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The Teaching of Public Finance and Budgeting as an Indicator of the Quality of Public Service Education in Mexico

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Are public policy programs in Mexico ensuring students receive the correct public finance and budgeting training to cut corruption, corporatism and other plaguing elements? Are these programs also teaching public financial management to ensure results and responsiveness for our future government officials? Are we creating more integrative and ethical public financial managers with the appropriate knowledge of public financial systems? In order to address these questions, this study compiled general and curricular information of 68 master's programs in public administration across the 32 states in Mexico, covering a total of 1,138 courses. To conduct the analysis, this article identifies five complementary lenses for evaluating and teaching public finance and budgeting. The authors argue that, although nearly all Masters in Public Policy and Public Administration programs in Mexico teach public finance, there is a wide variation in the lenses, tools and techniques used across these programs. Furthermore, the scope of this curricular component is not sufficient to face the challenges of the country and its regions, nor to address the diverse social needs, local contexts, and government institutions, and labor market for public employees.

Abstract:

Keywords: public administration, public financial management and budgeting, higher education, curriculum, comparative study.

Introduction

It seems that public financial management and budgeting are less often studied in Mexico than more politically salient topics such as corruption, transparency and accountability (Bliss and DeShazo 2009; Cejudo and Ríos 2009; Morales Canales, 2014). But how can we create more ethical financial managers without teaching basic skills for the trade? In general, there are five approaches to studying public finance and budgeting: 1) through an economist approach (understanding when government need to intervene into the economy); 2) through an administrative law and procedures lens (which evaluates legal procedures for example to access credit and finances); 3) public administration method (which analyzes different budget systems in order to make them more effective and efficient); 4) through a political science perspective (understood as an applied political economy by evaluating interest groups and how these participants benefit and lose access to institutions); and finally through a 5) finance technique (for example by studying the costs and benefits of how to design tax incidences). Based on these five approaches, how can we create more integrative and ethical public financial managers with the appropriate knowledge of public financial systems through these types of teaching lens?

The goal of this research is to better understand how public financial management and budgeting are studied in Mexico. The questions stimulating this particular study are: Which lenses are used to teach public financial management? What topics and methodological approaches are used? Will these approaches help create more ethical public administrators overall? The article is divided into four parts. First it presents a contextual background on the Mexican public administration. Second a framework is presented on how to evaluate public financial management to ensure the appropriate set of core competencies are taught. This section revises some pieces in the literature of what types of articles are published on these topics within Mexico and Latin America in order to frame our discussion. Next, the study analyzes the content and teaching methods of 68 schools of public policy and administration to test how public budgeting is typically taught in Mexico. Finally, the article offers measures to improve the quality of public sector education to improve the ethics of public budgeting and financial managers in the discussion and conclusion section.

Mexican Context

While schools of public policy are relatively new in Mexico, and more broadly in Latin America, traditions of studying public administration are not that new. The academy of Public Administration in Mexico has also struggled in defining its scientific identity as in any country and region in the world (Aguilar Villanueva, 2007; Sánchez González, 2001, 2009). Today, the fundamental debate of the discipline of public administration in Mexico is comparable to the challenges facing this discipline in other places. In particular, the variations that exist between public budgeting and finances, public finances and public financial management.

Sánchez González (2009) conducted a complete historical review of the discipline in Mexico by identifying five critical periods: (1) viceroyalty period, (2) independence period (1820-1857), (3) reform period (1858-1876), (4) Porfirist period (1877-1910), (5) post revolution period (1911-1939), contemporary period (1940-1979), and (6) modern period (1980-2007). The viceroyalty period describes the study of the administrative implications of the provisions, orders and instructions issued by the King of Spain to the vast group of representatives of the Spanish Crown in Mexico, such as: viceroys, judges, counts, marquesses, generals, among other members of the court in the colony. The independent periods accounts for study of the role of public administration as an agent of continuity in a period of conflict and administrative adjustments

between centralization and decentralization of the new nation. The reformist period extends the study of public administration as the body that is responsible of enacting the new constitution and laws into actions of government. The Porfirist period (1877-1910) covered the study of public administration as an administrative body in expansion of tasks and responsibilities, which was highly technocratic in design. The post revolution and contemporary periods focused on the study of public administration as a mediator in a context of continuous rebellions of remaining leaders and non-conformed generals. In the post-revolutionary period, for example, there was a need of a stronger state that preserved the new constitutional order which guaranteed rights based after the conflict of the Mexican revolution (1910-1920). Administrative studies at this time were focused on the diagnosis, evaluations and analysis of how to construct a government that created order of the state apparatus. The contemporary (1940-1979) and modern periods (1980-2007) embrace a diverse set of studies involving different disciplinary traditions and values. For example, political scientists study federalism and economists the role of the state in the economy.

Table 1 summarizes the historical perspective of the study of public administration along the stages of development of public finance and budgeting as a field of study. This historical tour implies different emphasis from primary arts and techniques like public notary, accounting, tax collection, military and policing to other formal mother-disciplines such as law, management, sociology, history, economics, among others. The origin of the discipline of public administration in Mexico follows similar debates as in other countries, but with different historical paths. Despite the historical origins in Mexico, one of the common characteristics in defining the fields identity with the component of public financial management and budgeting.

Since its origins, the study of public finance as part of public administration has been a critical component in theory, practice, research and teaching. Perhaps public finance has not been approached from the lenses, tools and techniques we have today, but always as a central share of the discipline of public administration.

Research Design and Methods

Although there is some debate about what should be taught in public budgeting and financial management curriculum globally (Moody and Marlow 2009; Purtell and Fossett 2010; Peddle and Thurmaier 2011), there is also some agreement in the literature that students must learn core competencies of fiscal policy such as tax policy, redistribution of resources, funding formulas, budgeting tools, and targeting vs. universal programs (Norman-Major 2011). Each of these actions will impact ethics, social equity and accountability in different ways. If we understand that individual actors (and not institutions) engage in immoral or corrupt acts, it is clear that schools of public policy and administration must teach the basic concepts of public financial management techniques to understand when their individual actions may affect greater public wellbeing. This inherently will help to create strong public institutions but also it will provide more institutional capacity which is often bemoaned by economics much lacking especially at the subnational level of developing economies. Outlined here are the five possible lenses for evaluating and teaching public finances: 1) economics; 2) administrative law; 3) political science; 4) public administration; and finally 5) finance. These five approaches will be used to understand how public financial management and budgeting are taught in Mexico.

1. Economics approach

In a broad interpretation, the term public finance (or public economics)¹ refers to the study of the role of the government in the economy (Gruber, 2016). Typically, the aim is to provide an understanding and a framework for thinking about four questions:

- Q1. When should the government intervene in the economy?
- Q2. How might the government intervene?
- Q3. What is the effect of those interventions on economic outcomes?
- Q4. Why do governments choose to intervene in the way that they do?

The study of public finance is about economic analysis, not about an institutional description of the public sector (Gruber 2016; Stiglitz and Rosengard 2016; Rosen and Gayer 2014; Hindriks and Myles 2013). Therefore, the topics covered in most courses in public economics are based on economic theory and its application, and less so on management and administration of public resources.

A typical course starts with the welfare economics analysis, describing the conditions under which competitive markets lead to socially desirable outcomes (Leach 2004). Particular emphasis is given to the assumptions on which this analysis is based since, from an economics perspective, the core of public finance is to analyze how the government should intervene if these assumptions are not satisfied (Hindriks and Myles 2013). Therefore, the core analysis is presented as to how governments should intervene to make the appropriate policy response. This is modern day public policy analysis in its approach.

2. *Administrative Law and Procedures*

The legal perspective using administrative law and procedures are more country specific and often presented as a normative study in its place of a positivists analysis of public finance and budgeting. For example, the latter more modern approach, tests how to prevent regulatory capture from special interest groups (Carpenter and Moss 2014; Decker 2014). Typical designs of courses in public policy which use an administrative law perspective see how the public sector operates (Stiglitz and Rosengard. 2016) and applies laws with regulation of the economy (Larrañaga 2009; Cooter and Ulen 2016). This differences seemingly small, in reality, creates a very narrow field using a more normative approach to analyzing problems.

For example, in Mexico, the administrative law perspective uses existing legislation on how inter-governmental relations and fiscal transfers work, for example, and evaluates how fiscal rules are created and managed at what levels of government, and how and why local governments can take out what types of public debt. Clearly those rules, in which are made to be broken, are not analyzed as types and ways in which they may not meet standards. Rather, the rule or the norm is made and it becomes a media fest to comprehend how and why the public service seems so utterly corrupt in practice.

3. *Political Science*

We understand the study of “political sciences lens” as an applied political economy whose roots back to the first text book by Alt and Chrystal (1983) which uses an inter-disciplinary positivists approach to study how politics interferes with good sound reason of economics. In most graduate study curriculum, the field blends three different theoretical approaches: the theory of macroeconomic policy; public choice and rational choice (Person and Tabellini 2000). The field began by comparing international macroeconomic indicators such as growth, tax rates, subsidies

¹ The field of economics commonly uses the terms Public Finance and Public Economics as synonyms (see, for instance, Rosen, 2004, and Hewett, 1987).

and the optimal size of government. Policy rules create contrasting systems and therefore in order to understand the outcomes, rational expectations of how private enterprise would intervene with government decision makings was of particular importance in early studies. Game theory approaches, time constrains and inter-temporal assumptions were the focus of later studies, often taking superficial understanding of political institutions and political conflict.

Further additions to economic policy making of the time was the theory of public choice originated by Buchanan and Tullock (1962) and Olson (1965) which focused on public finance, trade policy and regulatory policy. Finding a resolve to the agency problem of government and its citizens, public choice groups preferences and emphasizes competition for public services by consumers. This enables analysts to understand interest groups, lobbying and the pervasiveness of rent seeking activities. Less frequent in these studies were formal models of game-theoretical approaches, which created some conflict in the field to the stronger theoretical and microeconomic foundational approaches methods.

Finally, a third approach, rational choice was driven by formal analysis in political science. Fathered by such work as Riker (1962) who based voting and school choice on Arrow's (1951) impossibility theory which allowed many research to disavow group preferences for those of individual decisions. Thus allowing a frame to better understand alternative political systems, changed how politician were elected, how agenda setting and powers occurred and the legislative process structured would create varying outcomes. This in addition to North's (1991) understanding of institutions as elements for how governing happens creates our basic understanding of how political economy works.

4. *Public Administration*

Public administration, and its subfield of public management, has had a long trajectory of tensions between the reformist movements in government and scientific management of administration studies. There is no difference in the practice of understanding and studying public budgeting. The latter focuses on the specifics of how to run a budget from a technical perspective, but this goes hand in and hand with the various reforms created and with whom the budget is managed and under whose authority. This creates the transparency and accountability as such needed in the Mexican context.

Reformist movements in the United States, for example, focused from studies of the municipal management (Addams 1905) to the Brownlow committed creating authority of the office of the projected to manage the budget, to Willoughby (1939) evaluating how the budget would be analyzed and approved with the legislative branches agreement. Starting from the Hoover commission (1947-1949) analysis at the federal level further evolved the powers of the budget into the author of the president by the creation of what today is considered the Office of Management Budget, which was created in 1970.

Furthermore, analysis of the budget from the 1960s and beyond focused on the planning, programming budget system (PPBS) evaluating the V.O. Key's (1940) classic question of which bases should it be cited to allocation X dollars to activity A instead of B. This led to Wildavsky's (1964) work who used Lindloobm's theory of incrementalism to define types of budget and how they were parallels to policy decisions. Thus the field of policy analysis was born more formally with Dror (1967) stating the field is unique to analyze such techniques and responsibilities. Public management was born as a sub field to the study particularisms of scientific management through positivists analysis of contracting out, privatization, decentralization, and the like.

Based on public management authors (Williams and Wooldridge 2002; Bahl 1996; Mikesell 2007; Raphaelson 1996; and Schultz and Harris 1965), the field of public financial management and budgeting is an applied analysis of how to, plan, executive and manage public funds. In the United States, the Government Finance Officers Association (GFOA) define public budgeting and financial management as being the process of designing, implementing and evaluating those policies and practices that deal with the raising, storage, and use of public money. The GFOA listed the elements of public budgeting and financial management as: budgeting, accounting, treasury and cash management, fiscal policy, intergovernmental fiscal relationship, and pension fund management (Purtell, and Fossett 2010).

Studies of how the contemporary administrative state was created and reformed exist in Mexico from Villanueva (1990) who translated traditional public administration work into Spanish to colonial analysis of Mexico. Merino further translated Shafritz and Hyde (2011) classic work for the various schools of public administration in Mexico and Latin American audiences. These and other efforts account for the large contribution of public administration texts which describe the role, tasks and activities of modern public administrators, in particular to manage public resources. Yet applied analysis of how to run the budget are generally excluded from the common curriculum of public policy courses in Mexico.

5. *Finance*

More advanced public policy schools in the United States adopt and teach these basic concepts of public financial management and budgeting including the notions, such as: budgeting, accounting, auditing, treasury and cash management are fundamental in order to ensure that students understand how public monies should be used and allocated to ensure the best results for a community.

The budgeting process, for example, is the results in financial guidelines for public administrators to follow in delivering local public services. It is the plan for financing government. In its simplest form, a budget consists of a comprehensive listing of anticipated revenue and proposed expenditures for each function of government for a future 12-month period or fiscal year. Ideally, the budget process represents a comprehensive and coherent allocation of limited resources among potential users. As such, it represents the heart of financial management. Accounting is the process of keeping financial records in order to provide information needed for management, accountability, and the status of financial condition. It is important to public officials for three significant reasons. Auditing is an appraisal of financial activity. It examines the adequacy of internal control, verifies and safeguards assets, checks on the reliability of the accounting and reporting system, ascertains compliance with established policies and procedures, and appraises the performance of activities and work programs. Audits may be performed internally on an ongoing basis to keep a check on process and performance. It may also be performed by independent public accountant, to give an outside opinion about the operations and condition of unit (Newcomer 1994, Davis 1990). Treasury and cash management involve the handling and control of cash and securities. It usually included: tax administration; receipt, deposit, and disbursement of cash; supervision of depositories; cash flow projection; short- and long-term investment of idle funds; and short-term borrowing to bridge gaps in the cash flow cycle.

Yet, instead of a budgeting approach outlined above, most public finance courses in graduate programs in Mexico cover economic theory such as the optimal taxation theory. The standard theories in economics provide some insights about the reasons why the implementation of a tax system can create distortions in an economy, leading to welfare losses in aggregate

(Auerbach 1985). This tax system can include consumption taxes, incomes taxes, corporate taxes, etc. However, all governments worldwide, in all different levels, need to collect resources to finance their programs and policies. In this context, the aim of the optimal taxation theory is to provide an analytical framework to study the different mechanisms that a government can implement to collect resources through taxes, minimizing the distortions created in the economy. Recent studies on optimal taxation have focused on economic development (Besley and Persson 2013), labor income taxation (Piketty and Saez 2013), and international tax competition (Keen and Konrad 2014).

In summary, for the graduate programs in Mexico, most (if not all) public finance courses consider these four topics: welfare economics; public goods; externalities; and optimal taxation theory (Gruber 2016; Stiglitz and Rosengard 2016; Rosen and Gayer 2014; Hindriks and Myles 2013; Leach 2004). There are other important topics that are usually consider in public finance courses, to a lower extent though. Among these topics, we can regularly find: inequality and redistribution; social insurance and social security; social choice theory; mechanism design and contract theory.

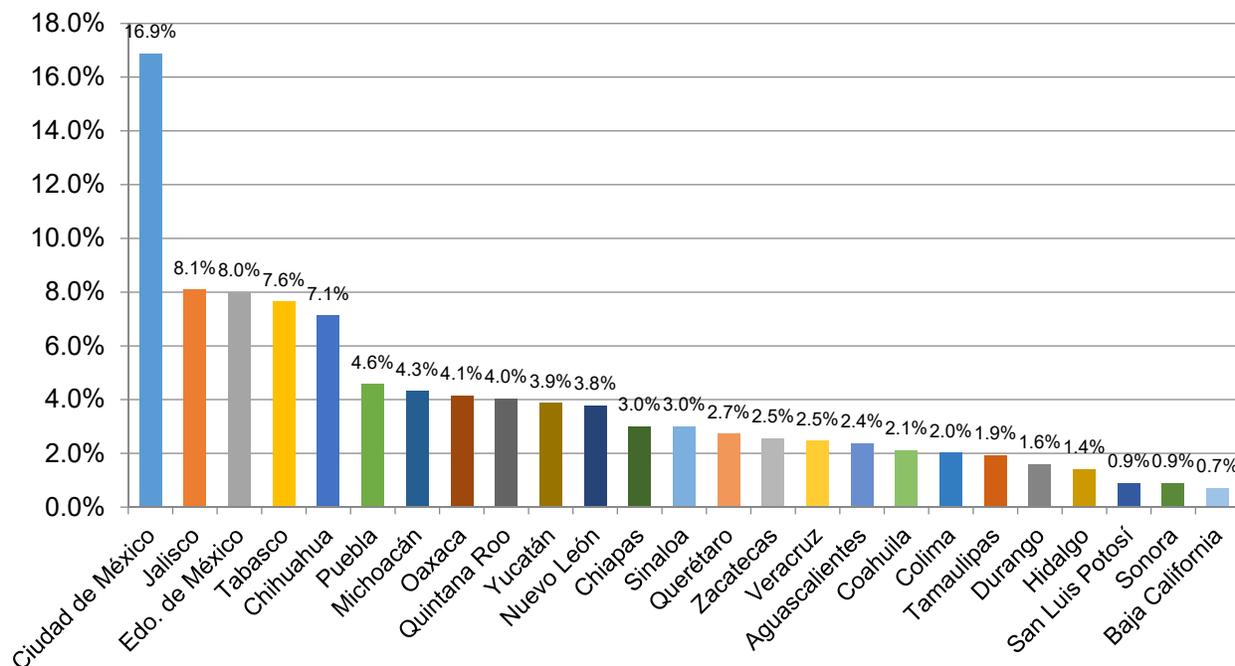
As in the five main lenses listed above: 1) economics; 2) administrative law; 3) political science; 4) public administration; and finally 5) finance, the analysis is primarily based on economic theory, law and political actors and its application. As a result, the field of public financial management and budgeting today combines, not only this micro economic tradition, taking general equilibrium approach to economic and its micro foundations, but the field aggregates political behavior and combined decision making into how well specified political institutions work but then applies it to the public budget. Therefore, it is assumed that most Masters in Public Policy or Administrative Science degrees in Mexico devolve classical theories of economics and public finances rendering few if any classes using the more applied field of public financial management approach in the understanding of public finance and budgeting systems as a whole.

Analysis of Public Finance and Budgeting Programs in Mexico

The present study compiled general and curricular information of 68 master's programs in public administration from their respective official websites across the 32 states in Mexico. The information on subjects collected reached the total amount of 1,138 course titles which were coded using a set of keywords arranged into five competencies groups (see Table 1): (1) economics, (2) law, (3) political science, (4) public administration, and (5) finance. General characteristics of the curriculum, and courses and practices were captured. However, detailed information at the level of faculty, infrastructure, or detailed concepts, contents and pedagogies at the level of course work and syllabus were not collected.

Mexico is a country with a complex geographic distribution across different regions (see Figure 1). However, the distribution of programs of public administration across states is characterized for a high concentration in principal metropolitan and urban areas around the country. The Center region offers more than a third of the total programs of public administration in the country. The Center region includes the Ciudad de México (16.9%) and the largest urban areas surrounding the Ciudad de Mexico but belonging to the state Estado de Mexico (8.0%). The North region offers a total of 23.9% and the Pacific region embraces 21.5% of all programs in the country. Therefore, the Center, North and Pacific regions offer most of programs of public administration in the country, while the South and Gulf regions are the less representative in the sample.

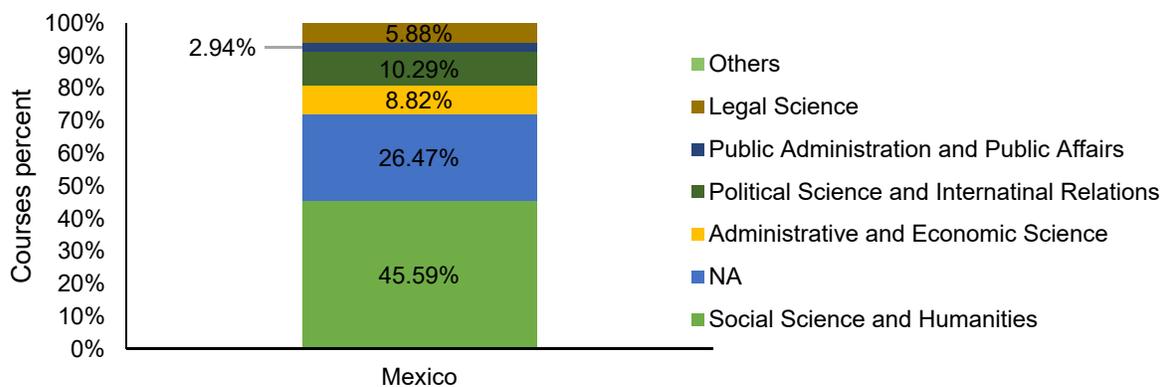
Figure 1. Distribution of programs by state.



Source: Authors' own elaboration.

The distribution of programs according to the hosting department suggests that only a quarter of all programs of public administration are located in its own department of public administration and public affairs (26.5%) (see Figure 2). Almost a half of programs are hosted in the departments of social sciences and humanities (45.6%), the rest of programs are distributed among the departments of law, business, economics, political science or international relations. This is an indication that the programs have heterodox disciplinary roots.

Figure 2. Distribution of programs by hosting department



Source: Authors' own elaborations.

Mandatory courses are more common than optative courses across most programs in Mexico (see Table 3). On average, 85.9% of all courses are mandatory while 14.1% are optional elective type classes. Most mandatory courses are offered in the first year (85.5%) while, 77.5% are offered in the second year, and 80.0% are mandatory in the case they have a third year. Optative courses present low offering during the first year (10.5%), but it increases its offering to double during the second and third years of the program up to 22.5% and 20.0% respectively. In terms of our five groups of competencies, all programs offer courses related with public administration,

95.6% with economics, 83.8% with finance; 50.0% with political science; and 44.1% with law (see table 4).

There is an important variation across and within these groups of competencies across states. The distribution of courses across groups of competencies reveals interesting patterns geographically (see Table 5). In general, all programs across states covered the core competency of public administration. On average, 63.3% of all courses are related with the group of competencies of public administration. The rest of courses are distributed across economics (19.1%), political science (17.1%), law (5.8%), and our group of competencies of related to finance (13.0%). This is an expected outcome since the programs are dedicated to the field of public administration. However, within groups of competencies there is an important variation across states. For example, the programs in the states of San Luis Potosí and Sonora offer 90.0% of all courses in the set of competencies of public administration, while the states of Colima, Chihuahua and Zacatecas offer 26.7%, 41.4% and 42.1% of all courses in this group of competencies, correspondingly. Some states emphasize certain group competencies over others. For example, Colima and Chihuahua stress the competencies of political science more than the rest of competencies (53.3% and 28.6% for political science, respectively), while Chihuahua and Querétaro value the law competencies (17.1% and 14.8% for law, respectively) and Zacatecas and Oaxaca focus on the group of competencies in economics (57.9% and 40.0%, respectively). Each program values the concentration of these groups of competencies differently according to its own design, faculty members and available resources. Also, the demand side of the region matters in the patterns of these offerings across programs and states.

In the case of the set of competencies related to public finances, we found that the top ten states with the highest levels of offering dedicated to this area of knowledge are Chiapas (25.6%), Coahuila (25.0%), Baja California (25.0%), Zacatecas (21.1%), San Luis Potosí (20.0%), Sonora (20.0%), Tabasco (18.3%), Aguascalientes (16.7%), Veracruz (16.0%) and Querétaro (14.8%). The lowest levels of offering of finance competencies are in the states of Sinaloa (3.8%), Oaxaca (5.0%), Chihuahua (5.7%), Hidalgo (6.7%), Colima (6.7%), Durango (6.7%), Yucatán (6.8%), Michoacán (8.1%), Quintana Roo (9.1%) and Puebla (9.9%). In sum, the variation across programs is that some include only one course dedicated to finance while others 2 or more courses related with this set of knowledge, techniques and tools.

The distribution of courses dedicated to the set of competencies in finance are mainly offered on average as mandatory courses during the first and second years of the programs (91.2% in the first year and 95.2% in the second year) (see Table 6). Subsequently, the offering increases if the program presents a third year. This is an indication that finance competencies are mainly considered as core knowledge during the program.

However, public finance and budgeting is not a monolithic set of competencies, but a collection of different knowledge and abilities, such as: financial management, public finance, budgeting, resources management, accounting, and auditing, among others. Some of these courses involve one or more of these sub-competencies within one course. Other courses are more specialized and are completely dedicated to one sub-competency. Table 7 describes the distribution of 123 courses across these sub-competencies within the group of sub-competencies dedicated to finance. The sub-competencies of financial management (35 courses), resources management (34 courses), and public finance (32 courses) are the most common across programs. The courses dedicated to auditing (10 courses), budgeting (7 courses), and accounting in the public sector (5 courses) are the less covered across programs in public administration in México.

Discussion and Conclusions

Sanabria-Pulido, P., Rubaii, N. & Purón, G. (2016) reviewed the state of the art of public affairs education in Latin America and compare it with the evolution and current character of MPA/MPP education in the U.S. The results suggest some similarities, but also notable differences that correspond to the need of meeting diverse set of societal needs, local contexts, and student/employer demands. This study corroborates the findings from Sanabria-Pulido, Rubaii & Purón (2016). Indeed, there is a variation across states about the set of competencies of public finance and budgeting. However, a common characteristic of public administration higher education is that the component of economics and finance represent an important piece and less so are the teaching of budgeting practices.

In addition, we found that the level of how this set of competencies, knowledge and tools in this area vary across programs, serving as an indicator of the identity of the program within the field: public policy, public administration or public affairs. This identity crisis in higher education in Mexico might arise from the identity crisis declared by some scholars like Ostrom, Waldo, Caiden, Mosher, among others (Sánchez González, 2001, 2009; Aguilar Villanueva, 2007); or from simply the diverse social needs, local contexts, and government institutions, and labor market for public employees. In the U.S., this debate has been taken place through different studies (Please revise De Soto et al. 1999; Elmore, 1986; Hur & Hackbart, 2015; Lowery and Whitaker, 1994; and Stokes, 1986).

In sum, the core competencies related to the public financial management and budgeting as part of higher education of public administration in Mexico is important but taught under a larger rubric economics (95.6%) and finance (83.8%) as part of their curriculum. However, the distribution of programs with emphasis on public finance and budgeting across states varies, but is less stress. For example, Zacatecas and Oaxaca focus on the group of competencies in economics (57.9% and 40.0%, respectively). In the case of the set of competencies related to finance, we found that the top ten states with the highest levels of offering dedicated to this area of knowledge are Chiapas (25.6%), Coahuila (25.0%), Baja California (25.0%), Zacatecas (21.1%), San Luis Potosí (20.0%), Sonora (20.0%), Tabasco (18.3%), Aguascalientes (16.7%), Veracruz (16.0%) and Querétaro (14.8%). In sum, the variation across programs is that some include only one course dedicated to finance while others two or more courses related with this set of knowledge, techniques and tools. We also found that the distribution of these courses dedicated to the set of competencies in finance are mainly offered on average as mandatory courses during the first and second years of the programs (91.2% in the first year and 95.2% in the second year). Subsequently, the offering increases if the program presents a third year. This is an indication that finance competencies are mainly considered as core knowledge during the program.

Finally, public finance is not a monolithic set of competencies, but a collection of different knowledge and abilities, such as: financial management, public finance, budgeting, resources management, accounting, and auditing, among others. Some of these courses involve one or more of these sub-competencies within one course. Other courses are more specialized and are completely dedicated to one sub-competency. The sub-competencies of financial management (35 courses), resources management (34 courses), and public finance (32 courses) are the most common across programs. The courses dedicated to auditing (10 courses), budgeting (7 courses), and accounting in the public sector (5 courses) are the less covered across programs in public administration in México. In sum, the component of public finance and budgeting across programs of public administration is important, but we claim that it might be not sufficient based on the challenges of the country and its regions.

When talking about public finance and budgeting, we also refer to the management of financial resources and the fiscal instruments that allow the State to cover a series of collective needs. In a very general way, the government estimates the resources necessary to implement the desired public policies (public expenditure) and determines the best way to obtain them (public revenue). The complexity is that, on the one hand, the set of policies that can be implemented is limited. Hence the importance of implementing those policies that are most beneficial and necessary for society. On the other hand, determining the best way to obtain resources to finance spending is not without its difficulties. It is not only a question of deciding between present (tax) and future (debt) collections, but rather of carefully analyzing the effects of each of these different sources of income on individuals and companies.

One way to resolve these types of challenges is to ensure that public policy programs are able to incorporate and ensure students receive the correct lens of public finance and budgeting to deal with public resources, in order to cut corruption, corporatism and other plaguing elements that still remain in the context of Latin America political history. While context does matter (Rubaii and Pliscoff 2013) so too do the types and ways in which we teach public financial management and budgeting in our schools in order to ensure results and responsiveness for our government officials.

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Optional Annexes

Table 1. Historical perspective of the study of public finance and budget.

| Period | Study of Public Finance and Budget |
|-----------------|---|
| Viceroyalty | The role of public administration as notary of the Crown, manuals or instructions of the activities of customs, tax collection, application of tariffs, financing public works, and reporting the state of the crown's assets |
| Independence | Managing public finances through manuals, guidelines, lessons, notes and codes, principles and advices for administrating the organization of public finance, ethical considerations, and discussion of the role of public employees in managing public resources. |
| Reform | First conceptions of public service and public career, fiscal law and regulations, treaties of public administration and accounting, administrative law, more manuals and guidelines. |
| Porfirist | More detailed manuals, lessons, guidelines, and other materials for teaching and training in public administration. In particular, manuals for economic management and fiscal accounting. Administrative law continued to advance in techniques and knowledge. |
| Post-revolution | Emerging topics such as ethical administration, auditing, organization or re-organization, and more manuals, lessons and guidelines. The first school of public administration (<i>Escuela Superior de Administración Pública</i> , 1922). |
| Contemporary | The role of public executives, the first studies of public administration as a discipline, the function of administration, public administration and development, administrative reforms, managing human resources, budgeting techniques, first diagnosis and evaluations of public policies. The first public institution dedicated to teaching and research in public administration (<i>Instituto de Administración Pública</i> , now <i>Instituto Nacional de Administración Pública-INAP</i> , 1952). |
| Modern | New public management, governance, public service, public policy, public finance, budgeting for results, financial management, accounting, transparency, accountability, open government, the role of technology in public finance, budget and accounting. |

Source: Own elaboration based on Sánchez González (2009).

Table 2. Distribution of programs, courses and competencies across states in Mexico

| <i>Presence of competences by state.</i> | | | | |
|--|-----------------|------------------|--|---------------------|
| State | Programs number | Total of courses | Courses with competences of interest (%) | Encoded competences |
| Aguascalientes | 2 | 27 | 22 (81.5) | 24 |
| Baja California | 1 | 8 | 7 (87.5) | 8 |

| | | | | |
|------------------|----|------|------------|-----|
| Chiapas | 2 | 34 | 30 (88.2) | 39 |
| Chihuahua | 4 | 81 | 55 (67.9) | 70 |
| Ciudad de México | 13 | 192 | 129 (67.2) | 146 |
| Coahuila | 3 | 24 | 21 (87.5) | 24 |
| Colima | 1 | 23 | 14 (60.9) | 15 |
| Durango | 1 | 18 | 12 (66.7) | 15 |
| Hidalgo | 1 | 16 | 12 (75.0) | 15 |
| Jalisco | 4 | 92 | 67 (73.6) | 79 |
| Edo. de México | 4 | 91 | 51 (56.0) | 59 |
| Michoacán | 2 | 49 | 32 (67.3) | 37 |
| Nuevo León | 3 | 43 | 34 (79.1) | 39 |
| Oaxaca | 2 | 47 | 19 (40.4) | 20 |
| Puebla | 3 | 52 | 44 (84.6) | 53 |
| Querétaro | 2 | 31 | 26 (83.9) | 28 |
| Quintana Roo | 3 | 46 | 36 (78.3) | 38 |
| San Luis Potosí | 1 | 10 | 9 (90.0) | 10 |
| Sinaloa | 2 | 34 | 23 (67.6) | 26 |
| Sonora | 1 | 10 | 9 (90.0) | 10 |
| Tabasco | 5 | 87 | 69 (79.3) | 82 |
| Tamaulipas | 2 | 22 | 18 (81.8) | 21 |
| Veracruz | 2 | 28 | 22 (78.6) | 25 |
| Yucatán | 3 | 44 | 38 (86.4) | 44 |
| Zacatecas | 1 | 29 | 18 (62.1) | 19 |
| Total | 68 | 1138 | 816 (71.7) | 946 |

Note *: Percentage of courses regarding the total courses of each state. There are competences that were classified on more than one occasion.

Source: Authors' own elaboration.

Table 3. Distribution and sequence of mandatory and optative courses

| Sequence in years | Mandatory courses number (%) | Optative courses number (%) | Total number (%) |
|-------------------|------------------------------|-----------------------------|------------------|
| N.A.* | 281 (88.9) | 35 (11.1) | 316 (100) |
| First year | 418 (85.5) | 49 (10.5) | 467 (100) |
| Second year | 186 (77.5) | 54 (22.5) | 240 (100) |
| Third year | 92 (80.0) | 23 (20.0) | 115 (100) |
| Total | 977 (85.9) | 161 (14.1) | 1,138 (100) |

*N.A.: Not Available

Source: Authors' own elaboration

Table 4. Distribution of courses by competencies

| Competence | Masters number (%)* |
|-----------------------|---------------------|
| Public Administration | 68 (100) |

| | |
|-------------------|-----------|
| Economics | 65 (95.6) |
| Finance | 57 (83.8) |
| Political Science | 34 (50.0) |
| Law | 30 (44.1) |

Note *: Total number of master programs: 68.

Source: Authors' own elaboration.

Table 5. Distribution of courses across groups of competencies by state.

| State | Finance # (%) | Economics # (%) | Law # (%) | Political science # (%) | Public Administration # (%) | Total # (%) |
|---------------------|------------------|--------------------|--------------|-------------------------------|-----------------------------------|----------------|
| Aguascalientes | 4 (16.7) | 5 (20.8) | 1 (4.2) | 2 (8.3) | 16 (66.7) | 24 (100) |
| Baja California | 2 (25.0) | 1 (12.5) | 0 (0) | 0 (0) | 7 (87.5) | 8 (100) |
| Chiapas | 10 (25.6) | 9 (23.1) | 2 (5.1) | 2 (5.1) | 26 (66.7) | 39 (100) |
| Chihuahua | 4 (5.7) | 9 (12.9) | 12 (17.1) | 20 (28.6) | 29 (41.4) | 70 (100) |
| Ciudad de México | 21 (14.4) | 31 (21.2) | 5 (3.4) | 14 (9.6) | 96 (65.8) | 146 (100) |
| Coahuila | 6 (25.0) | 3 (12.5) | 0 (0) | 0 (0) | 21 (87.5) | 24 (100) |
| Colima | 1 (6.7) | 2 (13.3) | 1 (6.7) | 8 (53.3) | 4 (26.7) | 15 (100) |
| Durango | 1 (6.7) | 3 (20.0) | 2 (13.3) | 2 (13.3) | 8 (53.3) | 15 (100) |
| Hidalgo | 1 (6.7) | 2 (13.3) | 1 (6.7) | 1 (6.7) | 11 (73.3) | 15 (100) |
| Jalisco | 11 (13.9) | 14 (17.7) | 3 (3.8) | 11 (13.9) | 51 (64.6) | 79 (100) |
| Edo. de México | 7 (11.9) | 9 (15.3) | 4 (6.8) | 6 (10.2) | 40 (67.8) | 59 (100) |
| Michoacán | 3 (8.1) | 12 (32.4) | 2 (5.4) | 6 (16.2) | 17 (45.9) | 37 (100) |
| Nuevo León | 4 (10.3) | 8 (20.5) | 0 (0) | 2 (5.1) | 29 (74.4) | 39 (100) |
| Oaxaca | 1 (5.0) | 8 (40.0) | 0 (0) | 2 (10.0) | 10 (50.0) | 20 (100) |
| Puebla | 8 (9.9) | 16 (19.8) | 4 (4.9) | 6 (7.4) | 55 (67.9) | 81 (100) |
| Querétaro | 4 (14.8) | 4 (14.8) | 4 (14.8) | 2 (7.4) | 17 (63.0) | 27 (100) |
| Quintana Roo | 1 (9.1) | 1 (9.1) | 0 (0) | 1 (9.1) | 9 (81.8) | 11 (100) |
| San Luis Potosí | 2 (20.0) | 1 (10.0) | 0 (0) | 0 (0) | 9 (90.0) | 10 (100) |
| Sinaloa | 1 (3.8) | 6 (23.1) | 1 (3.8) | 3 (11.5) | 16 (61.5) | 26 (100) |
| Sonora | 2 (20.0) | 1 (10.0) | 0 (0) | 0 (0) | 9 (90.0) | 10 (100) |
| Tabasco | 15 (18.3) | 12 (14.6) | 7 (8.5) | 11 (13.4) | 52 (63.4) | 82 (100) |
| Tamaulipas | 3 (14.3) | 2 (9.5) | 1 (4.8) | 3 (14.3) | 15 (71.4) | 21 (100) |
| Veracruz | 4 (16.0) | 3 (12.0) | 2 (8.0) | 2 (8.0) | 18 (72.0) | 25 (100) |
| Yucatán | 3 (6.8) | 8 (18.2) | 3 (6.8) | 7 (15.9) | 26 (59.1) | 44 (100) |
| Zacatecas | 4 (21.1) | 11 (57.9) | 0 (0) | 0 (0) | 8 (42.1) | 19 (100) |
| Total | 123 (13.0) | 181 (19.1) | 55 (5.8) | 111 (11.7) | 599 (63.3) | 946 (100) |

Source: Authors' own elaboration.

Table 6. Distribution and sequence of courses dedicated to Finance

| Sequence in years | Mandatory courses # (%) | Optative courses # (%) | Total of courses # (%) |
|-------------------|----------------------------|---------------------------|---------------------------|
| N.A.* | 59 (100.0) | 0 (0) | 59 (100.0) |
| First year | 31 (91.2) | 3 (8.8) | 34 (100.0) |
| Second year | 20 (95.2) | 1 (4.8) | 21 (100.0) |
| Third year | 7 (77.8) | 2 (22.2) | 9 (100.0) |
| Total | 117 (95.1) | 6 (4.9) | 123 (100) |

*N.A.: Not Available

Source: Authors' own elaboration

Table 7. Distribution of sub-competencies in the courses coded within the group of Finance.

| | Financial Management | Public Finance | Budgeting | Resources Management | Accounting | Auditing |
|----------------------|----------------------|----------------|-----------|----------------------|------------|----------|
| Financial Management | 34 | | | | | |
| Public Finance | 1 | 29 | | | | |
| Budgeting | - | 1 | 6 | | | |
| Resource Management | - | - | - | 34 | | |
| Accounting | - | 1 | 1 | - | 3 | |
| Auditing | - | 1 | - | - | 2 | 10 |

Source: Authors' own elaboration