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DO AGRICULTURAL REFORMS INCREASING THE PROSPERITY OF INDONESIAN FARMERS?

Apakah Reformasi Pertanian Meningkatkan Kemakmuran Petani Indonesia?

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ABSTRACT

Since several decades, agricultural movements have been supporting the majority of villages in Indonesia. Agricultural reform is a new program organized by the government that started in 2019. In this context, the objectivity of the paper is to examine causality between technology adoption (TA), capital subsidies (CS), educational skills (ES), and health and scholarships (H&S) on farmers' prosperity (FP). Using a time-series regression simulation, the investigation is focused on agricultural reform in the era of President Jokowi, to be precise in the 2nd period (2019–2023). In Indonesia, there are simultaneous parallel effects of technology adoption, capital subsidies, educational skills, and health and scholarships on the farmers' prosperity. When testing partially, the result is that technology adoption as well as health and scholarships have a positive effect on the farmers' prosperity. Yet, capital subsidies and educational skills actually have a negative effect on the farmers' prosperity. Explicitly, the consistency of agricultural reform is expected to be accessible to all farmers.

Keyword: *capital subsidies, educational skills, health and scholarships, farmers' prosperity, technology adoption*

ABSTRAK

Sejak beberapa dekade, pergerakan pertanian telah menghidupi mayoritas pedesaan di Indonesia. Reformasi pertanian adalah program baru yang diselenggarakan oleh pemerintah yang dimulai pada 2019. Dalam konteks ini, objektivitas makalah untuk menguji kausalitas antara adopsi teknologi (TA), subsidi permodalan (CS), keterampilan pendidikan (ES), serta kesehatan dan beasiswa (H&S) terhadap kemakmuran petani (FP). Menggunakan simulasi regresi time-series, penyelidikan difokuskan pada reformasi pertanian di era presiden Jokowi, tepatnya pada periode ke-2 (2019–2023). Di Indonesia, terdapat efek paralel secara simultan dari adopsi teknologi, subsidi permodalan, keterampilan pendidikan, serta kesehatan dan beasiswa terhadap kemakmuran petani. Apabila diuji secara parsial, hasilnya adalah adopsi teknologi serta kesehatan dan beasiswa berpengaruh positif terhadap kemakmuran petani. Akan tetapi, subsidi permodalan dan keterampilan pendidikan justru berpengaruh negatif bagi kemakmuran petani. Secara eksplisit, konsistensi dari reformasi pertanian diharapkan dapat diakses oleh semua petani.

Kata Kunci: *subsidi permodalan, keterampilan pendidikan, kesehatan dan beasiswa, kemakmuran petani, adopsi teknologi*

INTRODUCTION

This article reveals the aspects that affect the prosperity of Indonesian farmers. This content includes: farmers' ability to adopt technology, capital subsidies channelled by the government, educational skills possessed by farmers, as well as access to health and scholarships. So far, Indonesia still relies on agriculture as a sector that provides jobs for many workers, including absorbing a new workforce every year (Rosyadi et al., 2023). When compared to nearby countries at the ASEAN level, such as the Philippines, Thailand, Malaysia and Vietnam, Indonesia's agricultural capacity is still isolated or at least contributes to the farmers' prosperity (Kartika & Kurniasih, 2020; Rozaki, 2021; Vanzetti et al., 2011). In a scientific magazine highlighted by Jiuhardi et al. (2022) and Kharisma et al. (2019), Indonesia's weak agricultural competitiveness is inseparable from the quality of economic growth (GDP) in agriculture. The future of farmers is determined by various elements. In general, agricultural groups are surrounded by the trap of physical development and agrarian schemes that are not mature enough. Apart from extreme climate topics that affect temperature, weather and irrigation, land management, irrigation structures, and agricultural management, the poor regulatory system designed by the Indonesian government (before Jokowi) is also seen as an old polemic that has not been resolved. For this reason, a basic

foundation is needed to shift the old concept towards a more implicit goal of realizing prosperity in the agricultural sector.

Figure 1 displays that agricultural welfare as reflected by the Farmers Purchasing Parity (FPP) has increased inclusively with an accumulated average of 105.07 points. In the period 2019–April 2023, the highest FPP score was in the April 2023 period with an achievement of 110.85 points and the lowest in 2019 was worth 100.9 points. In aggregate, the commodities that make up the largest FPP are from the estate crops sub-sector (average: 116.3 points) and the livestock sub-sector as the smallest contributor (average: 99.53 points). Based on data from the Central Agency on Statistics [Badan Pusat Statistik] (2023a), the horticulture sub-sector contributed the second largest FPP (average 105.15 points), ranking 3 came from the fish catching sub-sector (average: 103.43 points), the fifth rank is the fish cultivation sub-sector (average: 102.86 points), and the lowest FPP performance or ranked last is the food crops sub-sector (average: 100.8 points).

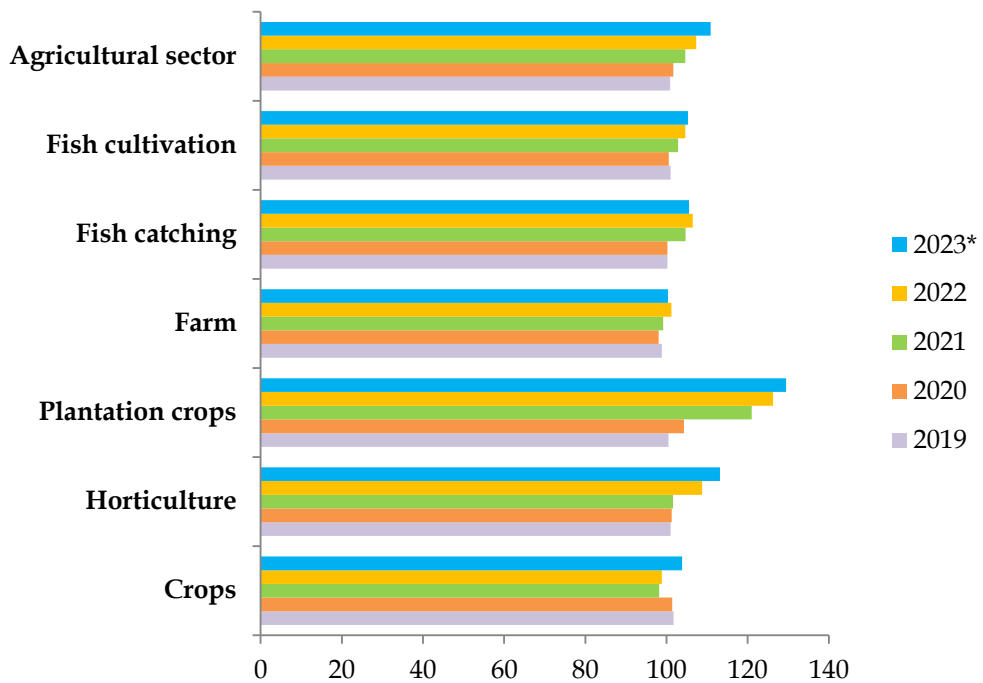


Figure 1.

Farmers Purchasing Parity on a National Scale, 2019–2023

Source: Badan Pusat Statistik (2023a),

Note: *) data as of April 2023

During the era of Jokowi's leadership as president of Indonesia from 2014 until now, improvements to the agricultural business have been made. Even

though it doesn't look impressive yet, there are policy packages that have been developed to reform agriculture. The first concentration covers technology development. By empowering adequate technology, farmers are required to maximize crop yields, strengthen quality productivity, save water, and reduce the use of fertilizers and pesticides. The second step is like a subsidy. In terms of the capital component, subsidy assistance will reduce the burden on farmers from producing to marketing. In other words, they get a lucrative benefit. Also, the nuances of capital subsidies can stimulate the motivation of farmers to expand the expansion of agricultural products. The third policy is the educational dimension. Educational skills describe the competence of farmers. The level of insight that is relevant to the reality on the ground will determine and ensure the fate of farmers to avoid poverty. If farmers are independent and successful in highlighting the intensity of their agriculture, they will become examples that other farmers can learn from. The last is health and scholarships. Those who adopt a healthy lifestyle, including balanced food intake, will automatically gain good health. In addition, a conducive environment is an alternative solution to avoid various diseases. Then, the distribution of scholarships can provide bright opportunities for farmers, especially young farmers as a form of manifestation of their talents, ideas, and potential in understanding and learning new knowledge about agriculture. In essence, health, education, and scholarships that are accommodated by the government are the main determinants for overcoming unemployment.

Normally, the condition of a nation's agriculture represents progress in the way of thinking and the extent of government protection in providing facilities to support food security (Newton et al., 2020). According to Tafari et al. (2021) if the government does not prioritize agricultural clusters, it does not guarantee improvements in nutrition and hunger. Talking about agriculture in developing markets; take an example like Indonesia which is synonymous with being left behind. Surprisingly, due to Indonesia's diverse geographical characteristics, it triggers inequality in agricultural management (Dib et al., 2018; Hill, 2021). As an illustration, the monopoly of the agricultural market in many regions is striking. Another fact is the multidimensional disturbance of culture which has a different mindset in each agricultural base. At the same time, the limitations of the autonomous region in observing agricultural regulations tend to be anti-climactic to the expectations of the central government. Price inflation in agricultural commodities in certain situations often occurs due to supply chain failures, high transportation rates, increased production costs, inaccurate distribution, and lack of stakeholder oversight (Arham, 2020; Dahliana, 2022; Farandy, 2020; Hidayat & Lesmana, 2011; Ismaya & Anugrah, 2018; Yasin & Amin, 2021). Amidst uncertainty, the transformation in agricultural circulation must work. This can be started from the readiness of the farmers holistically. In relation to prosperity, matters related to the

conformity of farmer behavior. The urgency of technology adoption, capital subsidies, educational skills, as well as health and scholarships need to be addressing through valid policy formation.

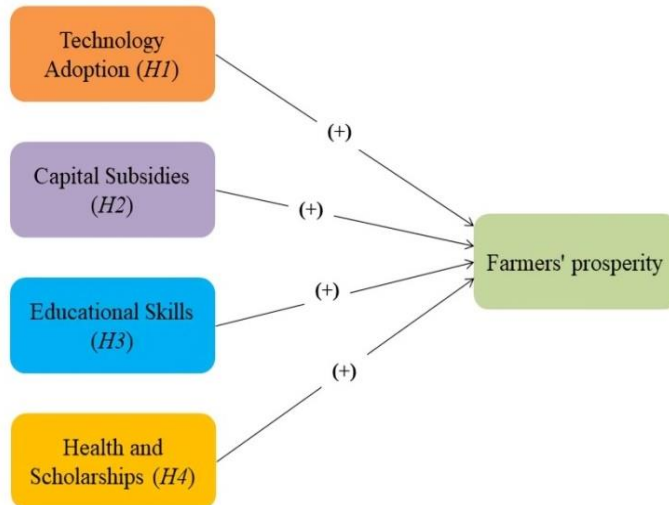


Figure 2.
Expected Framework and Signs

Referring to theoretical concepts and empirical foundations, it is speculated that agricultural reforms modified into technology adoption, capital subsidies, educational skills, or health and scholarships are assumed to encourage the farmers' prosperity. Figure 2 summarizes the core variables. The hypothesis construction is written as follows:

H₁: Growing of technology adoption increasing the farmers' prosperity;

H₂: Growing of capital subsidies increasing the farmers' prosperity;

H₃: Growing of educational skills increasing the farmers' prosperity; and

H₄: Growing of health and scholarships increasing the farmers' prosperity.

In its output, this article presents four points. Phase-1: Introduction focuses on the pillars that underlie the research goal and literature review informs theoretical concepts, empirical review, and hypothesis development. Phase-2: Methods centered on the data and flow of analysis. Phase-3: Results and discussion explaining the empirical findings and justification in a narrative manner. Phase-4: Conclusion describes the main implications, proposes constructive suggestions, and directions for integrating future studies. The output of the article is expected to be in optimizing the prosperity mechanism, which is reviewed based on two main aspects. First, government policies can establish accurate regulations and ensure the continued prosperity of small farmers. Second, with a system that emphasizes improving management

resources, it can enable and create more professional agriculture. Third, for the academic space, this article provides valuable experience that does not only focus on the economic space but also other aspects such as health, technology, and education to ensure and mediate different frames of thinking.

RESEARCH METHOD

The data analytical technique is quantitative. Official government data on macroeconomics is compiled through secondary publications for 2019–2023. This research is addressed to a case study in Indonesia. The variable synthesis is divided into two: explanatory variables and response variables. Farmers' welfare (FP) as a response variable and those that are positioned as explanatory variables are technology adoption (TA), capital subsidies (CS), educational skills (ES), and health and scholarships (H&S). Table 1. compiles a list of variables.

Table 1. Variable Types

Classification And Variable Names	Code/ Abbreviation	Measurements (Indicator)
<i>Response variable</i>		
Farmers' Prosperity	FP	Farmers Purchasing Parity (FPP) obtained from dividing the ratio between Prices Received by Farmers (IT) and Prices Paid by Farmers (IB). Index
<i>Explanatory variables</i>		
Technology Adoption	TA	Adaptive to information and computer sophistication in agriculture. Percentage (%)
Capital Subsidies	CS	The government spending budget issued to subsidize farmers includes: agricultural machinery, tax relaxation, business credit, fertilizer, seeds, social security, and other forms of support. Amount (Rp/IDR)
Educational Skills	ES	The proportion of farmer education with a university graduate background includes: Diplomas and University Degrees < not attending school, elementary school, junior high school, senior high school, and vocational school. Percentage (%)
Health and Scholarships	H&S	Guaranteed health protection and scholarships distributed to farmers (households working in agriculture and households of farm labourers). Percentage (%)

Source: Badan Pusat Statistik (2023b) and Secretariat General-Ministry of Agriculture of Indonesia (2023)

After data validated, the data is tabulated and elaborated into empirical investigations. The analysis model was extracted via time-series regression. To support statistical processing, data is operated with SPSS (version 25). The software functions to identify causality between TA, CS, ES, and H&S to FP. The basic equation function is described as follows:

$$Y_{i,t} = \beta_0 + \beta_1 X_{i,t} + \dots + \varepsilon_{i,t} \quad (1)$$

According to the equation formula above, the equation formula is converted as follows:

$$FP_{i,t} = \beta_0 + \beta_1 TA_{i,t} + \beta_2 CS_{i,t} + \beta_3 ES_{i,t} + \beta_4 H\&S_{i,t} + \varepsilon_{i,t} \quad (2)$$

where $\beta_0, \beta_1, \dots, \beta_5$ = parameters to be determined; i = variable volume; t = period; and ε = sigma value.

To interpret statistical trends, basic formations are used. Implementation of decision-making is a significance level (probability) of 5%. Before presenting the partial test, the criteria for assessing the closeness of the relationship are through correlation, descriptive statistics, and simultaneous tests (ANOVA).

RESULT AND DISCUSSION

Quantitative Analysis Results

Table 2 reports that the correlation on most of the variables shows a significant correlation score. It's just that, even though all the correlations between the effect variables are positive because of the strong correlation (> 0.5), very strong (> 0.7), and close to perfect (> 0.9), the relationship between capital subsidies on health and scholarships and the farmers' prosperity is not significant or vice versa, where $\rho = 0.175$ and $\rho = 0.277$. It was also found that education skills did not have a significant impact on health and scholarship ($\rho = 0.117$) and farmers' prosperity ($\rho = 0.183$). The rest, with a probability level of 5% ($\rho < 0.05$) is dominated by a significant influence between technology adoption on capital subsidies, educational skills, health and scholarships, and farmers' prosperity and vice versa. Then, it is also followed by capital subsidies on educational skills or vice versa. Another significant relationship at the probability level of 1% ($\rho < 0.01$) is health and scholarship to the farmers' prosperity and vice versa.

Uniquely, because each variable has various benchmarks or units, the standard deviation (S.D) and mean scores are also different. At the domestic level, indicators for farmers prosperity are indexes, indicators for capital subsidies are nominal, and 3 other variables: technology adoption, educational skills, and health and scholarships with the same units, namely %. In essence, the SD and mean scores varied as explained by technology adoption ($\sigma = 4.45$; $\mu = 89.97$), capital subsidies ($\sigma = 23,350.71$; $\mu = 235,998.86$), educational skills ($\sigma =$

4.39; $\mu = 35.29$), health and scholarship ($\sigma = 5.94$; $\mu = 55.36$), and farmers' prosperity ($\sigma = 4.12$; $\mu = 105.07$).

Table 2. Correlation and Descriptive Statistics on Variables

Variables	TA	CS	ES	H&S	FP	S.D (σ)	Mean (μ)
TA	1	.884* (.046)	.890* (.043)	.954* (.012)	.905* (.035)	4.45	89.97
CS	.884* (.046)	1	.934* (.020)	.714 (.175)	.608 (.277)	23,350.71	235,998.86
ES	.890* (.043)	.934* (.020)	1	.784 (.117)	.705 (.183)	4.39	35.29
H&S	.954* (.012)	.714 (.175)	.784 (.117)	1	.989** (.001)	5.94	55.36
FP	.905* (.035)	.608 (.277)	.705 (.183)	.989** (.001)	1	4.12	105.07

Source: Author's computation, 2023.

Notes: *) $\rho = 5\%$ and **) $\rho = 1\%$

Table 3. Result of ANOVA

Model	Sum of squares	Mean square	F-statistic	Prob.
Regression	.007	.002	246.78	.031
Residual	.000	.000		
Total	.007			

Source: Author's computation, 2023

The observation results clarify that the ANOVA on farmers' prosperity which is predicted by technology adoption, capital subsidies, educational skills, as well as health and scholarships are concluded to have a positive relationship. The score for the F-statistic is 246.78, while the F-table is 225. As a comparison, $F\text{-statistic} > F\text{-table}$ ($246.78 > 225$), so that technology adoption, capital subsidies, education skills, as well as health and scholarships affect farmers' prosperity. Using a 5% confidence level, Table 3 concludes that the explanatory variable has a simultaneous impact on the response variable ($\rho < 0.05$).

Mathematically, the coefficient of determination (R^2) is 99.8% which indicates that agricultural reforms are able to grow farmers' prosperity. Only 0.2% of the confounding factors are not explained in the econometric model. Increases in technology adoption, capital subsidies, educational skills, and

health and scholarships in the long term further increase the farmers' prosperity, where $\rho < 0.05$. In the short term, the increase in capital subsidies and educational skills drastically reduced farmers' prosperity by 5.3% and 2.4%. On the other hand, the increasing adoption technology as well as health and scholarships further advanced the farmers prosperity, reaching 27.3% and 44.7%.

Table 4. Hypothesis Testing

Response Variable: FP	Coefficient (B)	Standard Error (E)	$\rho > t $
TA	.273	.019	.030
CS	-.053	.051	.488
ES	-.024	.047	.704
H&S	.447	.031	.044
Constant	3.609	.075	.026
$R^2 = .998$			

Source: Author's computation, 2023

The regression results show that technology adoption and health and scholarships have a partial effect on farmers' prosperity ($\rho < 0.05$). Other partial linkages are also explained in Table 4 if the subsidized capital and educational skills have no significant impact ($\rho > 0.05$). When examined individually, the variable that has the highest standard error value is capital subsidies (5.1%), while the smallest is technology adoption (1.9%). In statistical terminology, the error value (ϵ) projects the standard deviation (σ) of the sample population. Value also measures the accuracy of the sample distribution that represents the data set (Barde & Barde, 2012; Dowd et al., 2014; Lee et al., 2015;). Thus, sample means that deviate from the true population unit can be traced.

Result Discussion

In particular, agricultural reforms that combine technology adoption, capital subsidies, educational skills, and distribution of health and scholarships collectively affect the prosperity of Indonesian farmers during 2019–2023. Mishra et al. (2018) diagnosed adoption rates on the prosperity of Madhya-Pradesh farmers. The installation of agricultural machinery and equipment is not matched by adequate literacy, so that agricultural income is lagging behind. Mariyono (2019b) is of the opinion that agronomic technology has an impact on the welfare of chili farming households in 3 regions of Java-Indonesia. Adopted technological advances have enabled small cassava farmers in East Java-Indonesia to increase their income (Muhaimin et al., 2020). There has been

a shift since learning in technology adoption was implemented. It is not surprising that the dissemination of information that manoeuvres quickly to farmers can help them interpret and capture inspiration. Lepas dari fenomena ini, secara umum banyak penelitian menyimpulkan peran dan pengaruh positif adopsi teknologi terhadap kesejahteraan petani, misalnya Baiyegunhi, Akinbosoye, & Bello, (2022), and Liang, et al. (2021)

Dahlani et al. (2022) and Saleh (2022) reveal that independent farmers are those who receive capital assistance. Recently, since the new normal era, the palm oil business managed by family farmers in Sanggau-Indonesia was found to still depend on access to capital. The output of this scientific work is proven to be an antithesis to the case of rice farmers in Tangerang-Indonesia, where compliance, social obligations, mutual trust, and a form of responsibility from recipients of capital subsidies optimize the role of agricultural cooperatives. Governments that participate in providing a proportion of subsidies to farmers technically maintain the continuity of agricultural intensification, especially the dual goal of changing the position of global prosperity (Rockström et al., 2017). On the one hand, the reason for rethinking government support is contemporary affluence. Chen et al. (2023) show that the distribution of subsidies distributed by the Chinese government in 3 provinces (Sichuan, Jiangsu, and Jilin) is fake. At first glance, this phenomenon is called "replica cooperatives" which is interpreted as a signal of chaotic growth. The emergence of this cooperative is only a formality and is intended to capture capital help from the government without clear administration and ignore the sustainability of farmer members.

In certain moments, farmers with genius education levels are able to break through the intense competition among businessmen in other sectors which triggers an increase in agricultural added value. The future agricultural path, is determined by education. In India, education really helps millions of rural people get out of poverty (Birthal, 2019). For example, in one of the villages in Banyuwangi, Indonesia, before obtaining a proper education, the social position of farmers in society was underestimated. After attaining a bachelor's position, education drives a vertical social hierarchy. As agents of change, farmers with university degrees become role models for other farmers (Paramitha et al., 2018). To advance economic development in Katsina-Nigeria, Non-Governmental Organizations (NGOs) are moderating the pathway between education and agricultural productivity (Kabiru, 2020). Wang et al. (2021) believes that the increase in the welfare of the agricultural industry in Shennongjia-China is due to the revitalization of education which actively monitors the participation of farmers in attending school. Collaboration between education and skilled technology, information and communication (ICT), is able to awaken the Bikaner-India farming community in making

decisions, reduce aquaculture production costs, and increasing welfare (Sharma et al., 2021).

Missions from the government, such as distributing health and scholarships on a regular basis, enable sustainable farmer resilience. An example occurred in Lithuania, where public policy paid a lot of attention to agricultural companies in an "educational resources" project (Atkočiūnienė et al., 2015). Agricultural institutions partner with each other to creating new entrepreneurship and jobs, strengthen social awareness, support economic viability, building rural infrastructure, and develop culture. Besides, to physical health, the government is also obliged to pay attention to the health of farmers from the non-physical scope, for example stress. Many attempted suicide attempts are due to the prevalence of mental disorders. Bad mentality is triggered by high stress levels. Non-experimentally, Younker and Radunovich (2021) explained that the intervention of the Australian and U.S governments in the past several periods encouraged farmers through some tightening regulations such as the prohibition against excessive working hours. Even more important is the scholarship prize. Therefore, in the state of Oyo-Nigeria, Umeokeke et al. (2017) observed that the welfare sensitivity represented by per capita expenditure of farmers gives a signal to stakeholders to actively distribute scholarships to farmers. For low- and lower-middle-income countries, including the SSA region within it, the government's seriousness through subsidizing agricultural inputs such as scholarship funds for farmer groups who are classified as poor as a positive effect on agricultural benefits (Hemming et al., 2018).

In a micro premise, Puryantoro & Mayangsari (2020) argue that the prosperity of a farmhouse depends on the size of education, income, and health. De los Rios et al. (2016) defines agricultural prosperity from a systematic point of view. Prosperity benchmarks are built from resilience, learning revitalization, innovation, and social capital. The articulation of prosperity is also examined by Salembier et al. (2021), where networks on research and development (R&D) gather to plan projects and explore creativity in agricultural institutional mechanisms. The farmers' prosperity tends to be oriented towards the volume of income (Grzelak, 2022; Zhang et al., 2021). From another perspective, the farmers' prosperity is not only related to income, but also material profits (Puspitasari, 2015). Early study by Mahmudul (2014) concluded that farmer education is necessary to improve farmer wealth. His study has also found that farmers' wealth or prosperity is determined significantly by farmer size of family and years of farming experience.

In the theory of "agricultural technology adoption", combining the decision landscape as an effort that emphasizes effectiveness in agricultural strategies. Advantages across farms depend on technological resources (Ruzzante et al., 2021). In meeting the increasing demand for food, agricultural

technology is allocated by scientists to farmers in a hopeful, sociological, economic, and psychological transition (Dissanayake et al., 2022). Universally, agricultural technology plays a key role in modernizing the agricultural industry (Ong et al., 2022). Recognizing that agricultural matters are so crucial, the development of a technology ecosystem is a concrete matter. In the theory of "innovation diffusion", the actions and experiences of adopters will generate agricultural technology sustainably. Moreover, Dong et al. (2022) stated that in the principle of "technology acceptance", the interaction between technology and production is a prerequisite for tracking and reducing ecological anomalies. For small farmers, integrating agricultural technology to cultivate certain indigenous wisdom can determine crop yields based on planned targets (Suprehatin, 2021).

In agricultural subsidies, the thing that is most often overlooked is land attributes. Capitalization concerns agricultural land, whether it's about claims to private land ownership or land rents to become resilience for farmers. Imperfections in spatial effects such as land trigger low agricultural added value (Ciaian et al., 2021). The toughest challenge is that the government prefers other options besides land regulations (such as providing non-land subsidies) to ease the burden on farmers. Baldoni & Ciaian (2021) estimate that the agricultural subsidy policies on the scale of land values and rental prices for rural areas in the European Union (EU) have a dynamic impact. In its application, heterogeneous capitalization does not affect the price of land rent. Interestingly, Baltzer & Hansen (2011) detect that the subsidy factor in agricultural inputs in Sub-Saharan Africa (SSA) is so controversial. The high cost of agricultural subsidies, especially for the wrong people, causes agricultural distortions. Excessive subsidy programs also lead to discrimination among farmers and are against a sense of justice.

In practice, the cessation of subsidies in rural and urban agricultural areas in the U.S. has proven to be detrimental to goods market segmentation, regional costs of living, agricultural and non-agricultural sectoral routines, professional quality, and household income. Although urban real product gains relatively exceed rural losses, the stagnation of agricultural subsidies erodes rural real product revenues (Bruckner, 2016). The effectiveness or equity of the agricultural economy is indicated by the right target subsidy. Cong & Brady (2012) consider that irrational subsidy transfer payments that are contradictory to the performance of farmers will weaken social protection. Instead, subsidies in other formats (including: income contingent loans, harvest taxes, and pure loans) are simplified as a professional response. Bellmann (2019) maps out regulations for subsidizing agriculture with the exploitation of natural resources. In certain policy features, most are able to pursue long-term goals. Some of the other support actually created a gap in international and domestic market rates which undermined the interest of agricultural actors in

intensifying agricultural infrastructure. In Brazil, for example, the commercialization of agriculture went wrong, contrary to the initial scenario. Ironically, agricultural credit via foreign investment has made it difficult for local farmers (Corcioli et al., 2022). Broadly speaking, the share of the agricultural market has always been controlled by multinational companies in supplying subsidized credit budgets.

In "agricultural anecdotes", the education degree of farmers will raise welfare (Abdullah et al., 2019; Danso-Abbeam et al., 2020; Kılıç & Bozkurt, 2013; Mariyono, 2019a). When farmers care about the essence of education, they have more opportunities to improve their skills standards more superiorly (Gowda & Dixit, 2015; Paltasingh & Goyari, 2018). With advanced educational skills, can adapt, manage, and control risk management flexibly. In the agricultural corridor, educational skills obtained from effective training will make it easier for fellow farmers to exchange information, examine, consult, or learn to prevent and solve problems. Farmers can quickly track any changes. Chaudhary & Pasa (2015) stated that education has controlled agricultural efficiency in Nepal. Since modernity was raised with cognitive measures and family background, educational extension is closely related to agricultural diversification. Research by Shebu, et al (2021) in Albania has also concluded that there is a positive impact of agricultural education on farm performance and has encouraged the policymakers in providing agricultural education programs to increase farm business opportunities for income generation and production intensification. In addition, farmers' education has encourages a modern technology adoption and productivity improvement in rice farm in India (Paltasingh, & Phanindra, 2018)

Reliable and continuously updated education can make agricultural innovation successful. The trainings needed by farmers support agriculture in the future. Project funded by the European Union to narrow disparities among agricultural entrepreneurs (Bournaris et al., 2022). Young farmers, who are involved under the auspices of the alliance in the scope of the university, are taught how to enforce precision farming. By upholding knowledge and education, it is able to synergize with the skills of farmers (Budiono et al., 2022). Of course, agripreneurs with high educational skills infuse in new agricultural mobility (Ra et al., 2019). Towards competitive agriculture, workshops within the farmer layer must be selectively set up. Instilling knowledge, training, and supervising them from an early age, is a valuable compensation in maintaining an atmosphere of agricultural entrepreneurship (Aleru & Lazarus, 2021).

The government's expense through extensive health services can increase the farmers' prosperity. Health and agriculture always intersect across sectors. In many ways, education is attached to the source of livelihood and the type of work one does. In agricultural communities, the complexity of health is highlighted by Vigors et al. (2021). Poor health impairs work performance and

reduces income. Ideally, improving health accessibility is a natural means for farmers to fulfill primary needs (Aulia et al., 2017). The Sustainable Development Goals (SDGs) call for health resolutions to fight agricultural poverty. Calling for health care requires a comprehensive connection, especially to rural farmers who have middle and low incomes (Frimpong & Vermund, 2022). To achieve SDGs, government intervention through nutritional evaluation guides farmers to actively evaluate malnutrition status (Duncan et al., 2022). Besides that, the independence of farmers is also side by side with the provision of scholarships. For outstanding farmers, selective awarding of scholarships is increasingly giving birth to a brilliant next generation. The regulator's dedication through the promotion of scholarships for farmers will spur their enthusiasm to revolutionize the agricultural system. For example, in Wales and the UK, agricultural scholarships for rural youth are articulated as government expectations of agricultural investment. School volunteerism in initiating free education is based on rural marginalization through progressive scholarship opportunities (Kirke, 2016).

CONCLUSION AND SUGGESTION

Conclusion

The motive of this article is to dissect the relationship between technology adoption, capital subsidies, education skills, and health and scholarships on the farmers' prosperity with case studies in Indonesia. As a result, although all explanatory variables have a positive slope to the prosperity of Indonesian farmers, half of them have a significant impact and some of them are in contrast. The article found that the technology adoption as well as health and scholarships had an effect on the farmers' prosperity. Unexpectedly, educational skills and capital subsidies did not significantly affect the farmers' prosperity. The cause of the two variables above which have no significant impacts on the prosperity of Indonesian farmers is because the government's kindness is often misinterpreted by farmers. Specifically, the distribution of subsidies throughout these five years has proven to be ineffective in increasing the prosperity.

Suggestion

The majority of farmers view that capital support has so far been in the form of grants and not in the flow of interest loans. Too, the financial assistance provided was not optimally managed to increase productivity. Therefore, Indonesian farmers do not have burdens such as paying off business debt loans at credit institutions or banking which require the responsibility of each customer. Free capital subsidies also drain state finances. Particularly for the

educational skills of farmers which have direct implications for prosperity tend to be triggered by hereditary traditions. At this point, the limited mindset of farmers in understanding the urgency of education is fatal. Even though the construction of educational facilities in rural areas is now more advanced than in the previous era, this does not guarantee the motivation of farming families to go to school. The doctrine about the cost of formal and informal education is expensive, causing the majority of farmer groups not to send their successors to a higher level. As a result, individual intelligence decreases. In the context of agricultural management, poor governance automatically affects the level of insight. The logical consequence is the entry of massive competition that is not matched by competitiveness, triggering dynamics in the agricultural market, including the consequences for weak household resilience, the risk of economic instability, hampered agricultural care, experiencing crop failure, managed agriculture does not absorb labor, and do not pass on their struggle to the next generation in agriculture. In the future, practical recommendations are suggested to stakeholders in the agricultural sector to restructure regulations that are in favor of Indonesian farmers. From the existing issues, the academic agenda also considers the actual follow-up in exploring the weaknesses of this study to be developed.

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