ECOTECHNOPRENEUR: Journal Economics Technology & Entrepreneur

http://azramedia-indonesia.azramediaindonesia.com/index.php/ecotechnopreneur/index
DOI : https://doi.org/10.62668/ecotechnopreneur.v4i02.1564
Email : info@azramediaindonesia.com

Open Access

NON-BUDGETARY ASPECTS AFFECT FOOD SECURITY IN SOUTHEAST SULAWESI PROVINCE

Tajuddin[*1], La Ode Suriadi[2], La Ode Anto[3], Arifuddin[4], Wa Ode Rachmasari Ariani[5]
[1,2,3,4,5]Universitas Halu Oleo, Kendari, Indonesia
[*]Corresponding Author: tajuddin@uho.ac.id

Info Article
Received :
03 April 2025
Revised :
05 Mei 2025
Accepted :
16 Juni 2025
Publication :
30 Juni 2025

Keywords:
Food; Food Security; Food Availability.
Kata Kunci:
Pangan, Ketahanan Pangan, Ketersediaan Pangan

Abstract: *This study aims to examine the impact of government expenditure (APBD and APBN) on food availability in Southeast Sulawesi Province. Utilizing secondary data and elasticity analysis, the research assesses the responsiveness of food production to budgetary changes. The findings reveal that increased government spending through APBD and APBN does not significantly enhance food production. Instead, fluctuations in food output are primarily driven by non-fiscal factors, including agricultural land conversion for non-agricultural uses, declining soil productivity, climate change-induced disruptions to planting and harvesting cycles, and other external variables. Consequently, Southeast Sulawesi's food security faces long-term vulnerabilities without proactive interventions. Sustainable measures such as safeguarding and expanding agricultural land, improving farming efficiency, and adopting climate-resilient agricultural technologies are critical to mitigating these risks. Policymakers must prioritize these strategies to ensure stable and sustainable food security in the region.*

Abstrak: Studi ini bertujuan untuk menganalisis pengaruh pengeluaran pemerintah (APBD dan APBN) terhadap ketersediaan pangan di Provinsi Sulawesi Tenggara. Penelitian ini menggunakan data sekunder dengan pendekatan analisis elastisitas untuk mengukur respons produksi pangan terhadap perubahan alokasi anggaran. Hasil penelitian menunjukkan bahwa peningkatan belanja pemerintah melalui APBD dan APBN tidak memberikan dampak signifikan terhadap peningkatan produksi pangan. Hal ini mengindikasikan bahwa fluktuasi produksi pangan lebih dipengaruhi oleh faktor-faktor non-anggaran, seperti alih fungsi lahan pertanian menjadi non-pertanian, penurunan produktivitas lahan, dampak perubahan iklim terhadap siklus tanam dan panen, serta berbagai faktor eksternal lainnya. Oleh karena itu, ketersediaan pangan di Sulawesi Tenggara berpotensi menghadapi tantangan serius dalam jangka panjang jika tidak disertai dengan langkah-langkah strategis, seperti perlindungan dan perluasan lahan pertanian berkelanjutan, peningkatan efisiensi budidaya, serta penerapan teknologi pertanian yang adaptif terhadap perubahan lingkungan. Upaya tersebut diperlukan untuk memastikan ketahanan pangan yang stabil dan berkelanjutan di masa depan.

INTRODUCTION

Food is a basic human need, because food is essential for survival (Fauzin, 2021; Irfan et al., 2023; Leiwakabessy, I., Manurung, M., Penda, J., & Yanti, 2023; Sahrunneza & Kurniawan, 2024; Sudarta, 2022). Basic human needs include the fulfilment of various elements necessary for humans to always maintain their lives as discussed in the theories of Virginia Henderson and Abraham Maslow, which include physiological needs such as nutrition (Comparison of Virginia Henderson's Theory with Abraham Maslow's Theory of the Basic Concept of Man, Raharja et al., 2022). Food security is an important aspect of ensuring adequate nutrition. Food is not only related to the fulfilment of physical needs but also the fulfilment of the human right to a meaningful life, as highlighted in the Brazilian context (Mitchell et al., 2011). The fulfilment of sufficient and nutritious food is an important requirement for the health and survival of both individuals and communities so food has become a global issue related to the threat of food and nutrition crises (Kemmerling et al., 2023; Martini et al., 2021).

To overcome the problem of food crisis, food diversification is needed. Food should not be viewed as just one commodity such as rice (Blaber, n.d.; Rozi et al., 2023). Experience in Sub-Saharan Africa shows that food dependence on a single staple food ingredient is a cause of low food security, especially during crises such as the COVID-19 pandemic and geopolitical instability, which typically contribute to food supply chain disruptions. This condition confirms the need for a diverse food and nutrition fulfilment system as implemented in Nigeria and Uganda (Nkwonta et al., 2023). Similarly in Pakistan, low food security contributes to the double burden of malnutrition in children, with a large proportion of the population experiencing malnutrition as well as overnutrition, which can lead to long-term productivity declines (Sultan & Iram, 2023).

The availability of adequate budgets is essential to meet food needs. Research conducted in the UK concluded that budgets have a significant influence on food availability both in terms of quantity and quality. If the budget is inadequate, it often triggers insufficient nutritional needs and has an impact on health problems (Nelson, 2002; Salvador Castell et al., 2016).

Research in 26 countries in Europe concluded that budgets, especially for low-income communities, must be efficiently managed in order for food to be met, including how to meet food needs in an efficient yet healthy way because food sufficiency affects biological, psychological, and social functioning (Carrillo-álvarez et al., 2018). In some areas such as East Nusa Tenggara, government budget allocations to ensure food security

are essential, but often inadequate, indicating the need to build financial commitments to ensure food availability and nutritional needs (Juanda et al., 2017).

The results of a study (Saputro, W. A., & Fidayani, Y., 2020) conducted in Klaten Regency concluded that there are three factors that affect food security, namely income levels, rice prices, and nutritional knowledge by housewives. From the government's side, Tuesday (2021) revealed that the government is responsible for meeting food needs in Indonesia, therefore, the government must meet three main aspects: (i) availability; (ii) accessibility; and (iii) affordability for each family. In addition, the government must also be able to integrate food security and stability policies. Some of these studies (Carrillo-álvarez et al., 2018; Juanda et al., 2017; Saputro, W. A., & Fidayani, Y., 2020) became the basis for this study.

Some of the studies above examine food availability from the perspective of the bylaws, this study analyzes the budget from the perspective of government expenditure through the APBD and APBN. Based on this, the purpose of this study is to analyze the role of the APBD and APBN in food availability. This research is very important as a reference for the government in formulating food security policies with a budget approach.

METHOD

To achieve the research objectives, this study uses a quantitative approach with the elasticity analysis method. The elasticity analysis is intended to measure the extent to which the sensitivity of changes in government expenditure (APBD and APBN) affects food availability (food security). Elasticity is calculated using the formula:

$$E = \frac{\Delta Y}{\Delta X} . \frac{X}{Y} \quad \text{.....(1)}$$

Source: (Nicholson, 2000)

Where E is elasticity, Y is food availability, and X is the budget (APBD or APBN). The data used comes from government financial statements, LAKIP, and other relevant documents.

RESULTS AND DISCUSSION

a. Food Production Development

What is quite worrying is that overall the production of food crops, which is large as a source of basic food for the Indonesian people, has decreased by an average of 21,169 tons during 2022-2023. Rice production decreased by 13,122 tons in 2023, and corn

production decreased drastically to 97,251 tons (53.65%). Soybean commodities also decreased by 4,779 tons. The same happened in peanuts and cassava, which decreased by 368 tons and 36,648 tons, respectively. In contrast, some commodities such as mung beans and sweet potatoes showed significant improvements. Green beans, with an increase of 69.38%, are suspected to benefit from increased market demand and lower production input requirements compared to other commodities. This decline in food production occurs due to external factors such as the conversion of agricultural land to non-agricultural land, decreased productivity, and various other external factors. This condition occurs in Indonesia and Egypt (Elnaggar, 2020; Setiawan et al., 2023). If this decline in food production is not addressed, there will be food shortages that lead to poverty (Carolina Rosa et al., 2016; Subair, 2015).

In the livestock sector, there was an average decrease of 488,533 heads. In particular, the cattle population increased by 14,805 heads (3.51%). Goats also showed an increase in population of 14,510 heads (6.79%). However, there was a sharp decline in the population of free-range chickens and laying hens, by 80.59% and 64.19%, respectively. Broiler meat production has surged to almost 4.8 million kg (77.12%) while horse meat production has decreased drastically by 68.70%. Broiler chicken egg production decreased drastically by 64.20%. Overall, livestock meat production in Southeast Sulawesi has decreased in the last two years, except for certain livestock meat production which increased by 503,439 kg, but poultry egg production decreased by 751,688 kg.

Table 1. Food Production in Southeast Sulawesi in 2022-2023

Food commodities	2022	2023	Changes
a. Food crops (tonnes)			
1. Rice	488.389	475.267	-13.122
2. Corn	181.295	84.044	-97.251
3. Soybeans	9.681	4.902	-4.779
4. Groundnuts	2.332	1.964	-368
5. Green Beans	307	520	213
6. Cassava	149.336	112.688	-36.648
7. Sweet Potato	15.724	19.494	3.770
b. Livestock population (head)			
1. Cattle	421.454	436.259	14.805
2. Dairy Cows	60	40	-20
3. Buffalo	2.668	3.158	490
4. Kambing	213.719	228.229	14.510
5. Goats	117.216	124.525	7.309
6. Horses	724	695	-29
7. Free-range Chicken	12.168.591	2.359.451	-9.809.140

Food commodities	2022	2023	Changes
8. Breeders of laying hens	505.923	181.231	-324.692
9. Broiler Breed Chickens	5.444.745	9.644.576	4.199.831
10. Ducks	631.190	663.692	32.502
11. Manila ducks	47.073	50.114	3.041
12. Quail	4.090	3.086	-1.004
c. Total Livestock Meat Production (kg)			
1. Cattle	4.525.615	5.213.814	688.199
2. Buffalo	32.768	31.374	-1.394
3. Goats	200.882	234.038	33.156
4. Pigs	585.216	651.517	66.301
5. Horses	17.250	5.400	-11.850
6. Free-range Chicken	13.117.741	13.323.489	205.748
7. Breeders of laying hens	376.254	134.783	-241.471
8. Broiler Breed Chickens	6.192.976	10.969.953	4.776.977
9. Ducks	395.756	416.135	20.379
10. Manila ducks	31.067	33.076	2.009
11. Quail	900	679	-221
d. Total Poultry Egg Production (kg)			
1. Free-range Chicken Eggs	10.806.512	10.976.008	169.496
2. Eggs from laying hens	6.549.471	2.346.142	-4.203.329
3. Duck Eggs	5057771	5.318.212	260.441
4. Manila ducks	258.431	275.126	16.695
5. Quail	7.104	5.360	-1.744

Source: Southeast Sulawesi Agriculture and Food Crops and Livestock Service Office, 2023

b. Realization of APBD

Table 2. Development of APBD Realisation for Food Crop Subsector of Southeast Sulawesi Province, 2022-2023

No	Program/Activity	2022	2023	Changes
1	Provincial Government Support Programme	39.233.202.309	53.293.286.700	14.060.084.391
2	Provision and Development of Agricultural Facilities Programme	14.597.502.150	22.493.421.935	7.895.919.785
3	Agricultural Infrastructure Provision and Development Programme	8.814.883.950	14.019.966.858	5.205.082.908
4	Animal Health and Veterinary Public Health Control Programme	251.416.500	1.182.691.300	931.274.800
5	Agricultural Disaster Control and Management Programme	122.023.000	1.090.426.000	968.403.000
6	Agricultural Extension Programme	1.851.673.450	3.188.238.400	1.336.564.950
Total APBD		64.870.701.359	95.268.031.193	30.397.329.834

Source: LAKIP of the Food Crops and Livestock Service Office of Southeast Sulawesi Province, 2022,2023

The budget allocation for supporting local government affairs increased by 35.83%. Similarly, the budget for the provision and development of agricultural facilities increased by 54.10%, and infrastructure increased by 59.04. The animal health and public health control program is the program with the largest increase of 370.37%. Agricultural disaster control and management increased significantly by 793.79% and the budget for agricultural extension increased by 72.20%.

Overall, there was a significant increase in the APBD (Regional Budget) allocation for the food crop sub-sector of Southeast Sulawesi Province by 46.86%, demonstrating the government's strong commitment to prioritizing agricultural development. This substantial budget rise reflects strategic efforts to enhance food security, improve farmers' welfare, and boost productivity through modernized farming infrastructure, training programs, and technological adoption, ultimately supporting sustainable economic growth in the region.

c. State Budget Realisation

There has been a significant increase in the state budget allocation for the crops and livestock sub-sector, reflecting a shift in policy focus, while infrastructure and facilities experienced a decline, suggesting a strategic reallocation of funds. This adjustment may prioritize direct agricultural productivity over physical development, aiming for greater budget efficiency and targeted sectoral growth. The change indicates an evolving approach to agricultural development, balancing immediate needs with long-term sustainability.

Table 3. State Budget Realisation for Food Crops and Livestock Subsectors in Southeast Sulawesi Province for 2022-2023

No	Work unit	2022	2023
1	Food Crops	19.973.286.550	32.081.673.644
2	Agricultural Infrastructure and Facilities	19.357.119.500	3.439.706.000
3	Animal Husbandry and Animal Health	12.265.820.719	18.829.241.661
4	Extension	9.391.382.390	9.693.216.672
Jumlah		60.987.609.159	64.043.837.977

Source: LAKIP of the Food Crops and Livestock Service Office of Southeast Sulawesi Province, 2022,2023

d. Elasticity of changes in APBD with respect to food production

The realization of the APBD, which increased by 46.85%, did not have an impact on increasing food production, even when the amount of APBD increased, food production decreased.

Table 4. Food Production, Budget Realization, and Elasticity

Food commodities	Food Production_2022	Food Production_2023	Changes in Food Production	Changes to ABPD	Elasticity
a. Food crops (tonnes)					
1. Rice	488.389	475.267	- 13.122		
2. Corn	181.295	84.044	- 97.251		
3. Soybeans	9.681	4.902	- 4.779		
4. Groundnuts	2.332	1.964	- 368		
5. Green Beans	307	520	213		
6. Cassava	149.336	112.688	- 36.648		
7. Sweet Potato	15.724	19.494	3.770		
Total food crop production	*847.064*	*698.879*	*- 148.185*	*30.397.329.834*	*- 0,37334*
b. Livestock population (head)					
1. Cattle	421.454	436.259	14.805		
2. Dairy Cows	60	40	- 20		
3. Buffalo	2.668	3.158	490		
4. Goats	213.719	228.229	14.510		
5. Pigs	117.216	124.525	7.309		
6. Horses	724	695	- 29		
7. Free-range Chicken	12.168.591	2.359.451	- 9.809.140		
8. Breeders of laying hens	505.923	181.231	- 324.692		
9. Broiler Breed Chickens	5.444.745	9.644.576	4.199.831		
10. Ducks	631.190	663.692	32.502		
11. Manila ducks	47.073	50.114	3.041		
12. Quail	4.090	3.086	- .004		
Total livestock population	*19.557.453*		*- 5.862.397*	*30.397.329.834*	*- 0,63970*
c. Livestock Meat Production (kg)					
1. Cattle	4.525.615	5.213.814	688.199		
2. Buffalo	32.768	31.374	- 1.394		
3. Goats	200.882	234.038	33.156		
4. Pigs	585.216	651.517	66.301		
5. Horses	17.250	5.400	- 11.850		
6. Free-range Chicken	13.117.741	13.323.489	205.748		
7. Breeders of laying hens	376.254	134.783	- 241.471		
8. Broiler Breed Chickens	6.192.976	10.969.953	4.776.977		
9. Ducks	395.756	416.135	20.379		
10. Manila ducks	31.067	33.076	2.009		
11. Quail	900	679	- 221		
Total livestock meat production	*25.476.425*	*31.014.258*	*5.537.833*	*30.397.329.834*	*0,46389*
d. Total Poultry Egg Production (kg)					
1. Free-range Chicken Eggs	10.806.512	10.976.008	169.496		
2. Eggs from laying hens	6.549.471	2.346.142	- 4.203.329		
3. Duck Eggs	5.057.771	5.318.212	260.441		
4. Manila ducks	258.431	275.126	16.695		
5. Quail	7.104	5.360	- 1.744		
Total prod. Poultry eggs	*22.679.289*	*18.920.848*	*- 3.758.441*	*30.397.329.834*	*- 0,35366*

Food commodities	Food Production_2022	Food Production_2023	Changes in Food Production	Changes to ABPD	Elasticity
Average elasticity of changes in APBD to Food Availability					- 0,22570

Source: LAKIP of the Food Crops and Livestock Service Office of Southeast Sulawesi Province, 2022,2023 (processed)

Of the four types of food commodities analyzed, only livestock meat production increased by 21.73%. However, there was an increase but the increase was not able to compensate for the decline in production in the other three commodities so overall food commodity production experienced a downward trend.

e. Elasticity of state budget changes to food production

The realization of the state budget, which increased by 5.01%, had an elastic (impact) on food production. Despite the impact, food commodity production decreased by 1.61%.

Table 5. Elasticity of State Budget Changes on Food Production

Food commodities	Food Production_2022	Food Production_2023	Changes in Food Production	Changes in ABPN	Elasticity
a. Food crops (tonnes)					
1. Rice	488.389	475.267	- 13.122		
2. Soybeans	9.681	4.902	- 4.779		
3. Groundnuts	2.332	1.964	- 368		
4. Green Beans	307	520	213		
5. Cassava	149.336	112.688	- 36.648		
6. Sweet Potato	15.724	19.494	3.770		
Total production of food commodities	*665.769*	*614.835*	*- 50.934*	*3.056.228.818*	*- 1,52662*
b. Livestock population (head)					
1. Cattle	421.454	436.259	14.805		
2. Dairy Cows	60	40	- 20		
3. Buffalo	2.668	3.158	490		
4. Goats	213.719	228.229	14.510		
5. Pigs	117.216	124.525	7.309		
6. Horses	724	695	- 29		
7. Free-range Chicken	12.168.591	2.359.451	- 9.809.140		
8. Breeders of laying hens	505.923	181.231	- 324.692		
9. Broiler Breed Chickens	5.444.745	9.644.576	4.199.831		
10. Ducks	631.190	663.692	32.502		
11. Manila ducks	47.073	50.114	3.041		
12. Quail	4.090	3.086	- 1.004		
Total livestock population	*19.557.453*	*13.695.056*	*- 5.862.397*	*3.056.228.818*	*- 5,98162*
c. Livestock Meat Production (kg)					
1. Cattle	4.525.615	5.213.814	688.199		
2. Buffalo	32.768	31.374	- 1.394		
3. Goats	200.882	234.038	33.156		
4. Pigs	585.216	651.517	66.301		
5. Horses	17.250	5.400	- 11.850		

Food commodities	Food Production_2022	Food Production_2023	Changes in Food Production	Changes in ABPN	Elasticity
6. Free-range Chicken	13.117.741	13.323.489	205.748		
7. Free-range Chicken	376.254	134.783	- 241.471		
8. Broiler Breed Chickens	6.192.976	10.969.953	4.776.977		
9. Ducks	395.756	416.135	20.379		
10. Manila ducks	31.067	33.076	2.009		
11. Quail	900	679	- 221		
Total Livestock Meat Production	*25.476.425*	*31.014.258*	*5.537.833*	*3.056.228.818*	*4,33768*
d. Poultry Egg Production (kg)					
1.Free-range Chicken Eggs	10.806.512	10.976.008	169.496		
2. Eggs from laying hens	6.549.471	2.346.142	- 4.203.329		
3. Duck Eggs	5.057.771	5.318.212	260.441		
4. Manila ducks	258.431	275.126	16.695		
5. Quail	7.104	5.360	- 1.744		
Total Poultry Egg Production (kg)	*22.679.289*	*18.920.848*	*- 3.758.441*	*3.056.228.818*	*- 3,30700*
Total Poultry Egg Production (kg)					- 1,61940

Source: LAKIP of the Food Crops and Livestock Service Office of Southeast Sulawesi Province, 2022,2023 (processed)

CONCLUSION

Based on the results and discussion, it is concluded that the increase in the government budget both through the APBD and APBN has no impact on the increase in food commodity production. The increase in food production is influenced by non-budgetary factors such as the conversion of agricultural land, decreased productivity, and climate/weather change.

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