

[The role of program and performance balancing in improving production mix decisions]

Assistant Professor
Haider Imran seher
Department of Accounting
Faculty of Administration and Economics
Al-Qadisiyah University
haider.seher@qu.wdu.iq

researcher
Jabbar Hassan Sweeh
Department of Accounting
Faculty of Administration and Economics
Al-Qadisiyah University
admin.acco21.4@qu.edu.iq

Abstract

This research aims to demonstrate the role of implementing program and performance budgeting in providing an opportunity to assess the economic and social returns that programs and activities achieve at the national level, as well as the advantages that come from applying program and performance budgets in achieving the best use of state resources, rationalizing government spending and reducing program costs. activities and reducing the burdens on citizens by reducing tax rates, and the researcher reached several conclusions from them, that the goal of applying the program and performance budget is to increase the effectiveness of planning because it introduces or integrates the planning aspect in the budget process and therefore it requires: Defining and formulating the objectives of each administrative unit in the form of programs The activities and translation of these activities and programs and then allocating the necessary funds and funds on the basis of the estimated costs of the works or activities in the form of units of performance or achievement expressed in quantitative or qualitative terms. Administrative. As the decision-making process requires defining the goals that should be achieved, as it builds The administrative decision is based on a specific and specific goal of the economic unit, such as maximizing profits, maximizing the social return, the productive mix, and the lack of stability of the objectives of economic units as they differ from one economic unit to another.

1. Introduction.

The general budget was known in ancient civilizations such as the civilization of Mesopotamia, the Egyptian civilization, the civilization of the Romans and China, as well as the Arab and Islamic civilizations, especially when the funds increased and became available and the need for spending on soldiers and other aspects of spending organized by the honorable Islamic Sharia increased. Budget items to achieve the set goals, which are represented in planning, implementation, control and performance evaluation, as the traditional budget (item budget) faces many problems, including its ineffectiveness in imposing control over public money. The focus is on the administrative function in addition to the monitoring and planning function, as the objectives for which the allocations are monitored are defined and the volume of allocation for each program included in the budget is established, where measures are set to measure what has been accomplished from those programs and evaluate performance and efficiency. The performance-based budget aims to improve the efficiency and effectiveness of spending year by linking the financing of the An economic unit with the results it provides and the systematic use of performance information, as well as a statement of the practical requirements and solutions that contribute to improving the decisions of the optimal production mix that are determined in advance to exploit the machine and determine the optimal mix of products to be prepared for the purpose of increasing the company's profitability. that maximize the overall profitability of the company.

The first topic

2. Research Methodology.

2.1. Research problem.

Experiences in many companies over the past decades have proven that the traditional budget (item budget) is not compatible with the accelerating economic changes, especially the successive crises, which requires the necessity of achieving optimal use of the available economic resources in light of the actual need. Here, the research problem can be posed in the following questions:

2.1.1. Is there a role for balancing programs and performance in assisting the departments of economic units in exploiting the available economic resources and improving the optimum production mix decisions?

2.1.2. Are there difficulties facing Al-Diwaniyah Dairy Factory in applying program and performance budgets that limit its role in improving the optimum production mix decisions?

2.2.Importance of research.

The importance of the research lies in showing the extent to which economic units are able to rely on balancing programs and performance in improving decisions of the optimal production mix and raising the level of efficiency and effectiveness and optimizing the use of available resources to increase production capacity in order to meet the market needs of high-quality products as economic units seek to achieve profits Increasing its outputs through the exploitation of the available economic resources, and rationalizing the use of these available resources is of great importance in improving the performance of units in the light of the modern manufacturing environment, and this improvement is reflected in the profitability of the unit and then survival, competition and continuity.

2.3. The objective of the research.

This research mainly aims to evaluate the role of program and performance budgeting in improving optimal production mix decisions, and the following sub-objectives fall under this objective:

2.3.1. Identifying the reality of the economic units from the planning and executive side, and diagnosing the obstacles, problems and restrictions facing their current production system.

2.3.2. Identifying the factors that affect the use of program budgets and performance and that hinder the administration of economic units from using resources efficiently and effectively.

2.3.3. Identifying the most important determinants and difficulties that limit the role of balancing programs and performance in improving decisions of the optimal production mix in economic units, and identifying ways to treat and overcome them.

2.4. research assumes.

2.4.1. There is a role for balancing programs and performance by exploiting the economic resources available to the units and improving the decisions of their optimal production mix.

2.4.2. There are no difficulties facing Al-Diwaniyah Dairy Factory in applying program and performance balancing or limiting its role in improving the optimum production mix decisions.

2.5.Research Methodology.

2.5.1. The inductive approach where the theoretical aspect of the research is reviewed by reviewing the relevant sources and literature such as books, letters, theses and periodicals published in different journals to reach conclusions that support the achievement of the research objectives.

2.5.2. The descriptive (analytical) approach, where the method of balancing programs and performance will be shown, and their role when preparing and applying them in improving the decisions of the production mix in the economic unit under study.

2.5.3. The experimental approach is embodied by preparing the program and performance budget in the Diwaniyah Dairy Factory, one of the branches of the Abu Ghraib Dairy Factory, which is affiliated with the General Company for Food Industry, one of the Ministry of Industry formations.

2.6. search limits.

2.6.1. time limits: Approval of reports and data for the Al-Diwaniyah Dairy Factory for the year (2020), where information related to the factory was obtained from the lists of costs, salaries, production stages and the factory's organizational structure.

2.6.2. spatial limits: The Diwaniyah Dairy Factory was chosen as one of the branches of the Abu Ghraib Dairy Factory of the General Company for Food Industry in Iraq, because the Diwaniyah Dairy Factory is the most appropriate place to know the role of balancing programs and performance in improving production mix decisions.

3. Previous studies.

3.1. The study of Al-Khafaji, Haider Jassim, and Al-Ani, Safa Ahmed Muhammad, 2020.

The study aimed at philosophical framing with a conceptual entrance statement by preparing the general budget and the shortcomings in balancing traditional items, and presenting a proposed framework for preparing the general budget that helps shift from balancing items towards balancing programs and performance in line with the specificity of the Iraqi environment, and explaining the role of the proposed framework for balancing programs and performance In rationalizing public spending and achieving effective accountability in Iraqi government units. The most important conclusions reached by the study were that the general budget decisions are affected by political, economic and social variables, and thus there is no agreed standard method for planning, preparing and implementing the general budget. General budget revenue[1].

3.2. The study of Al-Jubouri, Muhannad Sabbar Lafta, 2021.

The study aimed to apply the method of balancing programs and performance instead of the method of balancing traditional items on the electric power production sector in Iraq, especially in the second Hilla gas station in the Middle Euphrates Electric Power Production Company, because this method of budgeting is capable of distributing resources in an optimal way. The most important conclusions reached by the study lead to the division followed in the method of balancing programs and performance, which requires dividing the unit into programs and then activities for each program and defining the objectives related to each program to achieve effective control over these programs by following up on the extent to which programs achieve their goals, as well as providing a budget for programs and performance. Detailed performance information for the concerned authorities for each program activity, thus facilitating administrative control over them[2].

3.3. The study of Al-Zamili, Ali Abdul-Hussein Hani, 2018.

The study aimed to address the cognitive pillars of the theory of constraints by addressing each of the concept, importance, assumptions, principles and steps of applying this theory, with an indication of the role of its use in making decisions of the optimal production mix for the products of the economic unit in a way that maximizes achievement by achieving the maximum contribution return of possible outputs. The most important conclusions reached by the study were the theory of constraints, a set of procedures followed by the economic unit with the aim of addressing organizational bottlenecks and restricted or scarce resources by carrying out continuous improvement processes for the performance of the system as a whole. The goal of the activity is to generate profits and that production flow scheduling is done through the chain of motivation, and the use of the theory of constraints helps in making production mix decisions[3].

The second topic is the theoretical side

4. Program and Performance Balancing Hub.

4.1.The birth of program and performance balancing.

The program and performance budget appeared as a result of many developments. The first attempt was made to implement the program and performance budget in the year 1906 AD in the New York municipality, and it was called (the performance budget), then they added the programming element to it and expanded its framework, and it became called (the program and performance budget) [4].

The interest in balancing programs and performance has recently emerged. This trend represents a developed method in preparing budgets, and it is known as the administrative trend and called the administration budget. The birth of this budget appeared at the beginning of the twentieth century in the United States of America, and its application was in the business sector and then moved to the government services sector. The idea of balancing programs and performance is based on focusing on the work done more than on the means of accomplishing this work, that is, it focuses on the work carried out by the government, that is, it is concerned with the outcomes of activities. The Hoover

The role of program and performance balancing in improving production mix decisions

Committee studied the financial and economic system in the United States of America, which recommended the necessity of Reform of the budget system and the ways of categorizing it, in a way that is compatible with modern administrative trends, and demanded an amendment of the (expenses) classification system so that it is based on the cost of the job, activity and project[5].

4.2.The concept of balancing programs and performance.

The concept of this type of budgets is defined as a plan that shows the specific objectives of the units expressed in the form of specific programs and performance activities. According to the programs, the budget is classified according to the basic functions of the units and the programs are identified under each job. Each unit may implement more than one program, where the division is divided The general budget is divided into sub-budgets at the level of bodies or ministries, and then main and sub-programs at the level of smaller administrative units that are assigned to implement a full program or part of a programme. Accomplished by the governmental unit as part of the work of the unit program approved by the legislative authority[6].

The program and performance budget was defined as a plan aimed at achieving a set of goals, whether long-term or short-term, by linking those goals to the organizational structure of the organizational unit, where they are divided into terms of reference, programs, activities and projects in light of the accurate identification of the expected costs and returns in order to achieve the maximum possible efficiency for the allocation of available resources[7].

The program and performance budget was defined as a plan that clarifies the specific objectives of the units in the form of specific programs and projects. According to the program, the budget is classified according to the basic functions of the units, and then the programs listed under each job are determined, and the unit's management may implement more than one program[8].

4.3. Program and performance balancing goals.

The objectives of the program and performance budget are to improve spending, as setting spending priorities leads to allocating funds to the units and programs that are most effective in implementing social needs in the public sector, as the decision-making about resource allocation depends to a large extent on planning and this process is carried out by the government or one of the government units This is done by defining the goods and services that will be provided to the community[9].

There are many goals that can be achieved at the level of government unit budgets or the general budget, as follows[10].

4.3.1. Maximizing the volume and quality of public services provided by the government and public authorities in order to raise the efficiency and feasibility of spending or used resources.

4.3.2.The optimal utilization of the available resources (material and human) in government units and the detection of idle energies in the various responsibility centers.

4.3.3.Rationalizing the costs of implementing current activity programs and the costs of investment projects, and choosing the best, least expensive and most effective alternatives for implementation.

4.3.4. Improving the orientation in diagnosing spending priorities in accordance with the goals that the government intends to implement during the coming period.

4.3.5. Strengthening the links between funds provided to public sector units and their results or outputs through the use of performance information in making resource allocation decisions.

4.4. Advantages of Program and Performance Balancing.

The application of program and performance budgeting achieves a set of advantages and benefits in different areas, which are as follows[11].

4.4.1 schematic field. Budgeting programs and performance increases the effectiveness of planning because it introduces or integrates the planning aspect in the budget process, and therefore it requires: Defining and formulating the objectives of each administrative unit in the form of programs and

The role of program and performance balancing in improving production mix decisions

activities, translating these activities and programs, and then allocating the necessary funds and funds on the basis of the estimated costs of business or activities in the form of Units of performance or achievement expressed in quantitative or qualitative terms.

4.4.2. Executive area. The application of the program and performance budget leads to rationalizing the implementation of programs and activities, as the implementation is continuously monitored and what has been accomplished in the form of performance units is compared with what was planned in advance.

4.4.3. supervisory field. The application of the program and performance budget adds new dimensions to financial and economic control, as it facilitates the technical and economic evaluation of the programs and activities carried out by the administrative unit. He was also able to justify actions and deviations. This is reflected in achieving effective control, rationalizing government spending and reducing the costs of implementing government activities and programmes.

4.4.4. organizational area. The implementation of the program and performance budget by linking its basic classification (programs) to the classification according to the administrative units (administrative) leads to determining the responsibility centers and performance units and preparing the appropriate basis for accounting responsibility for each responsibility center for the activities entrusted to it.

4.4.5. behavioral domain. The application of the program and performance budget provides a greater opportunity for workers to contribute to the preparation of the budget and to the formulation of goals and standards in a realistic manner, as well as it links the efforts made and the achievements achieved, and this helps in raising the morale of the workers and their commitment and desire to achieve it, their participation in achieving the best achievement of the budget.

4.4.6. social or national. The application of the program and performance budget provides an opportunity to evaluate the economic and social returns that programs and activities achieve at the national level, as well as the advantages that come from applying the program and performance budget in achieving the best use of state resources, rationalizing government spending, reducing the cost of programs and activities, and reducing burdens on citizens for way to reduce tax rates.

4.5. Disadvantages of balancing software and performance.

Despite the advantages enjoyed by balancing programs and performance, they are not without flaws The disadvantages of balancing software and performance are as follows[12].

4.5.1. The difficulty of administrative leaders accepting the idea of change and transformation from the existing system to the new system.

4.5.2. It requires many scientifically and practically qualified personnel to carry out budgeting programs and performance.

4.5.3. It is difficult to set performance indicators for some activities, because most government activities and services are in the form of intangible activities and services, so it is impossible to measure them in terms of output units or cost units.

4.5.4. The implementation of the program and performance budget requires a relatively high cost and the availability of sufficient numbers of experienced employees.

4.5.5. The inadequacy of the administrative organizational structures to apply the concept of program and performance budget due to the overlapping of the functions of the administrative units.

5. production mix decisions.

5.1. Production mix decision concept.

The concept of product mix is an integrated group of products and their forms produced and offered by business organizations to different markets. Expanding the product mix helps in the success of the company to adapt to changing consumer demand and preferences and reduce the risks of relying on one product or one product line, which in turn generates profits great company. A weak product mix expansion can have a detrimental effect on a company's brand image and profitability[13].

The role of program and performance balancing in improving production mix decisions

The production mix is defined as the list of products that the company wants to sell in the market, and the mix may be a single product and this is called the simple mixture, or it may consist of a group of lines for its products called assortment of products[14].

Product mix decisions have been defined as decisions made by the company regarding which products to sell and in what quantities, and often these decisions focus on the short term only, because the level of energy can increase in the future[15].

The decision-making process is defined as choosing one of two or more available alternatives after evaluating them in light of their ability to achieve the desired objectives of the decision-making process[16].

5.2. Product Mix Dimensions.

The composition or structure of the product mix consists of four basic points:

5.2.1. View product mix. The width of the product mix means the number of major product lines that the organization offers to the market. A broader product mix increases the type of customers a business can target[17].

5.2.2. Product mix length. The length of the product mix refers to the total number of shapes or types for each product line and for each product. It represents the assortment that each product consists of in the product lines[18].

5.2.3. product mix depth. It means the total number of products and their diversifications that make up all the product lines of the organization and which are offered to different markets. It represents the width plus the depth[19].

5.2.4. Product mix consistency. It means the degree of interdependence, integration and harmony between the product lines offered by the organization to the various markets. In terms of end use, requirements, production techniques and distribution channels used[20].

5.3. Appropriate costs in the decision-making process.

The process of making administrative decisions depends on the cost information provided by cost accounting to management, and this information must be appropriate to serve the decision-making process in the short term.

Adequate costs are defined as the expected costs in the future, which differ from one alternative to another. The main advantage in defining appropriate costs is that they occur in the future and create a difference when choosing one alternative over another[18].

Hornngren describes that appropriate costs are the basis in the process of making administrative decisions followed by management regarding determining which products to be sold and in what quantities to be produced. Maximizes profitability within the available energies[15].

Determining the appropriate costs related to the process of making administrative decisions, the accountant must follow a set of steps when analyzing costs and making a comparison between the alternatives, which are as follows[22].

5.3.1. Determining all costs related to each of the available alternatives.

5.3.2. Elimination of sunk costs.

5.3.3. Excluding non-differential costs, i.e. costs that do not change from one alternative to another.

The remaining costs represent the costs appropriate to making the decision.

5.4. Steps in the decision-making process.

The steps needed to make an appropriate decision can be identified[23].

5.4.1. Setting goals. The decision-making process requires defining the goals that should be achieved, as the administrative decision is based on a specific and specific goal for the economic unit, such as maximizing profits, maximizing the social return, the productive mix, and it can also be noted that the objectives of economic units are not stable, as they differ from one economic unit to another.

5.4.2. Define and analyze the problem. Determining and knowing the type of problem that needs to be taken is a very important step for making a sound decision to address the problem. The problem may be in an economic unit related to the daily activity of the administration, while the problem may be in another economic unit in how the capital is invested.

5.4.3. Determine alternative solutions to the problem. The management should search for alternative solutions that can be followed to address the problem, as the lack of familiarity with the alternatives available to the management may lead to an incorrect decision.

5.4.4. Gather the necessary information for each alternative. For the purpose of making the right decisions, sufficient and appropriate information should be collected for each of the alternatives available to the administration and to study each proposed alternative to address the problem, as the information collected varies according to the type of problem under study, and therefore there must be adequate and adequate information available to the administration.

5.4.5. Compare the available alternatives to make a decision. After collecting information about the available alternatives to address the problem, the possible alternatives should be compared for the purpose of determining which alternatives are appropriate to address the problem, provided that the alternative chosen achieves the greatest degree of certainty in achieving the goal of decision-making.

5.4.6. Implementation of the decision. After the management determines which alternatives are best to solve the problem and takes the appropriate decision, orders must be issued by the management at the start of the implementation process.

5.5. Making a production mix decision using a linear programming model.

The decision of the best production mix is one of the important administrative decisions taken by the administration, depending on the resources and capabilities available at the establishment in order to achieve a balance between the demand for goods and services and the optimal use of the requirements of the production process.

Linear programming is defined as a mathematical method that can be employed to distribute limited resources and capabilities within a set of constraints and fixed factors, in order for this distribution to achieve the best possible result[24].

Linear programming looks at the distribution of limited resources between alternative uses within the framework of determinants or restrictions imposed on achieving the objectives of the business organization in the case of maximizing the value of the goal as in the regulation of cash return or sales value. As well as in the case of reducing or minimizing the value of the target, such as reducing transportation costs or minimizing production costs[25].

The linear programming model is necessary for types of common applications that are related to the general problems in allocating scarce resources in economic units in a more accurate manner, and these problems are related to the selection of specific activities that are efficient and effective in order to allocate scarce resources to accomplish these activities so that the selection is an appropriate level between activities and consumption of these resources[26].

practical side

The role of program and performance balancing in improving production mix decisions.

6. Brief overview of Al-Diwaniyah Dairy Factory, research samp.

The Diwaniyah Dairy Factory is an integrated project for the dairy industry according to the standards approved in Iraq. The project was designed, built and implemented by the Swedish company ALFA LAVAL in 1980. The project includes integrated production lines, industrial services management, testing and standardization, and marketing. The Al-Diwaniyah Dairy Factory is one of the factories of the General Company for Dairy Products, and it is one of the formations of the Ministry of Industry and Minerals. Work began in the factory in 1981 AD with three production lines, the sterilized milk line in cartons, the cream line, the yogurt line, with a design capacity of 120 tons of raw milk per day. In 1996, a processed cheese line was added, and sterilized milk was stopped in 1996 due to the lack of raw materials due to Iraq's economic conditions.

6.1. Optimizing production mix decisions using software and performance balancing.

The process of improving the production mix decisions depends on the available resources of the factory, so that the decision taken contributes to improving the production mix and changing the reality of the factory for the better so that the factory can continue and maintain its market position among other competing factories in the markets, the following is a table showing the income statement for the dairy factory Diwaniyah before making a production mix decision, as follows.

Table No. (1)

The income statement for Al-Diwaniyah Dairy Factory on 31/12/2020 before making the production mix decision.

the details	Cheese producer (production and sale 91,628) tons	Cream product (production and sale of 75,576) tons	Milk product production and sale 441.720) tons	Total
Net sales	389419000	176356569	491508028	1057283597
—Direct Material Cost	(138587350)	(61443288)	(255881770)	(455912408)
Output Contribution Return	250831650	114913281	235626258	601371189
— operating costs				
wage cost	101754550	56065400	89673300	247493250
direct operating costs	124064312	87214704	75092400	286371416
fixed costs	293761160	176256696	235008928	705026784
Marketing costs	42807890	25684734	34246312	102738936
Administrative costs	162822890	97693734	130258312	390774936
(total operating costs)	(725210802)	(442291268)	(564279252)	(1732405322)
(total operating costs)	(474379125)	(328001987)	(328652994)	(1131034133)

Source / prepared by the researcher based on factory data for the year 2020.

It is clear from Table No. (1) that the income statement of the Diwaniyah Dairy Factory before making the production mix decisions for cheese, cream and milk products for the fiscal year ending on 12/31/2020, where the sales revenue for the factory's products was (389419,000), (176356569) and (491508028) Dinars, respectively, the total revenue achieved by the Diwaniyah Dairy Factory in addition to the net sales revenue of free fat, which is an accidental product, amounted to (1078481752) dinars, and the return on the contribution of the factory products was (601371189) dinars, where the costs of direct materials for the factory's products were (455912408) dinars, As for direct wages, it was (247493250) dinars, while the variable indirect industrial costs were (286371416) dinars. As for the net income, the Diwaniyah Dairy Factory achieved a net loss of (1131034133) dinars, and after subtracting the net income of a fat product (21198173) from The total loss of the factory, so the total loss at the factory level became (1109835960) dinars, since the factory is exposed to a loss from all products, so decisions must be taken regarding the production mix to change the reality of the factory's production and improve production processes to achieve a better jazz After making the decisions of the production mix for the products of the Diwaniyah Dairy Factory (cheese, cream, milk), by using the (Simplex) method, where the statistical program Excel was used, the SOLVER function, and the results of the computer appeared, that it is a value (x), which represents a product Cheese is the production and sale of (609.6) tons of the cheese product, and thus the maximum output contribution return will be reached, amounting to (1668780000) dinars, and the net sales of the cheese

The role of program and performance balancing in improving production mix decisions

product (259080000) (609.6 x 4250000) dinars, while the cost of direct materials for the cheese product was (92200000) dinars (609.6 x 1512500), as for the operating costs of the cheese product was (431449642) dinars, as for the cream product and the milk product, the value of (r, p) was zero, where (r) represented the cream product, while (p) It represented the milk product, as it is possible to prepare the income statement for the Diwaniyah Dairy Factory for the fiscal year ending on 12/31/2020 after making decisions about the production mix of the factory's products through the following table.

Table No. (2)

Income statement for Al-Diwaniyah Dairy Factory for the fiscal year ending on December 31, 2020 after making production mix decisions.

the details	Cheese producer (production and sale 609.6) tons	Cream product (zero production and sale) tons	Milk producer (zero production and sale) tons	Total
Net sales	2590800000	0	0	2590800000
—Direct Material Cost	922020000			922020000
Output Contribution Return	1668780000			1668780000
<u>— operating costs</u>				
wage cost	101754550	56065400	89673300	247493250
direct operating costs	825398400	-----	-----	825398400
fixed costs	293761160	176256696	235008928	705026784
Marketing costs	42807890	25684734	34246312	102738936
Administrative costs	162822890	97693734	130258312	390774936
(total operating costs)	(1426544890)	(355700564)	(489186852)	(2271432306)
(total operating costs)	242235110	(355700564)	(489186852)	(602652306)

Source / prepared by the researcher.

It is clear from Table No. (2) that the Diwaniyah Dairy Factory after the production mix decision was taken to exclude the cream product and the milk product and keep the cheese product. Output contribution yield of (1668780000) dinars, and the cost of direct materials for the cheese product was (9220000) dinars, while the direct wages of the cheese producer were (247493250) dinars, and the variable indirect industrial expenses were (825398400) dinars, where the cheese product was charged with all fixed costs And marketing costs and administrative costs, and thus the factory achieved a net loss of (602652306) dinars, and after adding the net revenue of the free fat product amounting to (312613440) dinars. For the cream and milk product, the management of the Diwaniyah Dairy Factory must stop production for both products.

It is clear from Table No. (2) that the Diwaniyah Dairy Factory after the production mix decision was taken to exclude the cream product and the milk product and keep the cheese product. Comparison between Tables No. (1) and Table No. (2), it becomes clear after making the production mix decision that the Diwaniyah Dairy Factory was able to maximize the achievement by realizing sales revenue, which amounted to (2,590.8 million) dinars, while the sales revenue before making decisions related to the production mix amounted to (1057283597) dinars, and thus the Diwaniyah Dairy Factory achieved an increase in sales revenue by an estimated amount of (1533516403) dinars, and thus the factory was able to reach the maximum output contribution return, as the return on output contribution was (601371189) dinars before making the production mix decisions and after Decision making has become the maximum output contribution return for the factory (1668780000) dinars, and here it appears that there is an increase in the output contribution return by an amount of (1067408811) dinars, and thus the factory was able to reduce the loss after making a decision The production mix came to (602652306) and after subtracting the net revenue of the free fat product amounting to (312613440) dinars from the loss, the total loss at the level of the factory as a whole became (290038866) dinars, after the loss was (1131034133) before making decisions The production mix, therefore, the factory He was able to reduce the loss after making the production mix decisions by an amount of (840950267) dinars.

6.2. Preparing program and performance budgets after making production mix decisions.

Figure No(3)

The diagram shows the main and sub-programs of Al-Diwaniyah Dairy Factory after making the production mix decisions.

Main program number	Subprogram No	activity number	Main program name	Subprogram name	Activity
1			General Manager Office Program		
		11			secretarial activity
		12			Factory protection unit activity
2			management software		
		21			Administrator's activity
		22			Legal activity
		23			Management Services Activity
		24			Transportation and Marketing Activity
		25			calculator activity
3			Accounts Program		
		31			Payroll activity
		32			Fund and treasury activity
		33			budget activity
4			internal control program		
					Financial audit activity
					Checklist activity
5			production program		
	51		production services program		
		511			milk receiving activity
		512			laboratory activity
	52		Cheese production line program		
		521			Cheese activity 100gm with cream
		522			Cheese activity 100 gm cubes
6			quality control program		
		61			Follow-up activity
		62			Inspection and inspection activity
		63			Research and development activity
7			engineering maintenance program		
		71			Production halls activity
		72			CPU activity
		73			Boiler Services Activity
8			warehouse software		
	81		cold storage program		
		811			Finished production warehouse activity
		812			Semi-finished materials warehouse activity
	82		non-refrigerated warehouse program		
		821			Back-up warehouse activity
		822			Packaging and auxiliary materials stores activity

After presenting the program and performance budget model for the Diwaniyah Dairy Factory, after making the production mix decisions, the planning budget for the Diwaniyah Dairy Factory for the years 2019-2020 and the percentage of completion in 2020 must be presented according to the unified accounting system approved in the factory, and the table below shows the factory's planning budget.

The role of program and performance balancing in improving production mix decisions

Table No. (4)

Planning budget for Diwaniyah Dairy Factory (2019-2020)

account number	account number	account name	plan 2019	Plan2020	Actual2020	Completion rate
revenue						
4		activity revenue	3347416700	2976666700	1143679732	38.5%
Expenses						
31		salaries	1440380500	1465238450	1446038450	98.5%
32		Commodity supplies	1221208000	927308000	890344000	96%
	321	raw materials	755874000	577367000	560673000	97.1%
	322	fuels and oils	67618000	71995000	69599600	96.6%
	323	backup tools	25206000	28969000	26099850	90%
	324	Packing materials	296891000	161762000	155672000	96.2%
	325	Miscellaneous	13443000	15679000	13919920	88.7%
	326	Staff equipment	20165000	23187000	20879880	90%
	327	electricity	42011000	47249000	43499750	92%
33		service supplies	40122000	52275000	46869850	89.6%
	331	Operation Services	713000	9200150	8271150	89.2%
total expenses			2708840500	2454021600	2391523450	97.4%
net activity			638576200	522645100	(1247843718)	

Source / prepared by the researcher based on factory data for the year (2019-2020).

6.3. Estimate the costs for each program.

The process of estimating the costs of each major and sub-program and the activities affiliated with each program was carried out with the help of the staff of accountants, administrators and technicians in the factory by relying on actual and estimated data for the years 2019-2020 as follows:

6.3.1. Director's Office Program.

This program consists of the following activities: secretarial activity and factory protection unit activity.

The table below shows the total costs of the Director's Office program for the year 2020 as follows.

Table No. (5)

Total Costs for the Director's Office Program

Director's Office Program	Salaries and wages	Materials	industrial costs	Total
secretarial activity	40079688	0	2773433	42853121
Factory protection unit activity	80159376	0	5546833	85706209
Total	120239064	0	8320266	128559330

Source / prepared by the researcher based on factory data for the year 2020.

6.3.2. management software.

This program consists of the following activities: the activity of the administration official, the legal activity, the management services activity, the transport and marketing activity, and the calculator activity.

The table below shows the total costs of the management program for the year 2020 as follows.

The role of program and performance balancing in improving production mix decisions

Table No. (6)

Total costs of the management program

management software	Salaries and wages	Materials	industrial costs	Total
Administrator's activity	60119530	0	4457285	64576815
Legal activity	20039843	0	1485762	21525605
Management Services Activity	100199217	0	7428811	107628028
Transportation and Marketing Activity	102739500	0	5200166	107939666
calculator activity	30059764	0	2228641	32288405
Total	313157854	0	20800665	333958519

Source / prepared by the researcher based on factory data for the year 2020.

6.3.3. Accounts Program.

This program consists of the following activities: salary activity, fund activity, treasury activity, and budget activity.

The table below shows the total costs of the accounts management program for the year 2020 as follows.

Table No. (7)

Total costs of the accounts program

Accounts Program	Salaries and wages	Materials	industrial costs	Total
Payroll activity	20039844	0	5974369	26014213
Fund and treasury activity	10019922	0	29871184	13007106
budget activity	10019922	0	2987182	13007104
Total	40079688	0	11948735	52028423

Source / prepared by the researcher based on factory data for the year 2020.

6.3.4. internal control program.

This program consists of the following activities: the financial audit activity and the list audit activity.

The table below shows the total costs of the internal control program for the year 2020 as follows.

Table No. (8)

Total costs of the internal control program

internal control program	Salaries and wages	Materials	industrial costs	Total
Financial audit activity	10019922	0	4509414	14529336
Checklist activity	10019922	0	3810852	13830774
Total	20039844	0	8320266	28360110

Source / prepared by the researcher based on factory data for the year 2020.

6.3.5. production program.

The production program consists of the following subprograms.

6.3.5.1. production services program.

This sub-program consists of the following activities: milk receiving activity and laboratories activity.

The table below shows the total costs of the production services subprogram for the year 2020 as follows.

Table No. (9)

Total costs of the production services subprogram

production services program	Salaries and wages	Materials	industrial costs	Total
milk receiving activity	1733103764	0	6709999	179813763
laboratory activity	74187336	0	2875713	77063049
Total	247291100	0	9585712	256876812

Source / prepared by the researcher based on factory data for the year 2020.

6.3.5.2. cheese production line program.

This sub-program consists of the following activities: Cheese activity 100 gm with cream and cheese activity 100 gm cube.

The table below shows the total costs of the production services subprogram for the year 2020 as follows.

Table No. (10)
Total costs of the cheese production line program

cheese production line program	Salaries and wages	Materials	industrial costs	Total
Cheese activity 100gm with cream	133266646	393989750	68488818	595745214
Cheese Activity 150gm	114228554	322355250	58005595	494589399
Total	247495200	716345000	126494413	1090334613

Source / prepared by the researcher based on factory data for the year 2020.

The table below shows the total costs of the production program for the year 2020 as follows.

Table No. (11)
Total costs of the production program

production program	Salaries and wages	Materials	industrial costs	Total
production services program	247291100	0	9585712	256876812
cheese production line program	247495200	716345000	126494413	1090334613
Total	494786300	716345000	136080125	1347211425

Source / prepared by the researcher based on factory data for the year 2020.

6.3.6. quality control program.

The quality control program consists of the following activities: follow-up activity, inspection and inspection activity, and research and development activity.

The table below shows the total costs of the quality control program for the year 2020 as follows.

Table No. (12)
Total costs of the quality control program

quality control program	Salaries and wages	Materials	industrial costs	Total
Follow-up activity	86551887	0	4402163	90954050
Inspection and inspection activity	98916442	0	5031048	103947490
Research and development activity	49458221	0	2515524	51973745
Total	234926550	0	11948735	246875285

Source / prepared by the researcher based on factory data for the year 2020 .

6.3.7. engineering maintenance program.

This program consists of the following activities: the activity of the production halls, the activity of the processing unit, and the activity of boiler services.

The table below shows the total costs of the engineering maintenance program for the year 2020 as follows.

Table No. (13)
Total costs of the engineering maintenance program

engineering maintenance program	Salaries and wages	Materials	industrial costs	Total
Production halls activity	55702290	0	5864725	61567015
CPU activity	47744820	0	4983403	52728223
Boiler Services Activity	39787350	0	4232589	44019939
Total	143234460	0	15080717	158315177

Source / prepared by the researcher based on factory data for the year 2020.

6.3.8 warehouse software.

This program consists of the following subprograms.

6.3.8.1. cold storage program.

This sub-program consists of the following activities.

The activity of finished production stores and the activity of raw materials stores.

The table below shows the total costs of the refrigerated warehouses sub-program for the year 2020 as follows.

Table No. (14)
Total costs of the cold storage program

cold storage program	Salaries and wages	Materials	industrial costs	Total
Finished production warehouse activity	31829876	0	6656197	38486073
Raw materials stores activity	15914938	0	3328098	19243036
Total	47744814	0	9984295	57529109

Source / prepared by the researcher based on factory data for the year 2020.

6.3.8.2. non-refrigerated warehouse program.

This program consists of the following activities: the activity of stockpiles of materials and the activity of warehouses of packaging materials.

The table below shows the total costs of the non-refrigerated warehouses sub-program for the year 2020 as follows.

Table No. (15)
Total costs of the non-refrigerated warehouse program

non-refrigerated warehouse program	Salaries and wages	Materials	industrial costs	Total
Back-up warehouse activity	23872407	0	4992147	28864554
Packaging materials stores activity	7957469	0	1664049	9621518
Total	31829876	0	6656196	38486072

Source / prepared by the researcher based on factory data for the year 2020.

The table below shows the total costs of the warehouse program for the year 2020 as follows.

Table No. (16)
The total costs of the warehouse program

warehouse software	Salaries and wages	Materials	industrial costs	Total
cold storage program	47744814	0	9984295	57729109
non-refrigerated warehouse program	31829876	0	6656196	38486072
Total	79574690	0	16640491	96215181

Source / prepared by the researcher based on factory data for the year 2020.

Through the estimated costs of each of the main and sub-programs of the Diwaniyah Dairy Factory, the total cost of the Diwaniyah Dairy Factory programs for the year 2020 is as follows.

Table No. (17)

Al Diwaniyah Dairy Factory Programs Total Costs

Program name	Salaries and wages	Materials	industrial costs	Total
Director's office program	120239064	0	8320266	128559330
management software	313157854	0	20800665	333958519
Accounts Program	40079688	0	11948735	52028423
internal control program	20039844	0	8320266	28360110
production program	494786300	716345000	136080125	1347211425
quality control program	234926550	0	11948735	246875285
engineering maintenance program	143234460	0	15080717	158315177
warehouse software	79574690	0	16640491	96215181
Total	1446038450	716345000	229140000	2391523450

Source / prepared by the researcher based on factory data for the year 2020.

It is clear from the above that the objective of applying the program and performance budget is to improve spending, as setting spending priorities leads to allocating funds to the most effective units and programs. By defining the goods and services that will be provided to the community. According to this, after making the production mix decision, Al-Diwaniyah Dairy Factory was able to maximize the achievement by achieving sales revenue, which amounted to (259080000), while the sales revenue before making decisions related to the production mix reached (1057283597), and here the factory was able to reduce the loss that the factory is exposed to. to (290038866) dinars only, after adding the net revenue of free fat, which amounted to (312613440) to the revenue of the factory, after the total loss of the factory was (1131034133) dinars, and also the factory was able to prepare the program and performance budget after making decisions related to the production mix in order to achieve the objectives the factory.

7. Conclusions and Recommendations.

7.1. Conclusions.

7.1.1. The objective of applying the program and performance budget is to increase the effectiveness of planning because it enters or integrates the planning aspect in the budget process and therefore it requires: Defining and formulating the objectives of each administrative unit in the form of programs and activities and translating these activities and programs and then allocating the necessary funds and funds on the basis of the estimated costs of business or Activities in the form of units of performance or achievement expressed in quantity or quality.

7.1.2. The program and performance budget is a plan that aims to achieve a set of goals, whether long-term or short-term, by linking those goals to the organizational structure of the organizational unit, where they are divided into terms of reference, programs, activities and projects in the light of accurate identification of the expected costs and returns in order to achieve the maximum possible efficiency for the allocation of available resources.

7.1.3. The application of the program and performance budget aims at maximizing the volume and quality of public services provided in the government and public authorities in order to raise the efficiency and feasibility of spending or the resources used.

7.1.4. The application of program and performance budgeting at Al-Diwaniyah Dairy Factory adds new dimensions to financial and economic control, as it facilitates the technical and economic evaluation of the programs and activities carried out by the management of Al-Diwaniyah Dairy Factory. It was also able to justify actions and deviations, and this is reflected in achieving effective control, as well as rationalizing government spending and reducing the costs of implementing government activities and programmes.

7.1.5. The production mix is an integrated group of products and their forms produced and provided by business organizations to different markets. Expanding the product mix helps in the company's success in adapting to changing consumer demand and preferences and reducing the risks of relying on one product or one production line.

7.1.6. Linear programming looks at the distribution of limited resources between alternative uses within the framework of determinants or restrictions imposed on achieving the objectives of the business organization in the case of maximizing the value of the goal as in the regulation of cash

The role of program and performance balancing in improving production mix decisions

return or sales value. As well as in the case of reducing or minimizing the value of the target, such as reducing transportation costs or minimizing production costs.

7.1.7. From the practical side, the researcher concluded that the low demand for the factory's products and the low production of the Diwaniyah Dairy Factory is due to the poor quality of the raw materials used in the production processes and their high prices, as the indirect industrial costs for each product constitute 47% of the total cost per ton of the cheese product, and by 42% For the cream product, at a rate of 22.6% for the milk product, as well as the high costs of the packaging materials used in the factory for the packaging of products.

7.2. Recommendations.

7.2.1. The necessity of applying the program and performance budget in the economic units, as the application of the program and performance budget leads to rationalizing the implementation of programs and activities, where the implementation is monitored on an ongoing basis and compared to what has been accomplished in the form of performance units with what was planned in advance.

7.2.2. Setting performance indicators for some activities, given that most government activities and services are in the form of intangible activities and services, so it is impossible to measure them in the form of units of output or units of cost.

7.2.3. Developing administrative organizational structures to implement the concept of program and performance budgeting, in order to overlap the competencies of administrative units.

7.2.4. The decision-making process requires defining the objectives that should be achieved, where the administrative decision is based on a specific and specific objective of the economic unit, such as maximizing profits, maximizing the social return, the productive mix, and it can be noted that the objectives of economic units are not stable, as they differ from one economic unit to another.

7.2.5. The application of the linear programming model method is necessary for the types of common applications that are related to the general problems in allocating scarce resources in economic units in a more accurate manner, and these problems relate to the selection of specific activities that are efficient and effective in order to allocate scarce resources to accomplish these activities so that the choice is appropriate between The level of activities and consumption of those resources.

7.2.6. Laws that contribute to the protection of the national product must be legislated and customs duties imposed on competing and imported products should not be followed, and the policy of dumping the Iraqi market with imported products should not be followed, thus making the prices of the national product more competitive with imported products.

7.2.7. The application of the program and performance budget in the Chinese dairy factory provides a greater opportunity for workers to contribute to preparing the budget and formulating goals and standards in a realistic way, as well as linking the efforts made with the achieved achievements, and this helps in raising the morale of the workers, their commitment and desire, achieving the best result of their participation and achievement in preparing the budget.

list of sources

1. Al-Khafaji, Haider Jassim Hamza, Al-Ani, Safa Ahmed Muhammad, a proposed framework for preparing the budget for programs and performance and its reflection on the rationalization of public spending and the effectiveness of accountability in Iraqi government units, a thesis submitted to the Council of the College of Administration and Economics / University of Baghdad, 2020.
2. Al-Jubouri, Muhannad Sabbar Lafta, balancing programs and performance and its role in the optimal use of resources in the electric power production sector (applied study) Master's thesis, College of Administration and Economics, Al-Qadisiyah University, 2021.
3. Al-Zamili, Ali Abdul-Hussain Hani, Using the Theory of Constraints in Making Optimal Productive Mix Decisions and Maximizing Achievement, An Applied Study in Al-Fida State Company / Dates Factory, research published in the Journal of the College of Administration and Economics for Economic Studies Volume 10 Issue 2:313-334, 2018.
4. Al-Zamili, Baha Farid Madi, and Muhammad, Abdul-Mahdi Abbas, the extent to which the program budget and performance can be used in investment projects for the local government in Basra Governorate, Journal of Science and Economics, Volume 9, Number 35, College of Administration and Economics, University of Basra, 2014.

The role of program and performance balancing in improving production mix decisions

5. Phosphorous, Fouad Suleiman, Governmental Accounting, Kunooz Al-Marefa Al-Ilmia for Publishing and Distribution, 2010.
6. Al-Amiri, Saud Jayed, Al-Attar, Haider Abbas Eid, Al-Khazali, Haider Laith Miteb, using program and performance budgeting as a tool for planning and control in government units, applied research at the University of Al-Muthanna, Iraq, research published in Al-Muthanna Journal of Administrative and Economic Sciences, Volume 8, Issue 3 ,2018.
7. Al-Hamaky, Ayman, and others, a lecture entitled Program and Performance Balance as one of the Gender Planning Tools, Faculty of Commerce, Ain Al-Shams University, 2012
8. Abdel-Wahhab, Muhammad Tariq, the economic effects of activating the transition policies to budget programs and performance in Iraq, an applied study, research published in the Journal of Kirkuk University for Administrative and Economic Sciences, Volume 11, Issue 1, 2021.
9. Zinyama & Nhema , Zimbabwe Performance – Based Budgeting Concepts and Success Factors , Published by American Research Institute for Police Development- Vol ,4 , No , I , pp, 33- 60 , 2016.
10. Al-Barki, Salam Ghali Hammadi, Program and performance budgeting and its role in rationalizing spending and reducing the deficit in the state's general budget, an applied study at the University of Al-Muthanna, a master's thesis submitted to the Council of the College of Administration and Economics, Wasit University, 2021.
11. Al-Hilali, Hussein Mustafa, Classification of Government Budgets and Their Role in Highlighting Government Performance and Performance Evaluation, Faculty of Commerce, Suez Canal University, 2009.
12. Al-Badri, Younis Ali, The effect of program budgeting and performance on results-based strategic planning, a study submitted to the College of Administration and Economics, Wasit University, as part of the requirements for obtaining a master's degree in Accounting, 2019.
13. The Guardian, Osama, Management Accounting, first edition, Dar Al-Hamid for Publishing and Distribution, 2004.
14. Hassan, Fida Ali Al-Sheikh, Assessing the extent to which operations research is used in making decisions about choosing the optimal production mix, a case study on engineering industry companies in the Syrian coast, 2013.
15. Horngren. Charles, Datar. Srikant & Foster George;" Cost Accounting amanagerial Emphasis " 13th ed , Pearson Education , Inc , Newjersey , USA . 2009.
16. Juma'a, Ahmed Helmy, Management Accounting, Planning, Control and Decision Making, First Edition, Dar Safaa for Publishing and Distribution, Amman, 2011.
17. Cant , M.C. & Van Heerden , C.H.Marketing Management : A South Afyican perspective . Claremont: Juta & Company . 2013.
18. . Learn Marketing.com. (2014). Product mix Product : Lines and product stretching. Available at <http://www.learnmarketing.net/productobjectives.htm>.
19. Bose, D.C.(2012). Principles of management and administration. 2nd ed. Delhi: PHI Learning Private Limited.
20. Saxena, R. (2009). Marketing Management. 4th New Delhi: Tata Mcgraw-Hill.
21. Alnoor Bhimani , Charles T. Horngren, Srikant M. Datar , George Foster, Management and Cost Accounting Fourth Ed, Prentice-Hall, Upper Saddle River, New JERSEY, USA, 2008.
22. Kahala, Gabriel Joseph and Hanan, Radwan Helweh, Administrative Accounting, Introduction to Accounting Responsibility and Performance Evaluation, First Edition, Third Edition, House of Culture for Publishing and Distribution, Amman, 2009.
23. Abu Hashish, Khalil Awad, Cost accounting, measurement and analysis, second edition, Wael Publishing House, Amman, 2009.
24. Al-Farhoud, Faisal Abdul-Ilah Fahim, Employing Linear Programming in Network Diagrams to Monitor and Schedule the Activities of the Ministry of Youth Projects, University of Baghdad, Research published in Al-Kut Journal of Economic and Administrative Sciences, Volume One, Part Two, Special Issue of the Scientific Conference, pages 316-331. 2012.
25. Al-Fadl, Muayad Abdul-Hussein, Production Planning and Control, a quantitative approach with a case study, Dar Al-Marikh Publishing, Riyadh, Saudi Arabia, 2007.
26. Frederick S. Hillier , Gerald J. Lieberman , Introduction to Operations Research , ninth Ed., McGraw Hill Co., New York, 2010.