short, medium and long term, the fulfillment of objectives, rationality in the use of resources (efficiency), as well as the satisfaction of the demands of society (effectiveness).
States that the term process implies the orientation of everyone's effort to the user and the term management assumes the search for improvement goals. The role of IES takes relevance in expressions such, affirming the role of public universities as a decisive factor in the economy and in the development of State functions, recognizing that they represent the means to grant citizens, the services, and resources they require, in higher education.

In the context of IES, several authors agree that the growing development of process management as a management approach is due to the fact that it is the basis of several organizational solutions, so it gains strength as a management control tool for compliance, of the needs of the universities, among them. The process approach comprises the set of interrelated resources and activities that transform elements of inputs into outputs elements, it is considered appropriate, both for the operational and strategic management of any organization, at the same time, everything related to the key success factors, shows cause-effect links between activities and places them in relation to global objectives.

The high level of commitment of IES requires that the administration and control of their public funds apply new approaches, concepts, techniques, procedures that guarantee their use with reasonable security according to the requirements of each country. Thus, the economic-financial management should be understood as a tool more at the service of the integrated management of the universities and, as such, should help the purposes and purposes of the same continue to be achieved in the future.

3.1 Economic-financial management
Define the economic-financial management "as the set of different interrelated actions and processes, which pursue the objective of assuring the organization (Ministry of Higher Education of Cuba), efficiently and effectively, the financial support and material necessary for its operation and development, rigorously controlling resources and using them rationally."

Following the predominant point of view and in personal consideration, the economic-financial management as a process subordinated to the key processes of any higher education institution; guarantee a tool of high utility for the managers of the organization, in this case, the university management seeks to comply with the legal regulations that characterize the environment, with a dynamic approach, adequately establishing their links and relationships. The result of economic-financial management in a university is not measured by obtaining a certain level of profitability, but by the efficiency, effectiveness and correct destination of public spending, constituting the main link in all processes.

As has been expressed, economic-financial management has been defined as a set of processes, such consideration requires the understanding, meaning, and characteristics of this term; and then the processes are activities that use resources, and that are managed in order to allow the input elements to be transformed into outputs as output elements. Concept anchored in the ISO 9000 Standard. To complement the process concept by placing it in the university environment, "expresses "The university can be understood in an essential way, as an integrated whole of processes, in which the relationships between the processes reveal the qualities of the university and its concretion in a certain context that makes it its own and unique. The properties and qualities in general, are given by the relationships between the processes that occur in the whole, the university. The same will happen for each process, in which the regularities between its components will determine the properties of each one."

This work exposes the process of support "resource management" (economic-financial management) of the strategic process "management of the organization" (university management), and the sub-processes that are disaggregated from the objectives of university management in the direction of finance of the University.

3.2 Instrument of economic policy
The statistics in Latin America, according to the International Institute of Unesco for Higher Education in Latin America and the Caribbean (IESALC) since the 1990s, show that public spending on ES has remained practically unchanged at around 1.0 % of GDP. (Central Bank of Ecuador - Council of Higher Education 2016). The indicator that is used internationally to measure the effort made by countries in the training of advanced human talent is public spending on higher education in relation to GDP expressed in percentage terms.

What usually happens is that high-income economies show a greater effort in the formation of advanced human talent, that is, they present a higher public spending on higher education as a percentage of GDP. Investment in higher education and the direct transfer of resources to universities and polytechnic schools has allowed a sustained increase in participation in higher education; since 2007, the Ecuadorian state has allocated $ 11,425 million dollars to the ES (National Council of Higher Education CONESUP and Ministry of Finance of Ecuador MFE 2001-2008).
The CES approved the new formula for the distribution of public resources and its implementing regulations, there is then an allocation model in which each IES receives economic resources depending on their quality, excellence, administrative efficiency, academic efficiency and relevance.

**Formula of distribution of economic resources in favor of IES in Ecuador**

Ecuador has articulated the policies based on the legal framework that since 2007 begins with the Constitution of the Republic of Ecuador (CRE), the LOES, its regulations and the regulations for the application of the formula for distribution of resources.

Articles 23 and 24 of the LOES indicate that the State guarantees the financing of IES. Quality, efficiency, fairness, justice and academic excellence are criteria for the distribution of resources. The formula for distributing resources guarantees compliance with the criteria of equity and justice, that is, the distribution does not depend on criteria other than quality, academic excellence, and efficiency. It is summarized, that process management is not a model nor a reference norm, but rather a body of knowledge with specific principles and tools that allow realizing the concept that quality is managed.

The criteria and parameters for the distribution of resources according to the applicable regulations are defined and valued, respectively, as follows: **Quality**: It is the constant and systematic search for excellence, relevance, optimal production, transmission of knowledge and development of thought through self-criticism, external criticism and permanent improvement.

For the distribution of resources, in addition to the quality levels of each public HEI that receive income and State allocations, the annual variation of the evaluation of this criterion will be considered. For the application of this criterion in the distribution formula, the quality index of higher education institutions determined by the Council for the Evaluation, Accreditation and Quality Assurance of Higher Education (CEAACES) will be used and sent to the CES; This criterion will be adjusted by the number of students of each higher education institution, this adjustment should consider the modality and level of training according to the regulation of academic regime; as well as the existence of economies of scale to ensure equity in distribution. For purposes of the distribution of resources, the quality parameter will be assigned a percentage comprised between 55% and 77% to which the institution has participation.

**Academic Excellence**: It is the superior performance achieved by the higher education institution through obtaining the highest grades in the evaluation carried out by CEAACES, which includes the evaluation parameter contemplated in literal d) of article 24 of the LOES.

For purposes of applying the formula of the distribution of resources, this parameter will be assigned a percentage comprised between 3% and 10% of the indicated value to which the institution has participation. It will be distributed exclusively among those institutions that have reached the highest category determined by CEAACES, provided that, in the case of universities and polytechnic schools, they have executed at least 6% of the resources of their budget in carrying out research within the framework of the development regime, according to article 36 of LOES. For the application of this parameter, the value obtained in the research component will be observed for each institution that is located in the highest category according to the evaluation carried out by CEAACES.

**Efficiency**: - It is the adequate use of the resources oriented to the fulfillment of the objectives of public policy, as well as to the improvement of the management. It is established considering the efficiency in budgetary execution, administrative efficiency, terminal efficiency and the optimal cost per career per student, determined by the SENESCYT, a cost that is weighted by the degree of linkage of the academic offer to national or regional development. It will be assigned a percentage of 20% and 40% of the value of the established resources on which the institution has participation.

For the application of this parameter, 10% will correspond to the efficiency in the budget execution applied in function of administrative efficiency. The remaining percentage will correspond to the other components of this parameter, observing the weighting factors of the linking of the academic offer to national or regional development. The weighting factors will be determined by the CES based on the information provided by SENESCYT. For the distribution of resources, the sum of the distribution parameters must be, in all cases, 100%. The new distribution formula is shown in figure 1.
The process approach in economic and financial management

Analyzing the process approach used in financial economic management in Ecuadorian public IES, linked to the efficient realization of the new economic policy instrument, allows us to identify the processes that IES develop or use. This process is considered integrated, as a rule in its basic functions, identifying within them, planning, organization, and control, which are linked together through the function of directing.

Planning determines what results are to be achieved; the IES specifies how the planned results will be achieved, and the controller checks whether the expected results have been achieved or not.5 points out that at present there are a set of barriers that limit the improvement of the strategic direction of the university in national and foreign contexts. Among these barriers are several, in the personal opinion of the author, the greatest impact is the lack of correspondence between the planning and available resources to achieve the objectives, which once studied the institutional culture allows an appropriate solution in correspondence with the limitations, reaching their social responsibility objectives in the realization of their substantive processes

Results of the institutional evaluation

The results presented in the evaluations for accreditation purposes of the years 2008, 2013 and 2015, allow in turn to find the common thread of the main processes of university management, to demonstrate such consideration has been taken as a reference an HEI of the province of Manabí. Manabí is a province of the Ecuadorian Coast, which hosts five universities, one is private and the other four are public, one of them is the Universidad Técnica de Manabí (UTM), created in 1954, with a strategic location in the city of Portoviejo, generates a representative influx of students every year, currently hosting a little more than 15,000 students, 1,200 teachers, 300 employees and 200 workers.

In 2012 the UTM was in category D, during 2013 CEAACES carried out the process of institutional evaluation for accreditation purposes, with the participation of 54 universities, whose evaluation criteria were: academia, academic efficiency, infrastructure, research, and organization; allowing to show that the Ecuadorian university system had a low behavior in the academy and research criteria, the UTM obtained a C grade [11]. The same author establishes that in the results of the evaluation the universities of category A, do not surpass the average in the criterion of investigations; the fact that the UTM reached 0 points in the research criterion and less than 50% of the points in the Academy criterion stands out.

Thus, the UTM established within its management processes, the path leading to the solution of the serious problems detected in the Ecuadorian universities, relating in the first place to the almost inexistence of research, publications and the few full-time professors in its cloisters with scientific degrees. For purposes of illustration of this work, only the process applied to fulfill one of the university management strategies is presented, which the doctoral training process is presented.11

In the observations and information gathering it is identified that the UTM does not carry out processes in the financial area, but rather disjointed activities; In this context and in order to comply with the established indicators for the realization of the formula for distributing resources, we proceed to identify the activities developed by its
financial management, to strengthen and contribute to university management, with new elements in the economic-financial sphere that leads to the fulfillment of the objectives.

The management of finance of the UTM is an administrative support unit that is subordinated to the Rectorate, its mission is: To direct, control and execute the accounting, financial and treasury processes according to the current regulations for universities in Ecuador, its main responsibilities they are based on budget planning and execution processes, accounting and tax registration, income of long-term assets and bank transfers. Compliance with the responsibilities of finance management is broken down into the activities of a departmental structure that is as follows: Budget Department, Accounting Department, Inventory Department and Treasury Department.

The process implies that the budget increases its execution in the ITEMS that allow obtaining scholarships and air tickets for professors who are part of doctoral programs in foreign universities, as well as the ITEMS for payment of training, advice, accommodation, and food for tutors and advisors in their academic visits to Ecuador, having the first participants in 2014. The finance department develops processes and subprocesses, aimed at increasing expenses in the following areas: Travel abroad, Granting of scholarships, Training expenses, Attention to foreign delegates.

The figures for the doctoral training process are analyzed and presented, from 2012 to 2015, considering that the formula for distributing resources is based on the behavior of the 2012 budget, but it has been applied since 2015. The synthesis of the differences caused by the use of the budget in the new activity, in figure 2, shows the budgets declared by scholarships and financial aid, noting that in 2015 a greater amount of budget was granted to this line

![Figure 2. Budgets declared by scholarships and financial aid](source: Own elaboration based on data from the UTM Finance Directorate)

Passages to the outside. ITEM 530302. - As indicated by the doctoral training process, it begins in 2014, see the increase of 116MIL dollars between the budgets of the year 2013 to 2014; and from 175MIL dollars from 2014 to 2015, from 2012 to 2015 resources increase by 294MIL, the execution percentages exceed on average 70%.

Granting of scholarships. ITEM 580208. - It shows the high institutional commitment, for the fulfillment of the criteria established in the LOES art. 36, the figures from 2012 to 2015 increase by 2'800 mil dollars, 4% of its total budget has been allocated to this activity in 2013, 5% of the total budget was allocated in 2014, and in 2015, 7% of its total budget was allocated. The execution reaches 100%.

In figure 3, the budgets in passage to the exterior ITEM 530302 and the comparison between the budgets executed in different years are shown.

Figure 3. Budgets in passage abroad.
Source: Own elaboration based on data from the UTM Finance Directorate.

Passages to the outside. ITEM 530302. - As indicated by the doctoral training process, it begins in 2014, see the increase of 116MIL dollars between the budgets of the year 2013 to 2014; and from 175MIL dollars from 2014 to 2015, from 2012 to 2015 resources increase by 294MIL, the execution percentages exceed on average 70%. Figure 4 shows the budgets allocated for training expenditures item 530603 and the comparison between the budget assigned and executed.

Figure 4. Budget for training expenses item 530603.
Source: Own elaboration based on data from the UTM Finance Directorate.

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Training expenses. ITEM 530603. - During the years 2012 and 2013, before the beginning of the doctoral training process, it was destined to pay for training of administrative and teaching staff, as of 2014 its exclusive destination is destined for foreign teachers who are part of the agreements between participating universities, which are forming Ph.D. abroad, so it can be shown that from 2012 to 2015 they increase 166 mil dollars, they receive...
advice and training of this nature since 2014, having an execution of 88% on average. In figure 5, the budget allocated for the attention to foreign delegates is shown.

![Budget Allocation Chart](chart.png)

**Figure 5. Budget allocated for assistance to foreign delegates**

Source: Own elaboration based on data from the UTM Finance Directorate

Attention to foreign delegates. ITEM 530307. - The process of doctoral training, involved in its first stage the exit of teachers from the UTM to the different foreign universities in 2014, as of 2015 has an increase of 357 mil dollars, since the second stage of the process included that the consultancies in Ecuador grow as new agreements are signed and the number of participants increases, obtaining an average execution of 95%.

In all cases, note the increase since 2014, where the university management strategy is articulated with the process undertaken in financial economic management with a process focus for the institution's Finance Department. The UTM, in the month of May of 2016 obtained the institutional recategorization, ascending to the category B, starting off with a qualification D in 2012; It is observed that the processes applied to all the institutional instances allow fulfilling the objectives, in lesser term (three years), since it is articulated as in this case the strategic process of university management, to the processes of financial management support.

In its long-term objectives, it plans to have at least 40% of its faculty with a Ph.D. scientific degree trained abroad, strengthening the evaluation indicators. The last result presented corresponds to the budget allocations obtained by the institution from the application of the strategy and the process approach in the economic-financial management shown in figure 6.
Figure 6. Budget allocations when applying the formula in the UTM.
Source: Own elaboration based on data from the UTM Finance Directorate
Note that the budget increase in 6'400MIL dollars, from 2014 to 2015, as a result of the first application of the formula for distribution of resources for IES in Ecuador.

The formula for the distribution of economic resources for public IES in Ecuador, as an instrument of economic policy, will guarantee compliance with the criteria of equity and justice. The increase in the budgets and the distribution of resources will depend on the management that the IES perform on the criteria of quality, academic excellence and efficiency; in this case the UTM figures show the increase in budget allocations (six million dollars) as a result of a new allocation of resources to activities related to Articles 23, 24 and 36 of the LOES.10

4. Conclusion
The formula of distribution of economic resources for public HEIs in Ecuador, as an instrument of economic policy, will guarantee compliance with the criteria of equity and justice. The process approach in economic and financial management has been articulated by knowledge and principles applied to the processes and subprocesses of finance management, thus enabling compliance with the strategic process of doctoral training of the UTM, designed to strengthen the evaluation criteria.

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References
## Biography of Authors

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<td>Faculty of Administrative and Economic Sciences, Associate Professor and Financial Director, Technical University of Manabí, Ecuador, Master in Accounting and Auditing, has participated in different scientific events related to their research topics. Currently doing her Ph.D. studies at the University of Havana, Cuba.</td>
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<td>Dra. Professor of the School of Accounting and Finance, University of Havana, Cuba. She has written books related to the magazine has published in different indexed journals, has participated in different events of national and international importance.</td>
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