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GONÇALVES PERES, JÚLIA; MAURY RAUPP, FABIANO
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SYSTEMATIZATION OF COSTS OF THE CONTINUOUS NATIONAL HOUSEHOLD SAMPLE SURVEY: THE CASE OF FLORIANÓPOLIS – BRAZIL

SISTEMATIZAÇÃO DOS CUSTOS DA PESQUISA NACIONAL POR AMOSTRA DE DOMICÍLIOS CONTÍNUA – IBGE: UM RECORTE EM FLORIANÓPOLIS

SISTEMATIZACIÓN DE LOS COSTOS DE LA INVESTIGACIÓN NACIONAL POR MUESTRA DE DOMICILIOS CONTINÚA – IBGE: UN RECORTE EN FLORIANÓPOLIS

JÚLIA GONÇALVES PERES

Master

Universidade do Estado de Santa Catarina – Brasil

ORCID: 0000-0002-2456-7613

juliagperes@hotmail.com

FABIANO MAURY RAUPP

Doctor

Universidade do Estado de Santa Catarina – Brasil

ORCID: 0000-0001-9533-2574

fabianoraupp@hotmail.com

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ABSTRACT

Objective: The study proposes the systematization of costs of the Continuous National Household Sample Survey conducted by the Brazilian Institute of Geography and Statistics (IBGE) in the region under the responsibility of its office in Florianópolis in the state of Santa Catarina.

Methodological Procedures: The Continuous National Household Sample Survey (PNADC) object of this study is one of the many research works developed by the Brazilian Institute of Geography and Statistics (IBGE). This descriptive and documental research is based on a case study and adopts a mixed qualitative and quantitative approach. Data was collected from systems of the Brazilian federal government and from reports, spreadsheets, organizational documents, and internal systems of the IBGE's office in Florianópolis, in Santa Catarina.

Results: The systematization of costs proposed in this research starts by identifying expenses and is followed by a classification of them as direct costs – readily allocated to the cost object – and indirect costs – for which it was necessary to use an allocation criterion. The criterion adopted was the workload of the IBGE's unit in Santa Catarina, estimated based on the number of questionnaires collected in the many research works the institute conducted in the state. After establishing the indirect costs distribution method, direct and indirect costs were allocated, and the cost of the 2017 PNADC in the region covered by the IBGE's office in Florianópolis was calculated. The study found that the cost per questionnaire applied during the PNADC in the region was BRL 261.89, an amount obtained by dividing the total cost of the PNADC in the region by the number of questionnaires applied in those municipalities. The cost per questionnaire offers a basis to project the total cost of the PNADC in each period, relating the sample size, how long it takes for collection, the technical staff involved, and the resources needed to carry out the survey.

Originality: The topic of costs in the public sector is still incipient, and issues to be discussed, reflected, and clarified have only gained relevance recently, even though the first publications date back to the 1960s. Statistic treatment of official data or data from household surveys is scarce in Brazil.

Keywords: Public costs, systematization of costs, household sample survey, PNADC.

RESUMO

Objetivo: O estudo teve por objetivo propor a sistematização dos custos da Pesquisa Nacional por Amostra de Domicílios Contínua desenvolvida pelo IBGE em Florianópolis, Santa Catarina.

Procedimentos Metodológicos: A PNADC compõe o portfólio de trabalhos desenvolvidos pelo Instituto Brasileiro de Geografia e Estatística, e caracteriza-se como objeto desse estudo. A pesquisa é do tipo descritiva, realizada por meio de um estudo de caso e documental, com abordagem qualitativa e a quantitativa. A coleta de dados ocorreu por meio da extração de informações em sistemas gerenciais internos e do Governo Federal, além de relatórios, planilhas e documentos organizacionais.

Resultados: A proposta de sistematização de custos consiste em algumas etapas que iniciam com a identificação de todos os gastos; na sequência, esses gastos são classificados entre custos diretos – prontamente atribuídos ao objeto de custo – e indiretos para os quais foi necessário estabelecer um critério de rateio. O critério utilizado foi a carga de trabalho do órgão em Santa Catarina, ou seja, quantos questionários foram colhidos em cada pesquisa realizada pelo Instituto. Após a definição do método de distribuição dos custos indiretos, atribui-se os custos diretos e indiretos e calculou-se o quanto a PNADC em Florianópolis custou em 2017. Por meio da divisão entre o custo total da PNADC pelo número de questionários coletados nos domicílios sob a alçada de Florianópolis, chegou-se ao valor de R\$ 261,89 por questionário respondido. O custo de cada questionário proporciona embasamento para projeção de custo total da pesquisa em cada período, relacionando o tamanho da amostra, o tempo para coleta, o corpo técnico e os recursos necessários para sua execução.

Originalidade: O assunto custos no setor público é recente e incipiente, apesar das primeiras publicações da década de 60, haja vista as questões que devem ser discutidas, refletidas e elucidadas. O tratamento no âmbito das pesquisas domiciliares, e mesmo das estatísticas oficiais, é escasso.

Palavras-chave: Custos públicos; sistematização dos custos; PNADC.

RESUMÉN

Objetivo: El estudio tuvo como objetivo proponer la sistematización de los costos de la Encuesta Nacional Continua por Muestra de Hogares desarrollada por el IBGE en Florianópolis, Santa Catarina.

Procedimientos Metodológicos: El PNADC es parte del portafolio de trabajos desarrollados por el Instituto Brasileño de Geografía y Estadística, y se caracteriza como objeto de este estudio. La investigación es descriptiva, realizada a través de un estudio de caso y documental, con un enfoque cualitativo y cuantitativo. La recolección de datos ocurrió a través de la extracción de información en los sistemas de gestión internos y del Gobierno Federal, además de informes, hojas de cálculo y documentos organizacionales.

Resultados: La propuesta de sistematización de costos consta de unos pocos pasos que comienzan con la identificación de todos los gastos; posteriormente, estos gastos se clasifican entre costos directos - fácilmente atribuibles al objeto de costo - y costos indirectos para los cuales fue necesario establecer un criterio de prorrateo. El criterio utilizado fue la carga de trabajo de la agencia en Santa Catarina, es decir, cuántos cuestionarios se recolectaron en cada encuesta realizada por el Instituto. Luego de definir el método de distribución de costos indirectos, se atribuyen los costos directos e indirectos y se calculó cuánto costó el PNADC en Florianópolis en 2017. Al dividir el costo total del PNADC por el número de cuestionarios recolectados en los hogares en el ámbito de Florianópolis, se respondió el monto de BRL 261.89 por cuestionario. El costo de cada cuestionario proporciona una base para la proyección del costo total de la investigación en cada período, relacionando el tamaño de la muestra, el tiempo de recolección, el personal técnico y los recursos necesarios para su ejecución.

Originalidad: El tema de los costos en el sector público es reciente e incipiente, a pesar de las primeras publicaciones de la década de 1960, dados los temas que hay que discutir, reflexionar y aclarar. El tratamiento en el contexto de las encuestas de hogares, e incluso las estadísticas oficiales, es escaso.

Palabras clave: Costos públicos; sistematización de los costes; PNADC.

INTRODUCTION

The calculation of public administration's costs is necessary and useful and has been a legal obligation in Brazil for a long time. Law 4320 of March 17, 1964, established that industrial public services should keep special accounting for calculating costs, revenues, and results, in addition to accounting and financial records. Decree-Law 200, of February 25, 1967, provides public administration cost accounting to disclose management results. Complementary Law 101, of May 4, 2000 – known as *Lei de Responsabilidade Fiscal* (LRF) (fiscal responsibility law) – established public finance standards to increase accountability in fiscal management. LRF article 50 states (our translation): “the public administration will maintain a cost system that allows the evaluation and monitoring of budgetary, financial, and asset management.” Law 10180, of February 6, 2001, organizes and establishes the norms of the *Sistema de Contabilidade Federal* (SCF) (federal accounting system) of the executive branch. It establishes that the National Treasury Secretary (STN) is the agency responsible for dealing with matters related to federal public administration costs. Therefore, STN released Ordinance 157 of March 9, 2011, providing for the creation of the federal government cost system, structured in the form of a federal public administration subsystem linked to the SCF. Its application was translated into the federal government's cost information system (*Sistema de Informação de Custos – SIC*), which extracts data from structuring systems such as SIAPE, SIAFI, and SIGPLAN, in order to produce information.

Even though there are determinations and guidelines for the implementation of a cost information system in the public sector, many agencies are researching how to allocate costs to the services provided. This is the case of the Brazilian Institute of Geography and Statistics (IBGE), which is working on updating the electronic systems and meeting legal requirements. Currently, the agency has a cost management officer, who is subordinated to the Budget and Financial Coordination, and counts on the collaboration of other employees forming a multidisciplinary team. This effort is in the phase of analysis and identification of cost objects to allocate expenses, i.e., to determine how the researchers' activities can be allocated to the agency's products.

The National Household Sample Survey (PNAD) was first conducted by IBGE in Brazil in 1967, implementing the household survey system, which presented results quarterly until 1970. From 1971, the survey became annual with collection in the last quarter of each year. Historically, in the 1970s, 1980s, 1991, 2000, and 2010, PNAD was not carried out due to the Demographic Censuses (IBGE, 2014a). With the implementation of the integrated household survey system (SIPD), IBGE started to produce the PNAD on a continuous basis in order to update and integrate international methodologies and concepts, such as those of the United Nations Statistics Commission (UNSC). As of October 2011, PNADC was experimentally implemented to identify problems and make the necessary adjustments. Only in 2012 the survey started to be conducted throughout the country, replacing PNAD and the Monthly Employment Survey (PME), the latter was discontinued in 2016 (IBGE, 2014b; Vaz & Barreira, 2016).

PNADC started to gain space and relevance in IBGE, requiring more personnel, materials, and financial resources, as well as manager's attention. It is possible to observe changes due to the recent new dynamics around the household survey, and studies and analyses are required. Based on these issues and on the need to fulfil legal requirements and align with the federal government cost management, PNADC emerges as an area of interest to start examining and allocating the costs of the IBGE's research works. In this context, it was identified that the lack of measurement of PNADC costs for IBGE in the state of Santa Catarina jeopardizes the agency's efforts to meet the legal requirement of implementing cost systems, and also hinders the agency's capacity to improve processes and management. Thus, this study proposes the systematization of the costs of the Continuous National Household Sample Survey carried out by IBGE in the region under the responsibility of its office in Florianópolis, Santa Catarina.

As for the practical aspects of this study, identifying the costs of one of the IBGE's research works will subsidize the evaluation of the agency's performance when managing resources and preparing and disclosing information on costs. An analysis of the PNADC activities of planning, operationalization, and dissemination as suggested in this study contributes to reviewing processes, identifying possible bottlenecks and obstacles, and improving the allocation of the agency's expenses, among other corrections. As for the PNADC's characteristics, it is important to realize that the transition from a periodic to a continuous survey (from 2012 onwards) has required more resources from IBGE, which placed PNADC in a prominent position among the other research works IBGE carries out. Finally, a study on cost analysis is aligned with the IBGE's need to establish a cost system required by the legislation that will soon come into force. Furthermore, cost analysis in the public sector is an instrument for improving public spending quality and is essential for governance and efficiency optimization (Bjørnenak, 2000; IFAC, 2000; Jesus & Eirado, 2012; Dimitrić, Kalamera-Alilović, & Duhovnik, 2016). The scope of this study is to work as a pilot research. The expectation is that, after reflecting on particularities and conducting essential adaptations, the study may be replicated to systematize costs of other research works carried out by the IBGE's unit in Santa Catarina.

In academic terms, the discussions and reflections on costs are still incipient, even though the first publications date back to the 1960s. Drehmer and Raupp (2016) warn about the need to fill the gap in studies on costs involving federal government agencies, particularly due to the mandatory implementation of cost systems in the Brazilian public sector. The authors emphasize the academia's role in this regard, to encourage the use of cost information among practitioners. In addition, a search on the Google Scholar database did not find studies addressing this research locus.

Implementing cost systems in the federal government depends on research from public agencies to understand the cost management concepts and methodologies applied to the public sector. After this first step, agencies can adequately use this knowledge to produce complete and reliable information. Such research works encourage and improve the debate on the topic and promote the continuity of studies or new and future investigations.

In addition, this topic seems to be scarcely addressed in household surveys or other official statistics. According to the International Federation of Accountants (IFAC) (2000), the need to overcome this gap in the literature and provide governmental perspectives is accentuated by pressure on governments to deal with reduced budgets and meet the demands for services that constantly need improving. Therefore, governments need to cut costs wisely while taking steps to improve services.

LEGAL AND THEORETICAL ASPECTS OF THE PUBLIC COST SYSTEM

The first legal record related to public administration costs in Brazil is Law 4320 of March 17, 1964, which establishes the standards to prepare and control budgets and balance sheets at all government levels. Article 85 (our translation) of the law states that "the accounting services will be organized to allow the monitoring of budget execution, the understanding of the equity composition, the determination of the costs of industrial services, the information about the general balance sheets, and the analysis and interpretation of economic and financial results." Article 99 states that industrial public services will use special accounting to verify costs, revenues, and results, regardless of assets and financial records. After the law enacted in 1964, the Decree-Law 200, of February 25, 1967, is another example of legislation related to costs. The decree deals with the organization and reform of the federal administration, resuming the topic based on a managerial perspective that considers that accounting must determine the costs of the service to demonstrate the results of public management.

Another important legislation affecting the subject is the section of the Brazilian Federal Complementary Law 101, of February 6, 2001 (our translation), known as the Fiscal Responsibility Law (LRF). The law refers to public finance standards for fiscal management, stating that the budget guidelines law (*Lei de Diretrizes Orçamentárias* – LDO) will establish the "[...] rules related to cost control and the evaluation of the results of programs financed with the budgeted

resources.” Article 50 of the same law refers to the legal aspects of the cost system, pointing out that [...] the public administration will maintain a cost system that allows the evaluation and monitoring of budgetary, financial, and asset management.”

The Federal Court of Accounts (TCU), through Judgment 1078, of July 1, 2004, determined that the Federal Budget Secretariat (SOF) should present a cost system that would allow the federal government to evaluate and monitor the financial and budgetary management (Ching, Silveira, & Freire, 2011). An interministerial costs commission (CIC) was established to comply with the TCU's decision, ruled by the Interministerial Ordinance 945, of October 26, 2005. The commission had the task of preparing studies and presenting guidelines, methods, and procedures to encourage implementing the costs system in the federal public administration. In the same direction, the law that organizes and establishes the norms for the federal accounting system of the executive branch (*Lei n. 10.180, de 6 de fevereiro de 2001*, our translation) states in Article 15 that the federal accounting system (SCF) aims to record the acts and facts that involve the budgetary, financial, and asset administration of the Union, in addition to highlighting “[...] the costs of programs and agencies of the federal public administration.”

Article 17 of the same Law 10180 indicates the National Treasury Secretariat (STN) as the central agency in the SCF. Therefore, through Ordinance 157, of March 9, 2011, STN created the federal government cost system, structured in a federal public administration subsystem, connected to SCF. This same ordinance mentions that the sector agencies, also members of the SCF, are internal management units responsible for the cost information system (SIC). Together with the STN, the Federal Data Processing Service (SERPRO) developed a data warehouse system fed with information generated by the government systems SIAFI, SIAPE, and SIGPLAN.

The Federal Accounting Council (CFC) edited, through CFC Resolution 1128, of November 21, 2008, the first Brazilian technical accounting standards applied to the public sector (NBC TSP). NBC T 16.2 establishes that the public accounting system comprises five accounting information subsystems and, among them, the cost subsystem. Thus, the implementation of these standards offers information to help managers in decision-making and transparency when using public resources (Santos & Almeida, 2012). CFC issued – CFC Resolution 1366, of November 25, 2011, NBC T 16.11 – the public sector cost information system, a standard that establishes the concept, object, purpose, and principles to measure and disclose costs, subsidizing the public sector cost information subsystem (SICSP). Thus, the SICSP became mandatory for all public entities. In addition, although several legal provisions determine costs calculation as a requirement for transparency and control, the standard emphasizes the managerial relevance of cost information.

According to Kappke and Souza (2013), the information from SICSP has great relevance for public administration. It allows for better use of public resources and fosters analyses about public policies and excess spending. The authors also point out that, at the time of publication in 2013, although the SICSP had been mandatory since January 1, 2012, for all agencies in the public sector, it was still considered in a phase of implementation due to being a novelty in the Brazilian context. As for the systematization of costs, Ferrer and Lima (2017) stress the importance of evaluating indicators to guarantee that such systematization does not become just a costly instrument to comply with legal requirements and satisfy inspection agencies. These indicators form the basis of a cost system that contributes to solving issues of implementing changes in the public sector. For IFAC (2000), in addition to its historical role, cost accounting has a series of functions that can be directed to the public sector, mainly managerial functions such as budgeting, cost control and reduction, the setting of fees, measurement of performance, program evaluations, and a variety of economic decisions.

Mauss and Souza (2008, p. 2, our translation) state that “even though the legislation establishes the obligation of using cost information in the public administration, this has not occurred.” For the authors, one of the reasons is the scarcity of literature focused on public costs. They mention that, although the legislation requires the implementation of a system that controls the costs and offers concrete information to assist decision-making, the same legislation does not determine how such a cost system should be implemented.

Among the various reasons for adopting procedures to measure costs, Rezende, Cunha, and Bevilacqua (2010) argue that the most relevant is to know the costs of the government's policies and programs. The access to information on how public spending is allocated results in improved resource use, less waste, and fewer costs without compromising essential services and programs. These outcomes are the fruit of transparency and the possibility of democratic accountability and control that allows society to intervene and pressure to avoid irresponsible decisions and outline priorities in using resources.

Alonso (1999) states that there is no way to measure the efficiency of public administration without such information since efficiency is the ratio between outcomes and the efforts to achieve them. According to Rezende, Cunha, and Cardoso (2010), cost information allows transparency and accountability (understood as the responsiveness of

public agents while fulfilling their duties) and focusing on results and improvements in public services provision. Thus, information about public costs is essential to focus on the quality of public spending. For Monteiro, Ribeiro, and Ferreira (2006), the relevance of government control over expenses based on cost accounting is evident for Public Administration. This control allows measuring and evaluating the quality of expenditures regarding inputs, labor, time dedicated to activities, and other indirect costs involved in public services. These elements are essential for management and determining the allocation and optimization of public resources.

The public sector is particularly different from the private sector since the state does not perform its functions to profit. Therefore, the conception of cost calculation takes other forms, characteristics, and objectives. In the business sector, the cost of organizations is examined from cost reduction following resource inflow. In the public sector, the focus is on social well-being, a subjective item when defining public services costs. The offer of healthcare, education, and security services are irrefutably the state's responsibility and must be carried out regardless of how and at what cost. The state collects compulsory taxes from the population to fund the public budget (Giacomoni, 2002), which must reconcile the growing resource scarcity to the need to implement public services. This balance represents a limitation to the public administration's actions.

Bjørnenak (2000) discusses the importance of cost analysis in the public sector and the need for sophisticated verification elements. The author highlights the estimation of cost causality, including the identification, classification, and estimation of factors that lead to changes in the total cost of a cost object. According to the study, strategic management accounting offers a broader set of explanatory variables than the traditional literature on cost estimation. The variables include product attributes, institutional factors, and government policy as cost drivers in the public sector. The approach suggested by Bjørnenak (2000) certainly leads to deeper reflections in the analysis of public costs.

The transition from a traditional to a modern system is also highlighted by Dimitrić, Kalamera-Alilović, and Duhovnik (2016). For the authors, the way the private sector conducts this transition process may be an inspiration, in some aspects, to the government, since private sector organizations are, presumably, more efficient than public ones. They emphasize that projects from private companies, including these projects' governance models, should be used as examples of good practices for public sector managers.

Leone (2008) brings attention to the understanding that cost accounting has no purpose in the public sector, considering that public services are mandatory. However, the author points out that cost techniques make it possible to perceive deficits in the provision of services, the need to replace more austere models, or even to encourage charging fees from users who can contribute. Thus, Leone (2008) outlines cost accounting as a tool for controlling expenses and operations in public activities. As the main government objective is to manage public resources in the performance of services to citizens instead of profitability, the adoption of a cost system allows measuring efficiency and management mechanisms employed in service provision. The managerial approach to public administration is exhausted by emphasizing formal controls and compliance with laws, triggering currents that support a model based on results management, aimed at improving government performance and the quality of public services (Reis, Ribeiro, & Slomski, 2005).

As it is a control tool, the cost system in public administration favors a management approach that improves the quality and quantity of government services. Monteiro, Ribeiro, and Ferreira (2006) explain that these actions promote social inclusion through the increase in services, public investments, and general access to essential services. Mauss and Souza (2008) indicate cost accounting, among other actions, to achieve public sector efficiency since it is possible to appreciate the allocation of resources for each action to support the decision-making process. However, public management is guided by rules and laws that link public agents' actions who are only allowed to decide and execute in line with the legislation.

The cost information must, therefore, have some characteristics to guarantee the data quality. Among them, Cardoso, Aquino, and Bitti (2011) list the relevance (usefulness for the users' decision); reliability (ability to reflect reality or to comply with regulations); understandability (different users' profile can understand the information); timeliness (promptly available in decision making moments); comparability (costs are comparable over time); granularity (capacity to produce reports at different levels of detail). The disclosure of public administration expenditures must be a common practice, guaranteeing the principles of publicity and transparency. Statements must show the representativeness of each element in the set of public spending. Miola (2001) argues that, in this way, all interested parties can engage in control activities, including organizations, citizens, the government, the Courts of Account, and the Brazilian Public Ministry.

METHODOLOGY

This study's object is the Continuous National Household Sample Survey (PNADC) conducted by the IBGE's office in Florianópolis, capital of Santa Catarina. The Brazilian Institute of Geography and Statistics (IBGE) conducts this survey nationwide, coordinating its state units and offices responsible for groups of cities. Due to the significant sample size adopted in the PNADC conducted in the group of cities under the responsibility of the IBGE's office in Florianópolis, the office works autonomously in the capital. It counts on one supervisor, two permanent employees, and 17 professionals with temporary contracts. The coordination of the PNADC in the state of Santa Catarina has two permanent employees and two professionals with temporary contracts who are part of the team directly involved in the PNADC in the region of Florianópolis. This study chose PNADC because it is a continuous survey that produces relevant statistical data to subsidize public policies. It incorporates several subjects such as labor market, demographic and educational characteristics of the population, analysis of Brazil's socio-economic development, and supplementary statistics on issues such as child labor, migration, different forms of work, and fertility. The focus on the PNADC in the region covered by the IBGE's office in Florianópolis was decided because of the relevance of the region in the total number of questionnaires applied (in 2017, the region collected 8,400 out of 52,676 questionnaires – 16% of the total questionnaires in the state). The costs – especially direct costs – related to PNADC in the work of the IBGE's office in Florianópolis is separated and easily detectable. In other offices, permanent and temporary employees are allocated among different research works in IBGE's portfolio.

This descriptive research seeks to identify and describe a problem and its context, producing analyses to help achieve the research objectives. The research used case study and documental research. The case selected was the systematization of the costs of PNADC conducted by the IBGE's office in Florianópolis, Santa Catarina, and was carried out through the immersion of the researchers in the examined agency. For the documental research, several resources with data about IBGE, the agency's research, administrative activities, and the PNADC were examined, encompassing articles, reports, tables, and graphs. The documents were obtained online, on the agency's website, or through a search in the IBGE's internal systems and federal government systems. A qualitative approach was used to analyze the cost items and their characteristics, and a quantitative approach guided the assignment of cost values to cost objects.

Data were collected from internal systems that provide information about the research works IBGE conducts throughout the country. In addition, we accessed data from the federal government systems with restricted access to civil servants working for the federal government, combining with open information the government makes available on the Internet. First, we accessed the IBGE's internal system for research planning, monitoring, and controlling (Collection Management Indicators System – SIGC) in 2017. The SIGC allows monitoring the data collection: the sample by the municipality, utilization, evolution, data of the researcher who registered the questionnaires, including date and start and end time.

The other systems consulted were the federal government's integrated financial administration system (SIAFI), which is the main instrument for recording, monitoring, and controlling the federal government's budget, financial, and asset execution; and the managerial treasury – used to access the information from the SIAFI. In these systems, it is possible to observe how much IBGE spent and identify a) the expenditures necessary for the maintenance of the infrastructure that supports the performance of all the institute's activities (INFRA), b) the expenditures specifically for research needs (RESEARCH), and c) the amount spent in per diem to assist employees. Another tool consulted was an internal system of IBGE, the operational database of Santa Catarina (BDOSC). The institute uses this database during the surveys' preparation and implementation (in this case, the period from 2016 to 2018 was consulted). The analysis of information in the BDOSC allows identifying how much PNADC represents the workload of each IBGE's office since it registers the number of questionnaires collected per research in each month/quarter. As the IBGE research works have different calendars and cover different periods, we used calculations to assign weights for each research work during the period analyzed and obtained the annual workload. Finally, human resources coordination provided data on personnel expenditures, extracting the numbers from the federal government's integrated human resources management system (SIAPE).

The descriptive analysis offered information on the problem of costs. The costs were allocated according to the activities required to implement the PNADC in the IBGE's office in Florianópolis, applying the criteria based on the workload, internal indicator obtained from information systems and supported by the number of questionnaires IBGE processes in the entire state. The data, organized in electronic spreadsheets and, subsequently, structured and presented as illustrations, include the following cost items INFRA, RESEARCH, and Personnel (remuneration of permanent and temporary employees dedicated to the PNADC, including indemnities and employer charges).

PROPOSAL OF SYSTEMATIZATION OF COSTS – PNADC

Identification and classification of expenses

Cost classification in the absorption costing method is carried out considering direct costs – those that can be properly identified as the product or service analyzed –, and indirect – those that cannot be readily allocated to the object under analysis and demand a parameter to divide the costs among all the objects that consume such resources. The amounts identified as expenditures during the period were also analyzed to identify investment instead of costs. In the internal plan INFRA there is element “44905206 – Communication devices and equipment,” which refers to acquiring permanent assets. Therefore, this element was not considered for the composition of costs. However, the depreciation of this asset was included as part of the costs for the period. Table 1 presents the direct costs.

Table 1.
Direct costs of PNADC

Personnel	Total
Staff (Supervision)	
Net Remuneration	762,888.15
Employer's social security contribution	60,542.07
Subtotal (net remuneration + employer's social security contribution)	894,785.14
Per diem (Supervision)	
Per diem	18,256.01
Total	913,041.15

Source: Research data (2018).

Direct costs related to PNADC are staff and per diem costs. The amounts regarding staff encompass salaries, transportation, and food allowances, social security (the part paid by the employer), field indemnities (due to permanent employees who carried out field research), holidays, Christmas bonuses, position bonuses (granted to some civil servants due to the function performed), performance bonuses (corresponding to the performance appraisal carried out every six months, with a grade attributed for the agency/department and the individuals) and qualification bonus (based on the civil servant's education and formal training). The per diem costs are directly linked to the employees allocated in the sector responsible for the PNADC in Florianópolis and neighboring municipalities. As already mentioned, only in the case of the IBGE's office in Florianópolis, the survey counted on exclusive supervision, separated from the coordination of the PNADC in the state of Santa Catarina. Table 2 shows the indirect costs grouped by the nature of the expense.

Table 2.
Indirect cost of PNADC

Nature of Expense	Expense paid
339008 Other benefits for employees and military	121,035.03
339014 Per diem – civil servants	882,609.67
339030 Consumable materials	90,477.64
339033 Transportation costs	1,119.92
339036 Other outsourced services – self-employed individuals	3,244,012.84
339037 Workforce leasing	1,593,648.17
339039 Other outsourced services – companies	9,006,582.87
339047 Tax and contributory obligations	228,701.05
339092 Expenses from previous years' activities	625,101.65
339093 Indemnities and refunds	694.00
339147 Tax and contributory obligations – intra-budgetary operations	136,585.40
339139 Other outsourced services – companies (INTRA)	12,328.04
339192 Expenses from previous years' activities	1,123.66
Subtotal	15,944,019.94
Staff (management)	195,852.46

(Continue)

(Conclusion)

Per diem (management)	6,851.16
Depreciation	618,578.89
Total	16,765,302.45

Source: Research data (2018).

Indirect costs refer to the other costs incurred in maintaining the agency's activities during the analyzed period – technical and administrative support necessary to collect and process data and disseminate the PNADC results. The combination of expenses in the INFRA and RESEARCH internal plans according to their nature (Table 2), shows that the largest expense is hiring companies for outsourcing services (56%), followed by hiring individuals also to conduct outsourced services (20%), and workforce leasing (10%). These expenses with legal entities include rent, internet, telephone, and electricity, which are significant; rent also influences the participation of the item outsourced services from self-employed individuals.

Allocation criteria

The criterion used to allocate indirect costs to PNADC was based on identifying the workload for the IBGE's unit in Santa Catarina (SC). The workload is an indicator composed of the number of questionnaires answered for each research the IBGE carries out in the state. Once a year, BDOSC is fed with this information: the supervisors of each research work have a few days to enter the numbers they obtained in the SIGC, later validated by the Planning and Supervision Management (GPS), which coordinates all supervision. This workload is quantified by the regional offices and per research work, and present the total in these two categories and as a group for the state.

The option for the workload indicator is due to the fact that research is the main product of IBGE. Thus, based on the representativeness of each research work in the total of the IBGE activities, it is possible to relate how much of the resources each product consumes, for regional offices, state units, or the agency as a whole. This criterion is the most suitable because it deals with the work carried out and is available in annually validated quantities. Other criteria, such as the number of people, consumption of a certain resource, use of vehicles, among others, are less precise because they end up overlapping since the employees act in shared efforts and spaces for different processes. Therefore, the same criterion was used for all indirect costs, as even these are difficult to segregate in terms of research.

Since the scope of this work is the PNADC in Florianópolis, the first step was to identify how much of the work in Santa Catarina is carried out at the IBGE's office in the city, demonstrated in Table 3 – the percentage of 14.8225413167163% (16,413 questionnaires applied in Florianópolis were divided by the 110,730 questionnaires applied in the entire state).

Table 3.
Calculation of workload for PNADC in Florianópolis

IBGE's offices	PNADC	Total	Office Fpolis / IBGE's unit in SC	PNADC / Office Fpolis	PNADC IBGE's unit in SC / PNADC Fpolis
Araranguá	2128	3579			
Blumenau	4480	10946			
Brusque	1568	3875			
Canoinhas	2464	3914			
Chapecó	2744	6231			
Concórdia	1792	3363			
Criciúma	1952	5166			
Curitibanos	840	1832			
Florianópolis	8400	16413	0.148225413	0.511789435	0.159465411
Itajaí	4300	9873			
Jaraguá do Sul	3080	7348			
Joaçaba	1848	3703			
Joinville	3976	9744			
Lages	2520	4126			
Orleans	784	2005			

(Continue)

(Conclusion)

Palmitos	1176	2107			
Rio do Sul	2016	4207			
São Lourenço do Oeste	960	1846			
São Miguel do Oeste	1344	2555			
Tubarão	2736	4707			
Videira	1568	3190			
UE-SC	52676	110730			

Source: Research data (2018).

The first percentage obtained was applied to the values that we wanted to extract from the expenses. It was necessary to identify how much of the work in the IBGE's office in Florianópolis was related to the PNADC. The value was 51.1789435203802% (8,400 questionnaires of PNADC divided by the 16,413 questionnaires collected in other research works conducted in the region). Expenses related to the PNADC, but at the State level, required a criterion that considered how much of the total PNADC questionnaires in the state of Santa Catarina were collected by the IBGE's office in Florianópolis. The result was 15.94654112% (the 8,400 questionnaires collected in Florianópolis and neighboring municipalities were divided by the 52,676 PNADC questionnaires obtained in the entire state).

Calculation of costs

For Mauss and Souza (2008), the legal provisions clearly state that public entities have to calculate their costs, but they do not specify how this should be processed. Thus, for the indirect costs to be allocated appropriately to PNADC in Florianópolis, the criterion was applied to the selected items to compose the final cost. The treatment for indirect costs was different for personnel and per diem expenses and other expenses from the internal plans. In the case of the workforce, the percentage was used to calculate the allocation, which means how much of the PNADC at the State level is carried out in Florianópolis. This occurs because the other categories' indirect costs have to be selected among all research works in IBGE's portfolio to identify the participation of the Florianópolis office in this number. Only then, we assessed how much of the Florianópolis office work is related to PNADC. For the amounts paid to PNAD's managers, it was sufficient to identify how much of their work is destined for the activities in Florianópolis and region. Thus, Table 4 shows personnel and per diem expenses, and Table 5 presents the other indirect costs.

Table 4.
Allocated indirect costs

Costs	Subtotal	PNADC IBGE's unit in SC / PNADC Fpolis
Percentage		15.94%
Staff (management)	195,852.46	31,231.69
Per diem (management)	6,851.16	1,092.52
Total		32,324.22

Source: Research data (2018).

Table 4 gathers the values of costs indirectly related to the survey in Florianópolis. The costs are related to personnel and per diem. The percentage of 15.94% was applied to estimate how much the office represents in the state's work in the PNADC. Table 5 summarizes the other indirect costs, composed of the resources used in the internal plans and in asset depreciation.

Table 5.
Indirect costs of PI's and depreciation when applying allocation

Costs	Total	Office Fpolis/ IBGE's unit in SC	PNADC/Office Fpolis
Percentage		14.82%	51.17%
PI's	15,918,912.77	2,359,587.42	1,207,611.91
Depreciation	618,578.89	91,673.39	46,909.27
Total			1,254,521.18

Source: Research data (2018)

The perceived indirect costs, with personnel, per diem, and others stated in the budget were allocated so the value used by the PNADC Supervision in Florianópolis and the other municipalities in the region (the IBGE's office in Florianópolis is responsible for 16 municipalities in total), could be identified from the total amount for the state in 2017. Table 6 gathers all PNAD costs in Florianópolis for 2017, with personnel, per diem, and other budgetary costs.

Table 6.
PNADC costs in Florianópolis

Costs	Total
Personnel and per diem (direct)	913,041.15
Personnel and per diem (indirect)	32,324.22
Internal plans (indirect)	1,207,611.91
Depreciation (indirect)	46,909.27
Total	2,199,886.55

Source: Research data (2018).

Regarding the monthly depreciation values, it is important to clarify that these amounts are produced in the administrative data system (SDA) and collected through reports, included in SIAFI, and then considered to reflect the assets of the IBGE's unit in SC. Spreadsheets are drawn up every month to monitor the monthly and accumulated depreciation trends and then sent to IBGE's headquarters for monitoring. These spreadsheets were used to obtain the annual depreciation amount.

After identifying the total costs of the PNADC in the Florianópolis office, an analysis was carried out to assess the workload used to divide indirect costs to the cost object. In addition, cost indicators can be created, enabling a thorough and substantial assessment of the organization, in addition to allowing results-oriented and economic ideals to permeate public practices (Alonso, 1999). In this case study, the main indicator proposed was the cost per complete questionnaire collected.

In 2017, in Santa Catarina, 16,413 questionnaires were collected, of which 8,400 in the region covered by the Florianópolis office (51.17%). The percentage reveals this region's importance with only 16 municipalities (while the entire state sums 295 municipalities). The household sample in the area is thus defined due to the municipalities' characteristics and the populations living there. A more specific segmentation can be made in the analysis of the cost of the PNADC, that is, the amount per questionnaire collected. Table 7 shows the calculation of the cost per questionnaire in Florianópolis.

Table 7.
PNADC costs in the region of Florianópolis, per questionnaire

Costs	Costs (BRL)	Questionnaires	Cost/Questionnaire (BRL)
PNADC costs	2,199,886.55	8,400	261.89
Total			261.89

Source: Research data (2018).

When dividing the total cost of the PNADC by the number of questionnaires collected in households in the area under the responsibility of the IBGE's office in Florianópolis, the amount of BRL 261.89 per questionnaire was found. Each household surveyed results in many questionnaires that correspond to the inhabitants of that residence; that is, the researchers can produce several questionnaires in the same visit, and each of them represents this same value. The process of completing a questionnaire can start and be paused, and resumed later in case corrections or additions are necessary. The cost of each questionnaire provides a basis for the projection of the total cost of the research in each period, relating the sample size, the time for collection, the technical staff, and the resources necessary for completing the process, which is consistent with the issues raised by Monteiro, Ribeiro, and Ferreira (2006).

After calculating the costs, conducting the allocation process, and establishing the cost per questionnaire, it is possible to resume the practical and theoretical justification presented in the first section of this article. In practical terms, the study contributes so that IBGE can meet the requirements and guidelines of the several Brazilian legal provisions (Brasil, 1964; Brasil, 1967; Brasil, 2000; Brasil, 2001; TCU, 2004; STN, 2005; CFC, 2008; CFC, 2011; STN, 2011). Another possibility is the managerial use of information, focusing on governance and efficiency optimization (Bjørnenak,

2000; IFAC, 2000; Jesus & Eirado, 2012; Dimitrić, Kalamera-Alilović, & Duhovnik, 2016). Based on the information on the cost per questionnaire obtained, one can compare the value with what a private company would charge for the same work. In theoretical terms, the study contributes to the gap identified in the study by Drehmer & Raupp (2016), given the scarcity and incipience of works in the area.

FINAL CONSIDERATIONS, LIMITATIONS AND RECOMMENDATIONS

The systematization of costs proposed in this work was also an exercise to increase knowledge within a defined scope. The process of identifying the problem, collecting information, analyzing data, and calculating costs allow a clearer idea of the PNADC as carried out in the IBGE's office in Florianópolis. This endeavor leads to several conceptions that help improve research, activities, and costs: the changes can occur only when based on knowledge and by tracking resources. For the cost of the PNADC calculated in Florianópolis, the amount spent on workforce represents the most relevant value for IBGE since the agency's products are geographic and statistical information services. Thus, as it is common in public service, intellectual capital is presented as the most important production factor. This is also the item with the least flexibility, considering civil servants' contract stability and the workforce-dependency to perform the services, which means that cuts in personnel cannot be made promptly. However, managers can use this information to focus on human resources management, coordinating personnel more efficiently, improving the agencies' products and results. After assessing the agency's total costs, it was possible to identify the cost per questionnaire collected, which can help understand the absorption of costs based on the collection of these instruments and promote future analyses about the research and its costs. Each household visited will produce questionnaires according to the number of residents. This characteristic allows planning to take advantage of the moment of collection, visits, and resources involved.

PNADC is extremely relevant for government decision-making, offering subsidies for budgeting and definition of public policies. It offers a look at the country's social and economic situation through population, household, and workforce information. Therefore, IBGE focuses its efforts on this survey, highlighting the dissemination of its content since the data produced is widely cited in the press. Especially with regard to the survey's costs, it is possible to conclude that the lack of knowledge about the subjects causes an increase in the use of resources and dispersion of efforts. When identifying the direction of expenses and the processes involved, it is possible to perceive bottlenecks, waste, excess, and gaps in procedures, acquisitions, task planning, personnel estimation. All aspects of the activity occur more organically and intuitively, while the survey follows rigid and internationally recognized methodological criteria.

The systematization of costs proposed in this study may contribute to adjust, reduce, make cuts, or expand the application of resources for the IBGE's unit in Santa Catarina. This work resulted in a proposed model that can be replicated for other IBGE's research works conducted in the state. This replication can be performed after adapting the systematization according to the reality of each research. Each work involves more or fewer professionals, dedicated most of the time to more than one research/activities, in different locations, research objects, and other characteristics. However, the criterion developed for the distribution of indirect costs can be applied as suggested in this study, performing new calculations based on each research work's representativeness in the number of questionnaires in relation to the total questionnaires obtained in the state. In addition to presenting a systematization of costs, this research aimed to stimulate discussions on the subject of costs in the public agency IBGE and in the academic environment. By examining the topic of costs in the institute, it is possible to raise several issues to be further explored, from implementing cost accounting through feeding of government systems and costing methods.

Studies on the implementation of cost systems have been requested for some time and are still demanded, both because of the legal requirements and because of the recurring and imminent scarcity of public resources, which put pressure on the government to better manage the amounts under its responsibility. Although there is little production on the subject, this study instigates the academic environment and the IBGE to continue analyzing the topic of costs in the direction of computerization and autonomy of cost systems in the public sector to assist managers and offer transparency and control of government actions at all levels. For future studies, it is recommended to analyze other costing methods at IBGE. From the analysis of the situation regarding the cost system's implementation, other potentially advantageous methodologies may be identified and applied to the public sector. In addition, it is possible to carry out the analysis of the system proposed in this work to other researches of the institute. The systematization proposed can be used to work with PNADC data from past or future periods to follow the evolution of values over time.

As for the research limitation, the criterion adopted is subjective since some questionnaires may be longer than others and may be applied remotely. Due to IBGE's different research works, it is possible to have more complex and less complex questionnaires. Another factor is that the research is limited to the costs of the office responsible for

a group of municipalities. Finally, a third element is the use of only one criterion to distribute the entire fixed cost. Perhaps it would be possible to use different criteria for different types of costs, which is a path to explore in future studies.

Comparative studies with the cost of other research in Brazil are also encouraged, or comparisons with other countries. Also, causality studies, such as the one proposed by Bjørnenak (2000) to determine the cost causality estimate (including identification, classification, and estimation of factors that cause a change in the total cost), can be potential research topics.

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