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ANALYSIS OF OPEN GOVERNMENT: A REVIEW OF FOOD SECURITY AND INDEPENDENCE POLICY IN BOJONEGORO

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ABSTRACT. This study examines how Open Government initiatives enhance the effectiveness of the Independent Farmer Card (KPM) Plus Program and their subsequent impacts on Food Security and Food Independence among rural communities. The research problem of this study is that some farmers lack an understanding of how to access support and follow application instructions for agricultural aid through the KPM Plus Program. The research analyzes the impact of transparency, participation, and collaboration within government frameworks on agricultural support. The findings highlight that Open Government initiatives significantly enhance the effectiveness of the KPM Plus Program, leading to better food security and independence for farmers. While SEM results confirm that strong governance positively influences agricultural programs, the model's fit indices indicate a need for refinement to capture the underlying dynamics better. The study recommends strengthening Open Government practices to enhance program effectiveness and food security in rural areas. Future research should consider additional variables and refine the model for deeper insights into the relationship between governance and agriculture. This research contributes valuable perspectives on rural development, highlighting the importance of transparent and participative governance in advancing agricultural support and food sustainability.

Keywords: Open Government; Food Security; Food Independence; Independent Farmer Card Plus

ANALISIS PEMERINTAHAN TERBUKA: TINJAUAN TERHADAP KEBIJAKAN KETAHANAN DAN KEMANDIRIAN PANGAN DI BOJONEGORO

ABSTRAK. Penelitian ini mengkaji bagaimana inisiatif Open Government meningkatkan efektivitas Program Kartu Petani Mandiri (KPM) Plus dan dampaknya terhadap Ketahanan Pangan dan Kemandirian Pangan di kalangan masyarakat pedesaan. Masalah penelitian dari studi ini adalah kurangnya pemahaman petani tentang bagaimana mengakses bantuan dan mengikuti petunjuk aplikasi untuk bantuan pertanian melalui Program KPM Plus. Penelitian ini menganalisis dampak transparansi, partisipasi, dan kolaborasi dalam kerangka kerja pemerintah terhadap bantuan pertanian. Temuan penelitian menunjukkan bahwa inisiatif Open Government secara signifikan meningkatkan efektivitas Program KPM Plus, yang berujung pada ketahanan pangan dan kemandirian yang lebih baik bagi para petani. Meskipun hasil SEM mengkonfirmasi bahwa tata kelola yang kuat secara positif memengaruhi program pertanian, indeks kecocokan model menunjukkan perlunya penyempurnaan untuk menangkap dinamika yang mendasarinya dengan lebih baik. Studi ini merekomendasikan penguatan praktik-praktik Pemerintahan Terbuka untuk meningkatkan efektivitas program dan ketahanan pangan di daerah pedesaan. Penelitian di masa depan harus mempertimbangkan variabel tambahan dan menyempurnakan model untuk mendapatkan wawasan yang lebih dalam tentang hubungan antara tata kelola pemerintahan dan pertanian. Penelitian ini menyumbangkan perspektif yang berharga tentang pembangunan pedesaan, menyoroti pentingnya tata kelola pemerintahan yang transparan dan partisipatif dalam memajukan dukungan pertanian dan keberlanjutan pangan.

Kata kunci: Open Government; Ketahanan Pangan; Kemandirian Pangan; Kartu Petani Mandiri Plus

INTRODUCTION

Global agriculture produces fewer agricultural products due to natural disasters and climate change, disrupting the food supply chain (Nuryartono et al., 2021; Rojas-Reyes et al., 2024)Java is threatened by medium to a high level of natural disaster vulnerability that will certainly affect the national food system. This study aims to analyze the determining factors of the food security index as a proxy of regional resilience, especially in Java. The sample used in this analysis is derived from districts throughout Java in the years of 2017–2018. The data panel regression models are used to produce the best estimation models. The results showed that disaster vulnerability is very influential on food security at district level. The other affecting factors for food security at the regional level are socioeconomic dimensions such as inflation, poverty and GDRP per capita. Policies are necessary to prevent food inflation by stabilizing prices, ensuring effective and efficient supply lines (under various conditions, including at the occurrence of natural disasters. In addition, the global food situation is again facing challenges due to the Russia-Ukraine conflict, including high food prices, disrupted food supply chains, strong international food demand,

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and declining crop yields in some countries (Ben Hassen & El Bilali, 2022; Jia et al., 2024)the Russia–Ukraine war has various negative socioeconomic impacts that are now being felt internationally and might worsen, notably, for global food security. If the war deepens, the food crisis will worsen, posing a challenge to many countries, especially those that rely on food imports, such as those in the Middle East and North Africa (MENA. Efforts have been made to address the global hunger crisis, but food insecurity and malnutrition remain significant challenges in many countries (Sibhatu & Qaim, 2017). Recent data from the Food and Agriculture Organization of the United Nations (FAO) shows that 733.4 million people in developing countries are undernourished (FAO, 2024). In these countries, food security is often threatened by population expansion and the increasing frequency of disasters due to extreme weather, such as floods, droughts, and changes in temperature or heavy rainfall, making achieving food security a primary concern. The state of the socioeconomic and political systems also influences it. In addition, rising food costs and income inequality can negatively impact impoverished households' access to and availability due to increased food demand and decreased crop output. Thus, the leading causes of hunger and malnutrition are population expansion, natural disasters, war and conflict, poverty, and climate change (Mirzabaev et al., 2023; Pawlak & Kołodziejczak, 2020)while the agricultural sector plays a strategic role in improving food availability. The aim of this paper is to identify relationships between the undernourishment scale and selected characteristics describing the agricultural sector within identified clusters of developing countries. Typological groups of countries were separated usingWard's method. It results from the analyses that the greatest problems with maintaining food security are observed in the developing countries with a high share of agriculture in their Gross Domestic Product (GDP.

The challenge of feeding the world's population is certain to worsen in the coming years. Food demand is predicted to increase by 59% to 102% by 2050, when there will be 9.2 billion people on earth, up from 7.6 billion in 2018 (Fróna et al., 2019; Fukase & Martin, 2020)developing countries have been growing much more rapidly than the industrial countries. This growth convergence has potentially very important implications for world food demand and for world agriculture because of the increase in demand for agricultural resources as diets shift away from starchy staples and towards animal-based products and fruits and vegetables. Using a resource-based measure of food production and consumption that accounts for the much higher production costs associated with animal-based foods, this article finds per capita demand growth to be a more important driver of food demand than population growth between now and 2050. Using the middle-ground Shared Socioeconomic Pathway scenario to 2050 from the International Institute for Applied Systems Analysis, which assumes continued income convergence, the article finds that the increase in food demand (102 percent. Therefore, to deal with this, the United Nations (UN) and 193 member states designed the 2nd Sustainable Development Goal (SDGs), Zero Hunger, to end hunger, achieve food security, improve nutrition, and promote sustainable agriculture. This was realized through the Food and Agriculture Organization of the United Nations (FAO) with efforts to improve nutrition levels and living standards, increase agricultural productivity, and advance the conditions of rural populations through international collaboration with governments and the private sector and increase their budgets (Meyer, 2021).

The agricultural sector strategically increases food availability and achieves food security (Garbero & Jäckering, 2021; Wegren & Elvestad, 2018). While there is broad consensus that global food demand will rise in the coming decades, there remains considerable uncertainty about the ability of global agriculture to meet this demand. One potential solution to eliminate hunger is to enhance food supply by boosting agricultural productivity and expanding the use of agricultural land. However, given current technology and knowledge, low-income developing countries may struggle to produce enough food to meet their needs. It shows that to increase agricultural production productivity per worker and unit of land, investment in agricultural research and extension programs must be increased in both developed and developing countries (Pawlak & Kołodziejczak, 2020).

Increased transparency in supply chains can significantly improve the sustainability of commodity production systems. By clarifying complex supply chains, transparency helps various stakeholders identify risks, enhance conditions on the ground, and track progress. The complexity of global supply chains often hides questionable and unsustainable practices, making it difficult to evaluate the effectiveness of sustainability commitments. Greater public transparency can help level the playing field, giving vulnerable groups in both producer and consumer countries better access to information about the origins and impacts of traded commodities (Gardner et al., 2019).

Indonesia is an agrarian country where most of the population works as farmers, so it cannot be denied that the Indonesian people depend on the agricultural sector for their livelihoods (Sri, 2017). In Indonesia, the agricultural sector consists of several sectors, including food crops, horticulture, fisheries, livestock, and forestry. This makes the agricultural sector a sector that provides basic needs. In addition, agriculture is also considered a potential economic sector in Indonesia because it can increase income and create employment opportunities, especially for rural communities (Hayati et al., 2017). This makes the agricultural sector a sector that gets serious attention in carrying out development, which is a form of effort to increase agricultural production so that national food needs and domestic industries are met and create broad employment opportunities (Kasiami, 2020).

By having a high potential for food security and independence, the Government of the Republic of Indonesia created a regulation that aims to maintain food security and independence, strengthen national food reserves, and ensure the availability, affordability, and fulfillment of adequate, safe, quality, and nutritionally balanced food needs. The regulations outlined in Law No. 18 of 2012 regarding food aim to fulfill fundamental human requirements by promoting self-sufficiency in food production and offering diverse options that adhere to safety, quality, and nutritional standards for public consumption. Additionally, these objectives include ensuring sufficient access to essential staples at reasonable prices aligned with community demands, enhancing the market value and competitiveness of local and global food products, educating the public about healthy, high-quality food choices, improving the well-being of farmers, fishermen, aquaculture practitioners, and those involved in the food industry, and protecting and expanding the nation's food reserves (UU RI, 2012).

Food security is an abstract notion that involves the interaction between food resources and people's food needs. Due to its abstract nature, interpretations of food security may vary according to the views of individuals or groups. (Hardianto, 2017). The various definitions of food security demonstrate the openness of these interpretations. According to Law Number 18 of 2012 on Food, Food security is defined as a condition where all people have access to sufficient food, both in terms of quantity and quality, specific access to food that is safe, diverse, highly nutritious, equitable, easy to obtain, and does not conflict with social values such as religion, beliefs, and culture. The ultimate goal is for every citizen to sustainably live a healthy, active, and productive life. According to the World Food Summit (1996), food security is achieved when everyone has physical and financial access to enough wholesome food that meets their requirements and preferences for a healthy and active way of life. According to the World Food Summit (1996), food security is achieved when everyone has physical and financial access to enough wholesome food that meets their requirements and preferences for a healthy and active way of life. From this definition, the United Nations Food Agriculture Organization identified four main dimensions of food security, namely 1) physical availability of food, food production volume, stock levels, and net trade represent a few of the factors that affect food availability, which is the "supply side" of food security; 2) economic and physical access to food, which has a sufficient supply of food at the national or international level does not automatically ensure food security at the household level. Concerns regarding inadequate access to food have led to increased policy emphasis on factors such as income, expenditures, markets, and prices to achieve food security goals; 3) food utilization refers to how effectively the body maximizes the nutrients found in food. Proper nourishment and care procedures, efficient food preparation, a varied diet, and fair supply within homes are the main factors in ensuring that people consume enough energy and nutrients. Together with the efficient use of food consumed by the body, these factors affect an individual's nutritional status; and 4) the stability of the other three dimensions over time, explaining that even if food intake today is sufficient, it does not guarantee that an individual can still be classified as food insecure if they experience inconsistency in obtaining food over time, which can jeopardize their nutritional status. Additionally, food security can be impacted by a number of factors, including unfavorable weather, unstable political environments, and economic problems (such as increasing food costs and unemployment) (FAO, 2008). In addition, Food independence refers to a country's or region's overall level of self-sufficiency, which is measured by the percentage of national or regional agricultural production, raw materials, and food relative to the total consumption within that country or region (Gubarkov et al., 2021). According to Law Number 18 of 2012 on Food, the ability of the state and nation to produce a variety of foods domestically that can guarantee the satisfaction of sufficient food demands at the individual level by honorably exploiting the potential of natural, human, social, and economic resources as well as local knowledge is commonly

referred to as food independence. Departing from this definition, there are three dimensions of food independence: dependence on national food availability on domestic food production, national food availability on imported food and/or net imports, and food availability on food transfers from other parties or countries (Wahida et al., 2023).

East Java is a province that realized food security by becoming the largest rice producer in Indonesia (BPS, 2024). As a national rice granary, East Java has been the top rice-producing province in Indonesia for four consecutive years, with a production of 5.6 million tonnes of rice in 2023. All regions in East Java are rice producers. However, some municipal administrative regions need more agricultural land area but can produce an average of 4.37 thousand tonnes of rice in 2023 (BPS, 2023). In line with the condition of rural sector workers, district administrative areas can produce more rice than cities, one of which is Bojonegoro Regency. Bojonegoro is a regency with most of the rural population working as farmers, making Bojonegoro a regency with extraordinary food potential (Aurellia et al., 2023). Currently, the problems faced by farmers in Bojonegoro are difficulties in obtaining subsidized fertilizer, such as fertilizer scarcity and fluctuating fertilizer prices. It should be noted that fertilizer is a crucial factor in supporting the needs of farmers. This will undoubtedly have an impact on rice production, which will hamper food security and independence in Bojonegoro. Therefore, the demands of the community, especially farmers, require the Bojonegoro Regency Government to find solutions to these problems immediately.

To overcome these problems, the Bojonegoro Regency Government created an innovation based on Law Number 23 of 2014 concerning Regional Government, where local governments are given the right to freedom and authority and full responsibility to manage and take care of their own needs to improve the welfare of their communities (Abadi et al., 2024). The innovation is in the form of the Independent Farmer Program (PPM), regulated in Bojonegoro Regent Regulation Number 48 of 2018 on the Independent Farmer Program. The program was officially implemented in 2019 to achieve food security and independence security in Bojonegoro. Food security and independence will also help farmers achieve welfare and freedom in Bojonegoro (Munib, 2022).

This program provides access for farmer households/families to obtain capital assistance in the form of goods with a maximum value of IDR 10 million, provide priority access to training and development of farming businesses, provide guarantees for the purchase of agricultural products in collaboration with BUMDes and BUMDs, and provide crop and/or livestock failure insurance, which is distributed through farmer groups (POKTAN) (Peraturan Bupati Bojonegoro, 2018). In addition, the Bojonegoro government has made it easier for students whose parents are farmers to access scholarships at both public and private universities through the excellent Independent Farmer Card (KPM) Plus program (Abdurohim & Meirinawati, 2021).

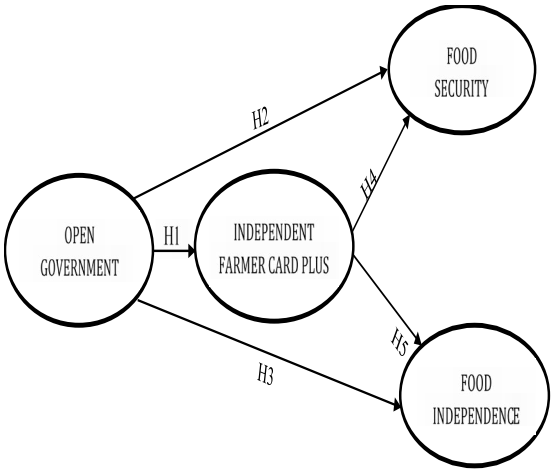
The Independent Farmer Card (KPM) Plus is a card given to farming families following statutory criteria, which is used as a marker or access to obtain benefits from the Independent Farmer Program (PPM). Previously, the researcher had conducted a pre-survey to observe the actual situation in the field. The researcher found that several farmers in the farmer group received no support despite having KPM Plus for 3 years. In the agricultural support distribution, they only heard that the support was channeled through the farmer group (POKTAN), but they did not know the truth or the form of the support. In addition, based on research conducted by (Dias Fidiyanti et al., 2024) in Bojonegoro, many farmers still do not understand how to get support and do not understand every instruction in applying for it. This aligns with the fact that some farmers do not understand the flow of applying for KPM Plus support. Researchers used an analysis of Open Government to see further government openness in implementing the KPM Plus program.

Open Government is a concept of governance based on the government's awareness of the magnitude of public demands to realize open government. Open Government is an effort to hold the government accountable to its people in government administration. Openness enables the public to acquire information about the policies the government has adopted and plans to implement, allowing them to provide feedback or respond to these policies (Suprastiyo, 2019). Based on this, the Indonesian government is seriously transforming towards open government, and the form of this seriousness is the implementation of Open Government, which is regulated in Law Number 14 of 2008 concerning Public Information Disclosure (Alifa et al., 2024).

According to Obama, there are three dimensions underlying Open Government: transparency, participation, and collaboration (Obama, 2009). These dimensions are explained by (Wirtz et al., 2017), that transparency has an important impact on public

trust in government. It promotes accountability and informs the public about all government activities through timely information publication. In addition, transparency enables individuals and organizations to perceive the current situation without any attempts to conceal or alter the facts. This means that transparency should reveal the truth without any omissions. Openness is crucial in public organizations due to their roles in policy-making, administration, public service delivery, and governance (Alfiyatur et al., 2023). This demonstrates that government websites are a tool to improve transparency, which is the cornerstone of an ideal democracy. Public engagement and participation can enhance government effectiveness and the caliber of its decision-making. This means that the public can access widely disseminated knowledge, and the government benefits from this access. Public engagement can increase government effectiveness and improve the quality of its decisions. In society, knowledge is widely dispersed, and public officials benefit by having access to such knowledge. Collaboration seeks to evaluate and enhance the degree of collaboration to obtain public feedback and find new areas for collaboration. This means the government commits to creating new solutions and innovations for the problems. Through the facts obtained by researchers and linked to these dimensions, the issues seen from implementing the KPM Plus program are program transparency and farmer participation.

Many previous studies have examined the implementation of KPM Plus in various contexts, including research conducted by (Abdurohim & Meirinawati, 2021), which describes the implementation of KPM Plus in terms of innovation in the Bojonegoro Regency government in improving the freedom of farmers. The result of this research is that the KPM Plus innovation is a breath of fresh air for farmers, who can access non-subsidized fertilizers and seeds through this program. Farmers are also guaranteed to purchase agricultural products at a fair price and in collaboration with BUMDes (Village-Owned Enterprises). In addition, the research conducted by (Dias Fidiyanti et al., 2024) describes the implementation of the Independent Farmer Program (PPM) through the Independent Farmer Card (KPM) Plus. The result of this research is that the implementation of the Independent Farmer Program through the Independent Plus Farmer Card in Bojonegoro Regency has been going well but still not maximizing the agricultural support provided to farmer groups according to what they submitted. There are also trainings in farmer groups, one of which is training in making liquid fertilizer, but farmer groups do not participate in the training. Many farmers still do not want to register their crop failure insurance because of the lack of understanding of farmers (lack of human resources) and the lack of socialization among farmers. Therefore, researchers conducted this study to answer how open government influences food security and independence policy effectiveness in Bojonegoro. Figure 1, the research model, illustrates the relationships between open government, the Independent Farmer Card Plus program, food security, and food independence. In this model:



Source: Data processed by the researchers, 2024

Figure 1. Research Design

METHOD

This research uses a quantitative design, utilizing a cross-sectional survey approach to investigate the relationships between open government, Independent Farmer Card Plus, food security, and food independence in local government administration. Structural Equation Modelling (SEM) tests the hypothesized relationships among these variables (Musa et al., 2024). SEM was selected because it can simulate intricate connections among numerous factors, encompassing direct and indirect impacts. This aligns with this study's objective of exploring the practice of Open Government in influencing food security and independence policy effectiveness in Bojonegoro.

The target population comprises farmers from Bojonegoro Regency, specifically from Kepohbaru, Kedungadem, Sukosewu, Balen, Kapas, and Ngasem Districts. This target is chosen due to its contribution to the high agricultural yields they produce. The sample is drawn from six districts, totaling 230 participants. Data was collected through an online survey distribution, leveraging social media platforms and partnerships to maximize participation and ensure a diverse sample (Musa et al., 2024). The data collection instrument is a structured questionnaire

with five sections: demographic information, Open Government in implementing the KPM Plus program, the KPM Plus program, food security, and food independence. Each variable is measured using a 5-point Likert scale, with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

Open Government variable is assessed through three dimensions adapted form (Obama, 2009), which measure transparency, participation, and collaboration. Transparency is assessed through three items adapted from Lee and Van de Walle (2020), which measure government communication's clarity, openness, and accuracy. Mardiasmo (2018:19) suggests that the government's information needs to be clear to be understood and avoid misunderstandings, such as providing socialization of a policy or program. Openness is indicated by the government's transparency in providing information related to public resource management activities to parties who need information, such as information on policies or financial statements. Accuracy is indicated by the government's information, which should be accurate and not deceptive to those who receive and use it. Accurate also means that the information should reflect what it means. Participation is assessed through three items adapted from Marschall (2006), which measure the existence of a forum to accommodate community participation, the public's ability to engage in the participation process, and the public access to express their opinions in the decision-making process. Collaboration is assessed through four items adapted from Ansell and Gash (2008), which measure trust-building between collaboration participants; building commitment in the collaboration process by sharing an understanding of the mission and problem at hand, and identifying shared values in the collaboration; intermediate outcomes, by looking at how to achieve early success, conducting strategic planning, and discovering facts together; and face-to-face dialog to build trust, commitment, and shared understanding. Table 1, the operationalization of variables, shows the researcher's questions for respondents based on the dimensions of Open Government, food independence, food security, and the Independent Farmer Card (KPM) Plus program. (Table 1)

Table 1. The Operationalization of Variables

Variable	Indicator	Sub-Indicator	Questions/Items (Scale: 1-5)	Scale
Open Government	Transparency	Communication clarity	The government communicates agricultural policies clearly.	1-5
	Transparency	Information availability	Information on agricultural subsidies is readily available.	1-5
	Participation	Engagement in policy-making	Farmers are invited to discuss agricultural policies.	1-5
	Participation	Feedback mechanisms	There is a system for farmers to provide feedback on policies.	1-5
	Collaboration	Stakeholder partnerships	The government and farmers collaborate on agricultural policies.	1-5
	Collaboration	Solution development	Collaborative efforts result in practical agricultural solutions.	1-5
Food Independence	Domestic food dependence	Support for local production	Farmers receive support to prioritize domestic food production.	1-5
	Imported food dependence	Reliance on imported foods	The community relies significantly on imported foods.	1-5
	Food transfer dependence	Need for food aid	The community regularly needs food aid transfers.	1-5
Food Security	Food Physical availability	Availability of food	Food is consistently available throughout the year.	1-5
	Economic access to food	Affordability of food	Families can afford to buy sufficient food.	1-5
	Food utilization	Nutritional quality	The nutritional quality of available food is high.	1-5
	Stability of food dimensions	Stability in crises	Food availability and access are stable in times of crisis.	1-5
Independent Farmer Card (KPM) Plus Program	Capital assistance	Impact on farming operations	Financial support has improved my farming operations.	1-5
	Training access	Relevance and practicality	Training programs offered are relevant and improve skills.	1-5
	Product Purchase Guarantee	Security of product sales	The program guarantees the purchase of agricultural products.	1-5
	Insurance Coverage	Adequacy of risk protection	The insurance coverage adequately protects against agricultural risks.	1-5

Source: Data processed by the researchers, 2024

Data Collection Procedure

Data was collected online over a month, targeting respondents in Bojonegoro Regency, specifically from Kepohbaru, Kedungadem, Sukosewu, Balen, Kapas, and Ngasem Districts. These districts were chosen because they are districts with high agricultural yields. The sample was determined with specific characteristics: farmers who have KPM Plus. The 230 samples were measured by using Raosoft Calculation Sample software where the margin of error was 5%, the confidence level was 90%, and the population size was 1500. The survey was distributed online, including social media platforms and partnerships. The online format was chosen to facilitate access across a geographically dispersed population with large agricultural production in Bojonegoro Regency. To ensure the research constructs, researchers conducted a pre-test to validate it before data collection by using AMOS software. Participants were informed about the study's purpose, their voluntary participation, and the confidentiality of their responses before completing the survey. To ensure data quality, the survey included attention-check items to identify and remove inattentive responses. Additionally, responses were anonymized to encourage honest and unbiased feedback.

Data Analysis

Data analysis was conducted using data screening, measurement model evaluation, and structural model testing. All analyses were performed using SPSS and AMOS software for Structural Equation Modelling (SEM). The data set was screened for incomplete or invalid responses. Descriptive statistics were computed to summarize the sample's demographic characteristics, including age and highest level of education attained. Missing values were addressed using mean imputation, given minimal missing data (less than 5%) (Mouloudi, 2022; Musa, Fatmawati, Nuryakin, & Saleh, 2024).

Confirmatory Factor Analysis (CFA) was utilized to evaluate the validity and reliability of each construct. To assess internal consistency, Composite Reliability (CR) and Cronbach's Alpha were calculated, with values above 0.70 considered acceptable for reliability. Convergent validity was assessed using Average Variance Extracted (AVE), where values exceeding 0.50 indicate satisfactory convergence. Discriminant validity was also evaluated to ensure that the constructs were distinct. The structural model was analyzed to examine the proposed relationships among Open Government, the Independent Farmer Card Plus Program, food security, and independence. Structural Equation Modeling (SEM) was used to estimate the direct effects of Open Government, Independent Farmer Card Plus, food security, and food independence. Model fit was evaluated using various indices, including Chi-square (χ^2) statistics, Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA), and Tucker-Lewis Index (TLI). A good model fit was indicated by CFI and TLI values above 0.90 and RMSEA values below 0.08 (Musa et al., 2024).

Ethical Considerations

The study followed ethical guidelines and received approval from the Ethics Committee of the corresponding author's institution. Participation in the survey was voluntary, and informed consent was obtained from each participant before their involvement. All responses were anonymized, and confidentiality was upheld to protect participant privacy. Data is securely stored and used solely for academic purposes under ethical standards.

RESULTS AND DISCUSSION

This section presents the findings from the analysis of the relationships between the Independent Farmer Card Plus Program, Open Government, Food Security, and Food Independence. Utilizing structural equation modeling (SEM), this study evaluates how the Independent Farmer Card Plus Program mediates the effects of Open Government on Food Security and Food Independence. We begin by reporting the composite reliability and Cronbach's Alpha for each construct to validate the internal consistency and reliability of the measures used in the study. Following this, we discuss the implications of the standardized regression weights derived from the SEM analysis, focusing on the strength and significance of the paths between the constructs. The results shed light on the substantial role that government transparency, participation, and collaboration in the agriculture sector play in enhancing food security and independence through structured support programs. The discussion integrates these findings with current literature to highlight their broader implications for policy-making and program development in the agricultural sector, particularly in regions similar to our study area. (Table 2.)

Table 2 presents the reliability and validity metrics for constructs assessing Open Government, Food Independence, Food Security, and the Independent Farmer Card (KPM) Plus Program. These metrics include item loadings, Composite Reliability (CR), and Cronbach's Alpha (α), which are crucial for evaluating the internal consistency and

measurement validity of the constructs within the structural equation model.

Item loadings for Open Government range from 0.81 to 0.94, indicating strong relationships between observed variables and the latent construct. The CR of 0.896 and Cronbach's Alpha of 0.895 similarly indicate excellent internal consistency among the indicators for Open Government. For Food Independence, item loadings vary from 0.58 to 0.71, with some indicators showing moderate relationships with the latent construct. The CR of 0.688, slightly below the preferred threshold, suggests that the reliability of this construct could be improved by revising or adding items. Cronbach's Alpha of 0.687, close to the threshold of 0.7, indicates adequate but improvable internal consistency. Food Security shows high loadings for two indicators (0.92) but a low loading for food utilization (0.30), indicating that the latter may not be a good indicator of the construct or may be differently affected by external factors. The CR of 0.790 and Cronbach's Alpha of 0.757 show good internal consistency, confirming that the construct is well measured by its indicators except possibly food utilization. The Independent Farmer Card (KPM) Plus Program exhibits item loadings ranging from 0.49 to 0.79, with lower loadings suggesting some items might not align perfectly with the latent construct. The CR of 0.707 and Cronbach's Alpha of 0.703 are marginally over the acceptable limit, indicating acceptable reliability but suggesting that the construct's internal consistency could benefit from further review and possible revision of indicators.

These results suggest strengths and potential weaknesses in the measurement model used in the study. The high reliability and validity scores for Open Government and Food Security suggest that these constructs are well-defined and the selected indicators are appropriate. However, the Food Independence and KPM Plus constructs show lower reliability scores, which could potentially affect the robustness of any conclusions drawn about their impact on other variables in the model. This finding could imply a need for further refinement of the measurement instruments or additional research to ensure that all indicators accurately capture the constructs' essence as intended. The variance in item loadings, especially the low loading for Food Security's food utilization indicator, suggests that the current set of indicators may not fully capture some aspects of these constructs. This discrepancy offers a direction for future research to explore alternative or additional indicators that might provide a more comprehensive measure of these constructs. In summary, while the model demonstrates robust measures for some constructs, the findings indicate a need for a cautious interpretation of the results related to Food Independence and the KPM Plus program. Further investigation and potential refinement of the measurement model would enhance the validity and reliability of the study outcomes, which is crucial for developing effective interventions and policies based on these constructs, particularly in improving governmental initiatives and food management practices.

Table 2. Reliability and Validity

VARIABLE	INDICATORS	ITEM LOADING	COMPOSITE RELIABILITY	CRONBACH'S ALPHA
Open Government	Transparency	.83	0.896	0.895
	Participation	.94		
	Collaboration	.81		
Food Independence	Domestic food dependence	.58	0.688	0.687
	Imported food dependence	.66		
	Food transfer dependence	.71		
Food Security	Food physical availability	.92	0.790	0.757
	Economic access to food	.92		
	Food utilization	.30		
	Stability of food dimensions	.70		
Independent Farmer Card (KPM) Plus Program	Capital assistance	.58	0.707	0.703
	Training access	.79		
	Product purchase guarantee	.58		
	Insurance coverage	.49		

Source: Data processed by the researchers, 2024

Table 3. Descriptive Statistics of Respondent Characteristics

Characteristic	Count	Unique	Most Frequent (Mode)	Frequency of Mode
Age	230	45	60	13
Village	230	25	Desa Sambiroto	87
Last Education	230	11	SMA	82

Source: Data processed by the researchers, 2024

Table 4. Hypothesis Testing Result

H	Measured Variables	Coefficient	S.E.	C.R.	P	Finding
H1	Open Government → Independent Farmer Card Plus Program	0.701	0.096	7.288	***	Supported
H2	Open Government → Independent Farmer Card Plus Program → Food Security	0.58	0.16	3.625	<0.001	Supported
H3	Open Government → Independent Farmer Card Plus Program → Food Independence	0.861	0.139	6.202	***	Supported
H4	Independent Farmer Card Plus Program → Food Security	0.58	0.16	3.625	<0.001	Supported
H5	Independent Farmer Card Plus Program → Food Independence	0.633	0.099	6.399	***	Supported

Source: Data processed by the researchers, 2024

Table 3 illustrates the respondents' demographic information and provides a snapshot of the characteristics of the individuals who participated in the study. This data is essential for understanding the context in which the survey was conducted and for assessing the representativeness and generalizability of the findings. The age of respondents ranged across 45 distinct categories, with a total of 230 respondents. The most frequent age reported was 60 years, observed in 13 respondents, suggesting a mature demographic that may influence perspectives on the studied constructs, such as Open Government and Food Security.

The study included participants from 25 different villages, with a total of 230 respondents. Desa Sambiroto emerged as the most typical village, with 87 respondents. This indicates a significant sample concentration in this particular village, which may reflect localized conditions or views that are not necessarily widespread across other villages. Educational background varied among 230 respondents across 11 categories. The most frequent level of education was SMA (Sekolah Menengah Atas which is equivalent to high school), with 82 respondents. This level of education suggests that a substantial portion of the sample has completed high school, providing a baseline for understanding the educational context of the respondents.

These descriptive statistics are crucial for interpreting the survey results within the framework of the respondents' demographic context. They also help identify any biases that may arise from the concentration of responses within certain age groups, villages, or education levels. Understanding these characteristics assists in tailoring and targeting interventions to enhance Open Government practices and improve Food Security and Independence within similar demographic groups.

Figure 2 and the results presented in Table 4 from the hypothesis testing provide a comprehensive overview of the relationships between Open Government, the Independent Farmer Card Plus Program, Food Security, and Food Independence. Each hypothesis is evaluated based on the coefficients, standard errors, critical ratios, and significance levels to determine the strength and significance of these relationships. Hypothesis 1 posits a direct influence of Open Government on the Independent Farmer Card Plus Program. The coefficient of 0.701 suggests a strong positive relationship, and the high critical ratio (C.R. of 7.288) and a significance level marked by three asterisks ($p < 0.001$) strongly support this hypothesis. This finding indicates that enhancements in Open Government practices are likely to positively influence the effectiveness of the Independent Farmer Card Plus Program.

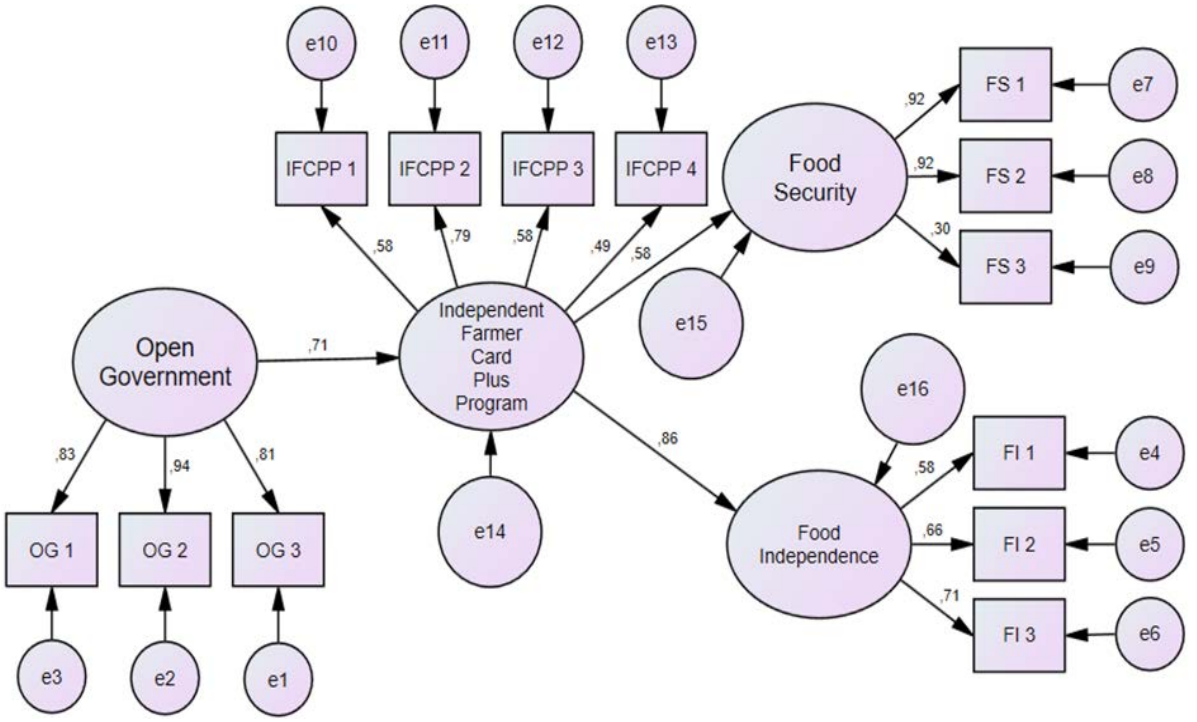
Hypothesis 2 examines the impact of the Independent Farmer Card Plus Program on Food Security. The coefficient of 0.58, a critical ratio of 3.625, and a p-value less than 0.001 suggest a moderately strong relationship. This result supports the hypothesis, indicating that the program effectively

improves Food Security among the target population. Hypothesis 3 focuses on the influence of Open Government on Food Independence through the Independent Farmer Card Plus Program, showing an even stronger coefficient of 0.861. The critical ratio of 6.202 and significance level ($p < 0.001$) provide robust support for this pathway, highlighting the significant role of Open Government in enhancing Food Independence indirectly through the program. Hypothesis 4 and Hypothesis 5 further assess the roles of the Independent Farmer Card Plus Program in affecting Food Security and Food Independence directly. Both hypotheses show substantial coefficients (0.58 and 0.633, respectively) and are supported by similar critical ratios and significance levels, underscoring the program's effectiveness in directly enhancing food security and independence.

These results suggest that government transparency, participation, and collaborative efforts are crucial in improving agricultural programs to enhance food security and independence. The strong support for all hypotheses also emphasizes the interconnectedness of these variables, indicating that government initiatives that foster open governance can profoundly impact societal outcomes related to food and agriculture. This section of the study clearly articulates the positive impacts of structured government programs on societal well-being, providing a solid basis for recommending policy enhancements and further research into optimizing government interventions in the agricultural sector.

CONCLUSION

This research highlights the positive impact of Open Government initiatives on the effectiveness of agricultural support programs, particularly the Independent Farmer Card Plus Program, in enhancing food security and independence in rural communities. The findings indicate that better governance significantly influences agricultural outcomes, although the initial model used to assess these relationships may require refinement to capture the complexity of the dynamics involved. Future research should incorporate additional variables such as exploring the development of new indicators that reflect contemporary issues in food independence and farmer support programs to improve understanding of these influences. This could include measures related to access to resources, training, and market opportunities. Policymakers are encouraged to strengthen transparency, participation, and collaboration within Open Government frameworks, as these elements have been shown to enhance program effectiveness. Tailored training and support for the Independent Farmer Card Plus Program should address community-specific needs. Increasing local involvement in program planning and execution can further enhance relevance and effectiveness. Additionally, community-led evaluations and feedback mechanisms should be integrated into program designs to ensure they meet the actual needs of target populations. Longitudinal studies



Source: Data processed by the researchers, 2024

Figure 2. The Structural Equation Model

are recommended to explore long-term impacts on food security and independence. This research contributes valuable insights into how government policies and program designs affect agricultural outcomes, providing a foundation for strategic policy formulation aimed at improving food security in rural areas.

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