**AGRISOCIONOMICS**
Journal of Agricultural Socio-Economics and Policy

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

# THE DECISION OF MICRO AND SMALL INDUSTRIES TO IMPLEMENT CERTIFICATION AND THE IMPACT ON INDUSTRY PERFORMANCE

**Putra Irwandi*, Feryanto, Anna Fariyanti**
Department of Agribusiness, Faculty of Economics and Management, IPB University
*Correspondence Email: irwandiputra@apps.ipb.ac.id

Submitted 10 September 2024; Approved 19 November 2024

## ABSTRACT

The importance of certification is expected to ensure quality, quality, and relevant standards. This study aims to analyze the factors that influence micro and small industries in the food and beverage sector in Indonesia to implement certification and its impact on industry performance. There are 12 factors that influence the industry to apply certification including company age, business entity status, business place status, owner's education level, owner's age, export activity, training activities, joining business associations, assistance from the government, access to credit, capital, and research and development which are analyzed using binary logistic analysis. Meanwhile, the analysis of the impact of certification on performance using a propensity score matching approach includes turnover, profit, and number of workers. This data is sourced from the Central Statistics Agency's 2019 micro and small industry survey with a total of 1,837 micro and small industries in the food and beverage sector that have certification and a group that does not have certification totaling 23,350 industries. Data processing using STATA17 software and microsft excel. Based on the results of the study, there are 9 variables that affect and are significant to the application of certification, while 3 other variables namely export activity variables, capital, and research and development variables have no significant effect. The results of the impact analysis show that certification has no effect on increasing business turnover. While the impact of certification on profit and labor has a positive effect up to Rp7.5 million for industries that have certification. The impact of certification provides added value through operational efficiency and increased competitiveness in the market. It also increases the competence and quality of skilled and standardised human resources, contributing to industrial productivity. Overall, while certification has not been able to drive an increase in turnover, its effect on profits and labour shows that certification plays a vital role in strengthening the industry's operational structure and improving HR competencies, making it an effective tool to optimise the industry's efficiency and competitiveness in the market.

***Keywords****: certification, profit, propensity score matching,*

## BACKGROUND

Micro and Small Industries are independent businesses and productive activities in management and implementation managed by individuals or groups. This grouping is divided into several parts, including micro, small, and medium enterprises. The distinguishing factors are the amount of capital owned, the level of annual sales, and average income, as well as the number of workers owned (Costa Melo et al., 2023; Mendoza & Tadeo, 2023). Countries have different criteria for categorising MSMEs, depending on their economic conditions and business needs. For example, the World Bank categorises micro-enterprises as those with less than ten employees and a turnover of up to USD 100,000; small enterprises have 10 to 50 employees with a maximum turnover of USD 3 million,

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

while medium-sized enterprises have 50 to 300 employees with an annual turnover of up to USD 15 million. Meanwhile, the OECD and the European Union classify micro-enterprises as those with less than ten employees and annual turnover or assets of up to EUR 2 million, small enterprises with less than 50 employees and turnover of up to EUR 10 million, and medium-sized enterprises with less than 250 employees and turnover of up to EUR 50 million or assets of up to EUR 43 million. Despite these general guidelines, international standards for MSMEs are generally only used as a guide, as each country usually customises specific criteria based on its economic capacity.

Supporting Micro and Small Industries is key to the country's successful economic development and growth. The productive activities and presence of micro and small industries play an important role, among others, almost 90% of the total businesses in the world are contributed by this sector ini (Ali et al., 2021; Bennett, 2008; Ismael & Muhamed, 2013; Omri et al., 2015). Many empirical studies discuss the contribution of micro and small industries, which have an impact on absorption and job creation of 50% worldwide (Aladin et al., 2021; Hasanah et al., 2022), contributing to the GDP of developing countries up to 40% (Kartika, 2019; Permana, 2017; Rofida, 2018), a pillar of national economic development (Gunartin, 2017; Sarfiah et al., 2019), the driving force of the economy (Wibawa & Naya, 2019) a solution in building a healthy economy during the Covid-19 Pandemic (Windusancono 2021).

Based on the results of the micro and small industry survey of the Central Bureau of Statistics in 2019, the number of businesses/industries included in the micro and small category amounted to 4.38 million industries. This number is dominated by Java Island with the largest population reaching 62.26% of all Indonesia. The provinces of West Java, Central Java, and East Java are the provinces with the largest number of micro and small industries, each with more than 500 thousand businesses. This is inversely proportional to the provinces of Maluku and Papua which only reach less than 30 thousand businesses. There are several reasons why Java is the centre of micro and small industries in Indonesia. This is because Java has long been the centre of industry and business, not only in terms of economic factors but also other interrelated factors. There are at least several reasons why the centre of Micro and Small Industries is in Java. Among other things, the availability of adequate infrastructure in Java provides convenience in distributing goods and raw materials that are important for the smooth running of micro and small businesses. On the other hand, Maluku and Papua have limited infrastructure. Also, Java is home to 60 per cent of Indonesia's population, indicating that the consumer market is more significant and sustainable. This large population directly attracts producers and businesses to invest and innovate. In contrast, Maluku and Papua have a smaller population, with some areas relatively isolated, so the market demand is smaller thansmaller than in Java.

Another dominating factor is the strong business culture rooted in Java. Producers in Java tend to be more innovative and competitive because they have to compete in a large but crowded market and adopt technology faster than entrepreneurs in more remote areas. In contrast, many small entrepreneurs in Maluku and Papua still need to focus on natural resource-based industries, such as fisheries and agriculture, which are more labour-intensive and less oriented towards technological innovation. Consumer preferences also influence the development of micro and small enterprises in Java. Consumers in Java tend to have more diverse preferences and higher purchasing power, thus

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

encouraging local producers to innovate to meet the needs of various market segments. Meanwhile, in Maluku and Papua, purchasing power is generally lower, and consumer needs tend to be bare, which limits the growth potential of innovation-oriented micro and small enterprises.

Government support and access to funding are also more readily available in Java. Many government assistance programmes, such as small business loans and economic empowerment, are more concentrated in Java, where entrepreneurs have greater access to microfinance, business incubators, and entrepreneurial training and mentorship. In Maluku and Papua, access to funding is more limited as investment risks are higher due to geographical and infrastructure barriers. In addition to economic factors, local wisdom and consumption culture in Maluku and Papua also influence the development of small industries. These consumption patterns oriented towards basic needs and regional cultural values create different market demands, where simple and low-value-added products are more desirable than innovative or complex products. Thus, the development of micro and small industries in Java is faster than in Maluku and Papua, which face geographical challenges, small markets, and consumption patterns that are more limited to basic needs.

Various problems of micro and small industries are currently classic problems and are important to be followed up. The problems of micro and small industries cause the performance and competitiveness of the industry to be weak. Based on data from the 2022 *Global Competitiveness Index* Report released by the *World of Economic Forum*, it shows that Indonesia is in position 50 out of 114 countries that have competitive advantages and competitiveness below Malaysia, Thailand and Vietnam. So the need for strategic steps in improving industrial performance and competitiveness is a priority. The variety of problems is dominated by external and internal factors. These external and internal factors reinforce each other as barriers to developing micro and small enterprises in Indonesia for fundamental reasons. External inhibiting factors include: a) limited access to business financing. First, limited access to business financing hinders businesses' ability to expand production capacity, expand markets, or innovate. Many small businesses need more collateral or complicated administrative requirements to obtain loans or access capital from banks. With adequate financial support, businesses find competing or expanding on the broader market easier.b) high infrastructure cost. The high infrastructure cost is also a significant challenge, especially for businesses in remote areas with high transport costs to transport raw materials and sell products to markets. Expensive infrastructure increases operational costs, which often makes small businesses' products less competitive in the market. In addition, inefficient bureaucratic services lengthen licensing processes and hinder access to government support, such as training programmes or technical assistance, that could otherwise support enterprise sustainability and development.and c) inefficient bureaucratic services.

Internal factors are caused by: a) institutional and human resources (HR), internal factors, weaknesses in institutions and the quality of human resources lead to a lack of efficient management and technical skills within micro and small enterprises. With these limitations, entrepreneurs find it difficult to innovate or respond to market changes.b) marketing and technology, limitations in marketing and technology make it difficult for small businesses to reach consumers beyond the local market and adapt to broader market trends or needs. c) intellectual capital, d) the type of business is

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

subsistence or family household business, Subsistence or household businesses tend to focus on fulfilling daily needs, not on growth or expansion, so these businesses tend to stagnate. e) access to information and technology adoption is still very low. Furthermore, the problems of micro and small industries according to the Central Bureau of Statistics are marketing problems (22.94%), capital problems (22.46%), raw material problems (19.50%), and others.

One of the strategies used to improve the competitiveness and performance of micro and small industries is the implementation of certification. Certification itself is defined as a process of assessment between existing conformity which states that the product has met certain standards either nationally or internationally. The process is carried out by conducting tests, inspections, verifications from certified institutions and ensuring that the product meets the established safety, quality and performance requirements. Implementing certification for micro, small and medium enterprises (MSMEs) and other industries has seen significant development in Indonesia. However, implementation differences exist between business centres such as Java and other regions. Certification in Indonesia focuses on several key sectors, such as halal certification, national product standards (SNI), and distribution permit certification from the Food and Drug Administration (BPOM) for food and beverage products. In Java, as an economic and business centre, access to certification bodies is more accessible, both due to the presence of branch offices of relevant institutions and easy access to transportation to process documents. In addition, local governments support certification, and training programmes or subsidies are available, especially for eligible MSMEs. This provides an advantage for entrepreneurs in Java to improve their competitiveness and consumer confidence through official certification. In contrast, access to certification bodies is limited in areas outside Java, particularly in eastern Indonesia, such as Maluku and Papua. Many entrepreneurs have to bear the additional cost of travelling to certification offices in big cities, and the certification process can take longer. In addition, in these regions, knowledge and understanding of the benefits of certification could be higher among producers and consumers, resulting in limited awareness of accreditation.This difference is due to disparities in infrastructure and the number of certification bodies, as well as the lack of evenly distributed government support programmes across the region. The government has made efforts to encourage the implementation of certification throughout Indonesia by providing assistance programmes and certification facilities in the regions. However, there are still many challenges, especially in remote areas, in achieving optimal equitable access to certification.

This is done to be able to increase consumer confidence, wider market access, and improve the quality and productivity of the business being run. The importance of certification cannot be underestimated. There are at least several perceived benefits, namely 1) certification can increase consumer confidence in the products produced. A survey conducted by Nielsen in 2022, showed that 78% of Indonesian consumers choose certified products, especially in food, beverage and cosmetic products. 2) Certification can open up broad market access for IMK both at the national and international levels. 3) Certification is important to encourage improvements in quality and productivity. This is in line with research conducted by LIPI in 2022 on industries that already have certification can increase productivity by 23% within 2 years after receiving certification. This is

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

important for the industry to be able to make improvements in various production processes, fulfillment of certification standards, quality management, and documentation systems. This is expected to increase the competitiveness and efficiency of the business (Rahardjo, 2011). Despite its many benefits, Certification is difficult to implement for MSMEs in Indonesia due to several vital constraints: high costs and complicated procedures, low knowledge and awareness of the benefits of Certification, limited resources and trained labour, greater focus on daily operations rather than long-term quality improvement, and regulations that are not always supportive. This combination of barriers makes it difficult for many MSMEs to fulfil certification requirements even if they understand the potential benefits.

The total number of micro and small industries that have certification is only 3.83%, while the remaining 96.16% do not have certification. This shows that the application of IMK certification in Indonesia is low. One important sector that applies certification is the food and beverage industry. The food and beverage industry is the largest number of industries with more than 1.6 million industries out of 4.38 million total micro and small industries in Indonesia (BPS 2019). The Ministry of Industry (2017) mentioned that this industry in Indonesia has a large market potential due to the high population growth and increasing purchasing power of the community and is also considered a major contributor to the Indonesian economy due to its significant contribution to GDP and employment. The Government of Indonesia has implemented various policies to expand the types of certification to improve product quality and competitiveness, especially for micro and small industries. For example, Halal certification is gradually required for food, beverage, medicine, and cosmetic products, while Indonesian National Standards (SNI) are applied to certain products, such as toys and electrical appliances, to ensure consumer safety. In the food sector, hygiene and sanitation certification is applied to food and beverage businesses, and eco-friendly packaging is also encouraged to support environmental sustainability. To facilitate access to business licences and financing, the government is providing certification, while BPOM is tightening the distribution licences for drugs and cosmetics to ensure health safety.

This is also due to stringent food safety regulations at national and international levels, increased consumer awareness of food safety and quality, the complexity of the food and beverage industry supply chain, and health risks. There have been many government policies to ensure the food safety of micro and small industries in Indonesia. Among others, Indonesia's national food safety policy is regulated through various regulations, with Law No. 18/2012 on Food as the main basis, which requires producers to ensure food safety, quality and nutrition. Government Regulation (PP) No. 28 of 2004 and PP No. 86 of 2019 reinforce these standards by regulating the supervision and control of food contamination throughout the production to distribution chain, which is implemented by NA-DFC together with relevant ministries. NA-DFC also issues distribution permit regulations for food products to ensure their safety before they hit the market. In addition, halal certification is required through Law No. 33/2014 and the Halal Product Guarantee Agency (BPJPH), to ensure consumer confidence. The Ministries of Agriculture and Health also issue regulations related to food safety, such as the supervision of food additives, safe cultivation methods, and clear packaging and food labelling standards. With these regulations, the government aims to ensure safe and quality food,

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

while increasing the competitiveness of local products. In terms of the non-food sector and other industries, many influencing factors include global demand for unique and high-quality products, export drive, and the need for standardization to increase competitiveness in international markets.

The implementation of certification has an impact on improving the performance of micro and small industries as seen from turnover, profit, and employment. The empirical evidence is relevant to previous research. There are pros and cons in this interesting discussion. Research stating that it has a positive and significant impact can be seen from research conducted by (Sutaminingsih, 2018) which states that certification through brands and packaging affects the performance and competitiveness of industries in East Java. Similar research was also conducted by (Nurcahyo et al., 2021) obtained similar results, where the application of certification has a positive and significant impact on operational and business performance. Similar research is also shown by (Mahmood & Hasan, 2012), (Wilcock & Boys, 2017); (Barbosa et al., 2021) and (Magodi et al., 2022) stated that having certification has an effect on improving operational performance, business performance, supply chain management, customer loyalty, and industry market recognition in several countries, namely Pakistan, Guyana, Brazil, and South Africa. Research conducted by other researchers shows that certification has an impact on a) increased sales and exports (Tambunan, 2022), operational efficiency(Pratiwi et al., 2023), increased profitability(Suryanto & Sahrani, 2022), increased innovation, and tend to have better resilience to economic shocks and market changes.

However, on the con side, some studies show different results related to certification ownership. The research conducted by (Ochieng et al., 2015) which states that certification has an effect on improving business performance, namely asset returns, but has no effect on industry revenue and profit in Kenya. Another study conducted by (Cândido et al., 2016) stated that there was no significant difference in industry financial performance (level of sales, return on sales and return on assets) between companies that have certification and those that do not apply in Portugal.

Based on empirical results related to the pros and cons of certification implementation that have mixed impacts on micro and small industries, it is important to conduct further studies, especially for Indonesian micro and small industries. Given that there are not many comprehensive studies in Indonesia. This study fills the research *gap*. The majority of research that has been conducted in Indonesia focuses only on certain sectors or regions with small samples. There is no research that examines certification for industry as a whole and on a national scale, such as research by Sutaminingsih (2018) is only limited to 75 respondents in East Java, Nurcahyo et al., (2021) limited to the automotive industry with 50 respondents, Bakhri (2020) only in the industry in Cirebon with 43 respondents. So, the objective of research is to analyze what factors influence microand small industries to apply certification in Indonesia and the impact of certification on industry performance.

## RESEARCH METHODS

The type of data used in this study is secondary data derived from the BPS survey, namely the 2019 micro and small industry survey. This research focuses on micro and small industries in the food and beverage industry sector with a total of 25,187 industries. The research sample is divided

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

into two groups, namely industries that have certification totaling 1,837 industries and industry groups that do not have certification totaling 23,350 industries. The industry's decision to implement certification in the food and beverage sector is using a binary logit regression model approach. In the binary logit model, the industry decision to use certification is worth 1, while those without certification are worth 0. The variables used for this factor analysis include 12 variables, namely X1 (company age, unit years), X2 (dummy status of business entity, in the form of a business entity = 1), X3 (dummy status of business premises, owned and certified = 1), X4 (owner's education level, unit years), X5 (age of entrepreneur, years), X6 (export activity dummy, exporting=1), X7 (training participation dummy, participate=1), X8 (business association dummy, join=1), X9 (government assistance dummy, yes=1), X10 (bank credit dummy, yes=1), X11 (capital, percent unit), and X12 (*research and development* dummy, yes=1). The logit function model to see the industry's decision to apply certification is in accordance with the following formula (Etwire et al., 2017)

$$P_i = ln \frac{P_i}{1 - P_i} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \cdots + \beta_{12} X_{12} + e_1$$

Following the results of the above equation, it is used as a reference in impact analysis using *propensity score matching* analysis. This method in impact estimation has been widely conducted, among others in research (Abate et al., 2016; Abebaw & Haile, 2013; Harianto et al., 2019; Joetarto et al., 2020). *Propensity score matching* is an estimation technique used to evaluate the program and form a control group that is adjusted to the characteristics of the participants as closely as possible to those observed. Data processing was carried out using the help of *excel spreadsheet* and STATA 17 *software* to facilitate research. The stages carried out in this *propensity score macthing* analysis include dividing the two data into treatment and control groups and then estimating. The estimation model used to see the impact of certification on the performance of the food and beverage sector industry with the ATT (*Average Treatment Effect in the Treated)* approach. The ATT model is described by the following equation((Mawarni & Feryanto, 2023; Widjanarko et al., 2019) :

$$\tau_{ATT} = E\ (Yi\ (1)\ |D = 1) - E\ (Yi\ (0)|D = 0$$

Therefore, based on the above equation, it is known that ATT is the calculated impact of the *outcomes* variables in this study, namely the variables of turnover, profit, and the number of workers estimated by industries that have E certification [Y1i | $Di$ =1] (*treatment* group) minus the food and beverage industry that does not have E certification [Y0i | $Di$ = 0] which is the *control* group. Then, the next step is to choose a *matching algorithm*, namely by comparing the treatment group with the control group based on the propensity score using the matching method, namely Nearest Neighbor Matching (NNM). The next step is checking the overlap or common support of each group. The fourth stage is Assess Matching Quality by checking whether the matching procedure is able to balance the distribution of relevant variables in both groups(Austin, 2011; Kurniawan, 2016).

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

## RESULT AND DISCUSSION

Based on the results of the analysis that has been carried out, it is important to identify the descriptive statistical results of the entire data analyzed. There are a total of 1,840 industries out of 25,187 certified industries in Indonesia. Table 1 shows that descriptively the average turnover generated by micro and small industries in the food and beverage sector is 13.8 million for one year where the turnover of certified industries is higher than the average turnover of non-certified industries. Likewise, the average profit generated by the industry is 3.8 million, the number of workers is 10-11 people with an average company age of 9-11 years. Not only that, industries with business entities such as PT, CV, firm, etc., self-owned and certified business premises are also considered in these descriptive statistics. Business owner characteristic variables, namely education, are dominated by elementary school with an average owner age of 46 years. Other variables consisting of export activities, training attended, joining business associations, government assistance, access to credit, capital and development and research activities have higher mean values in certified industries compared to non-certified industries.

Company age is defined as the period of the company receiving the certificate in years. Many studies have been conducted to analyse the age of the company, which has a positive and significant effect on the application of the certificate. Among others (Djofack & Camacho, 2017; Iatridis & Kesidou, 2018; Ullah et al., 2014; Vílchez & Darnall, 2017) state that companies that have a longer age tend to have more resources and experience and are able to facilitate the certification process and adopt standards and have a mature management system. In addition, other factors that support effective integration through experience and important roles in the company and are better equipped to adopt existing innovations.

Some studies related to the status of business entities on the implementation of certification include those conducted by (Marsusvita et al., 2021; Masakure et al., 2009; Qijun & Batt, 2016) which state that formal and legal status companies have greater competitiveness, more easily adopt certification systems for various reasons such as access to training and external support, good human and financial resources, and higher export market demands. These studies consistently show that a more formalised and established business status is positively correlated with the adoption of certification. Factors such as firm size, access to resources, market orientation, and internal capacity are often explanatory and supportive of this relationship.

Business premises located in formal areas, economic development areas, and industrial areas have good certification management system implementation due to the reasons of access to facilities, technical support, a favourable environment for innovation and technology, and favourable infrastructure and institutional services to create innovation.

The level of education of entrepreneurs has a significant influence on the application of certification in a business. Entrepreneurs with higher educational backgrounds are more prepared and able to implement complex certification standards. This is due to several key factors. First, they have a better understanding of the long-term benefits of certification, including improved competitiveness and market access. Second, higher cognitive capacity allows them to understand and implement the

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

technical requirements of certification more easily. Third, a higher awareness of global market trends and regulatory changes makes them more proactive in adopting certification standards.

Better management skills, often developed through formal education, also help in the systematic planning and implementation of certification processes. Highly educated entrepreneurs also have greater access to professional networks and information sources, which can facilitate the exchange of knowledge and best practices related to certification. Several relevant previous studies have shown the positive influence of entrepreneur age on certification implementation. Among others (Abuhantash, 2023; Gupta et al., 2023; Johnson et al., 2016) state that the age of entrepreneurs who are more than 45 years old tend to make it possible to apply for certification due to long business experience, extensive professional networks, good financial stability in overcoming certificate fee problems, and mature and strategic decision making. Many studies have been conducted on the effect of certification on the application of certification. Training has a positive and significant impact on the successful implementation of certification. This is due to increased employee understanding of the quality management system, skills development and increased employee motivation in the certification process. Training has a significant positive effect on certification implementation. Training not only improves employee understanding and skills but also helps create an organisational culture that supports the implementation and maintenance of certified standards. Effective training can help organisations overcome common barriers to certification implementation, such as lack of knowledge, resistance to change, and difficulty in meeting complex standard requirements.

Business associations play an important role in providing information, technical support, and networks that facilitate certification adoption. Business associations can also create normative pressure that encourages their members to adopt best practices, including certification. In addition, they often act as a bridge between individual companies' certification bodies and policymakers, facilitating the adoption and implementation process. This assistance can take the form of financial support (such as subsidies or tax incentives), technical assistance (such as training or consultancy), or regulatory support. The effectiveness of government assistance often depends on the type of assistance, industry sector, and country context. These studies confirm that R&D is not only important for product innovation but also plays a crucial role in facilitating and enhancing the success of certification adoption found that firms' R&D capabilities have a positive effect on certification adoption. All further information can be detailed in Table 1.

**Table 1. Statistics descriptive of Small Micro Industries in the Food and Beverage Sector**

| Variables | Total Sample | | Certification | | Not certification | |
|---|---|---|---|---|---|---|
| | Mean | Sd. Dev | Mean | Sd.Dev | Mean | Sd.Dev |
| Turnover (Rp) | 13,800,000 | 103,000,000 | 23,500,000 | 82,400,000 | 13,000,0000 | 105,000,000 |
| Profit(Rp) | 3,840,756 | 16,900,000 | 7,562,012 | 28,700,000 | 3,547,311 | 15,500,000 |
| Labor (Person) | 23.13 | 19.62 | 33.28 | 32.17 | 22.33 | 18.03 |
| Company age (year) | 11.08 | 10,27 | 9.64 | 9.53 | 11.20 | 10.32 |
| Business entity status (dummy) | 0.06 | 0.24 | 0.22 | 0.41 | 0.04 | 0.215 |

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

| Variables | Total Sample | | Certification | | Not certification | |
|---|---|---|---|---|---|---|
| | Mean | Sd. Dev | Mean | Sd.Dev | Mean | Sd.Dev |
| Business status (dummy) | 0.46 | 0.49 | 0.58 | 0.49 | 0.45 | 0.49 |
| Education | 2.99 | 1.50 | 3.72 | 1.66 | 2.94 | 1.47 |
| Age of entrepreneur (years) | 46.96 | 11.04 | 46.45 | 10.77 | 47.00 | 11.07 |
| Export(dummy) | 0.001 | 0.039 | 0.003 | 0.06 | 0.001 | 0.03 |
| Training (dummy) | 0.04 | 0.20 | 0.12 | 0.33 | 0.03 | 0.18 |
| Business association(dummy) | 0.02 | 0.17 | 0.05 | 0.24 | 0.02 | 0.16 |
| Government assistance (dummy) | 0.02 | 0.16 | 0.03 | 0.19 | 0.02 | 0.16 |
| Credit(dummy) | 0.05 | 0.23 | 0.10 | 0.30 | 0.05 | 0.22 |
| Capital(percent) | 94,37 | 19,34 | 91,81 | 23,02 | 94,56 | 19,02 |
| RnD(dummy) | 0.01 | 0.10 | 0.02 | 0.14 | 0.01 | 0.10 |
| Observation | 25,187 industries | | 1,840 industries | | 23,350 industries | |

Source: Primary Data (2024)

**Factors affecting Micro and Small Industries Implementing Certification**

In this section, it is important to present an analysis related to the factors that influence the industry to implement product certification for their business activities. Based on the results of the logit analysis that has been carried out by identifying 12 variables that affect the application of certification, it is found that 9 variables have a significant influence on the application of certification. These variables include the age of the company, the status of the industrial business entity, the status of the place of business, the education of the owner, the age of the owner, the participation in training, joining business associations, the existence of government assistance, as well as access to credit obtained. Meanwhile, three other variables do not have a significant influence on the application of certification, namely the existence of export activities, capital owned, and the existence of research and development activities carried out by micro and small industries in Indonesia.

The company age variable has a positive and significant influence on the implementation of industrial certification. The age of the company has a significance value of 0.001 at the 1% level. The ods value of the age ratio shows a value of 0.989 which means that if the age of the company increases by 1 year, the chances of the industry implementing certification will increase by 0.989 times in cateris paribus conditions. Age is often closely related to organizational capabilities, institutional pressure, and market orientation in influencing the adoption and implementation of certification. This is because companies that have a longer age tend to have more resources and experience and are able to facilitate the certification process and adopt standards and have a mature management system. However, in Indonesia, the majority of micro and small enterprise (MSE) owners are between 35-55 years old, an ideal age as they have sufficient experience, managerial skills, professional networks,

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

and financial stability. Younger owners (under 35 years old) tend to be more innovative and adaptive to technology but may need more experience and have limited networks. Meanwhile, owners above 55 years old have mature decision-making capabilities but could face challenges adapting to new regulations and technologies. Overall, age affects readiness to implement certification, where more experienced owners are better prepared, while younger ones need to be encouraged through training to be competitive. In addition, the age of the company is considered to have experience and a role and is better prepared to adopt existing innovations (Iatridis & Kesidou, 2018; Vílchez & Darnall, 2017).

Other variables of business entity status and place of business (owned and certified) have a positive and significant influence. This is indicated by a significant value at the 1% level with an ods ratio value of 3.940 and 1.429, respectively. This means that if an industry has a business entity status or has a certified and owned premises status, it will increase the chances of applying certification 3.940 and 1.429 times higher than not having a business entity status and owned certificate, cateris paribus. This is because industries that have an entity status of either CV, Firm, or PT (Tbk) have a higher tendency to adopt certification due to demands for transparency and accountability from shareholders. saham (Marsusvita et al., 2021). Meanwhile, the variables of own and certified business premises indicate that the industry has access to facilities, technical support, an environment that supports innovation and technology, infrastructure and institutional services that support the creation of innovation (Marsusvita et al., 2021). In Indonesia, legal entity status and registered business premises help facilitate the certification process by providing easier access to financing, cooperation, and audits. Formally structured businesses are also better equipped to fulfil the administrative and operational requirements of the certification process, making them more competitive and able to open up wider market opportunities. However, in Indonesia, political conditions and government policies greatly affect the legal status of businesses. Policies such as OSS and the Job Creation Law make it easier to legalise businesses, but bureaucratic obstacles remain a challenge. Incentives such as KUR and tax subsidies encourage businesses to obtain formal status, but regulatory uncertainty and political policy changes often create barriers. In addition, fear of taxes and regulatory burdens discourage some businesses from registering. Trade policies that support local products can motivate legalisation, while the dominance of imported products makes businesses feel that they do not benefit from formal status. Consistent policies are needed for more small businesses to move into the formal sector and enjoy its benefits.

The level of education and age of business owners have a positive and significant influence on the implementation of certification. This is because the significance value is 0.000 at the 1% level. The ods value of the education ratio shows 1.260 which means that if education increases by 1 year, the chances of the industry implementing certification will increase by 1.26 times, cateris paribus. While the ods value of the owner's age ratio shows 1.009 which means that if the age increases by 1 year, the industry's chances of implementing certification will increase by 1 fold, cateris paribus. This is because entrepreneurs with educational backgrounds classified as higher categories tend to be more prepared and able to implement complex certification standards and age is closely related to long business experience, extensive professional networks, good financial stability in overcoming

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

certificate fee problems, and mature and strategic decision making of business owners usaha (Abuhantash, 2023; Gupta et al., 2023; Johnson et al., 2016). The education level of micro and small business owners (MSEs) in Indonesia is generally still dominated by the lower-middle level of education. Based on BPS data and related research, most MSE owners have only studied up to the secondary school level (junior or senior high school), while the percentage of owners with higher education (diploma or bachelor's degree) is still relatively low.

Each industry is expected to build on the skills and training provided by the government or other relevant institutions, particularly in the application of certification. This indicates that industries that participate in training activities, join business associations, and receive government assistance, as well as easy access to credit have a positive and significant influence on the implementation of certification. It can be seen from the statistical value that shows positive significance. Not only that, the ods ratio value of each variable includes training (2.819), business associations (1.328), government assistance (0.757), and access to credit (1.38). The probability of an industry that participates in training to choose certification is 2.819 times that of an industry that does not participate in training. The ods ratios for the other variables also show a similar meaning. The probability of industries participating in the training to opt for certification is 2.819 times that of non-participating industries, indicating that training has a significant influence in encouraging companies to take steps towards certification. Training provides the insights, knowledge and practical skills necessary for businesses to understand the importance of certification and how to implement it. Through training, industries better understand the benefits of certification, such as improved operational efficiency, product quality, and access to wider markets.

In addition, training also helps to reduce the perception that the certification process is complicated and expensive and provides step-by-step guidance to meet the required standards. Industries that have been exposed to such information feel more confident and ready to undergo the certification process. This is because training has an impact on increasing employee understanding of the quality management system, developing skills and increasing employee motivation in the process of implementing certification (Barbosa et al., 2021; Ikram et al., 2020). Industry membership in business associations is also influential in providing information, technical support, and networks that facilitate the adoption of certification from peers or fellow business owners. Furthermore, government assistance is also expected to increase the number of industry certification adoptions through programs such as financial support (such as subsidies or tax incentives), technical assistance (such as training or consulting), or regulatory support (Melesse & Bulte, 2015), financial support, including access to cheap, easy credit, and relief from financial and operational problems of firms (Cavusgil et al., 2014)

Other variables that do not have a significant effect on the application of certification are export activity variables, capital owned, and research and development variables. This is because there are still very limited industries that have international certification. Based on data from the Central Bureau of Statistics, of all industries that have certification, only 0.29% can penetrate into the international market. This is due to limited capital factors as well as limited access to research on the development of the food and beverage industry. It is possible that these variables do not have a

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

positive and significant effect on the application of certification in Indonesia. Exports, capital, and research and development (R&D) activities do not significantly influence the adoption of certification in micro and small industries in Indonesia due to several specific factors. Most micro and small industries are more focused on the domestic market, where consumers have yet to make certification a primary need. Hence, an export orientation that requires certification is less relevant. Although capital is essential for business development, certification costs are perceived as high by small businesses, so they prefer to allocate limited funds to daily operational needs or short-term investments. Furthermore, R&D has not been a top priority due to limited human and financial resources; many micro and small businesses only focus on production and marketing without seeing a direct link between innovation and the need for certification. Low awareness of the long-term benefits of certification, as well as lack of access to information and guidance, also means that certification is not considered a pressing need. The certification process, which requires time, money, and complicated operational adjustments, further discourages businesses. On the other hand, regulations in Indonesia still need to be more lenient towards micro and small industries regarding certification obligations, so many businesses feel no urgency to obtain it. With these limitations, micro and small industries prioritise operational sustainability and short-term profits over investing in certification, which is perceived to have no direct impact on their business growth.

The overall variables affecting the application of certification of micro and small industries applying certification are further explained in table 2.

**Table 2. Factors influencing micro and small industries to apply for certification**

| Variables | Odds Ratio | z | P>\|z\| |
|---|---|---|---|
| Company age (years) | 0.989 | -3.46 | 0.001*** |
| Business entity status (dummy) | 3.940 | 20.44 | 0.000*** |
| Business status (dummy) | 1.429 | 6.97 | 0.000*** |
| Education | 1.260 | 14.50 | 0.000*** |
| Age of entrepreneur (years) | 1.009 | 3.55 | 0.000*** |
| Export(dummy) | 1.571 | 1.00 | 0.318 |
| Training(dummy) | 2.819 | 11.61 | 0.000*** |
| Business association(dummy) | 1.328 | 2.52 | 0.012** |
| Government assistance (dummy) | 0.757 | -1.93 | 0.054* |
| Credit(dummy) | 1.38 | 2.58 | 0.010*** |
| Capital(percent) | 0.999 | -0.22 | 0.823 |
| RnD(dummy) | 1.331 | 1.61 | 0.108 |
| cons | 0.017 | -19.38 | 0.000*** |
| Pseudo R2 | | | 0.0838 |
| Wald Chi2 | | | 1102.65 |
| N | | | 25,187 |

Statistical significance level (robust): ***p<0.01; **p<0.05; *p<0.1

**AGRISOCIONOMICS**
Journal of Agricultural Socio-Economics and Policy
ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

**Impact of certification on industry performance**

The impact of certification on industry performance in this section uses propensity score matching techniques. At this stage, standardization or covariate balance is carried out by comparing groups that apply certification with groups that do not have certification. Figure 1 shows the curve or balance plot which explains that the treatment group and the control group have a significant difference (based on the left figure). This indicates that there are two groups that do not have similar matching and if they compare directly, it will lead to inappropriate conclusions due to bias. So it is necessary to match between the two groups so that the control group will be as similar as possible to the characteristics of the treatment group (right picture). So the selection of the propensity score mathing model after matching is very important to ensure that the outcome of performance is only influenced by the application of industrial certification and does not cause research bias (Feryanto & Rosiana, 2021). Furthermore, it can also be reduced after estimation using NNM. The balance of variables carried out before matching and after matching can be seen in Figure 1 below:

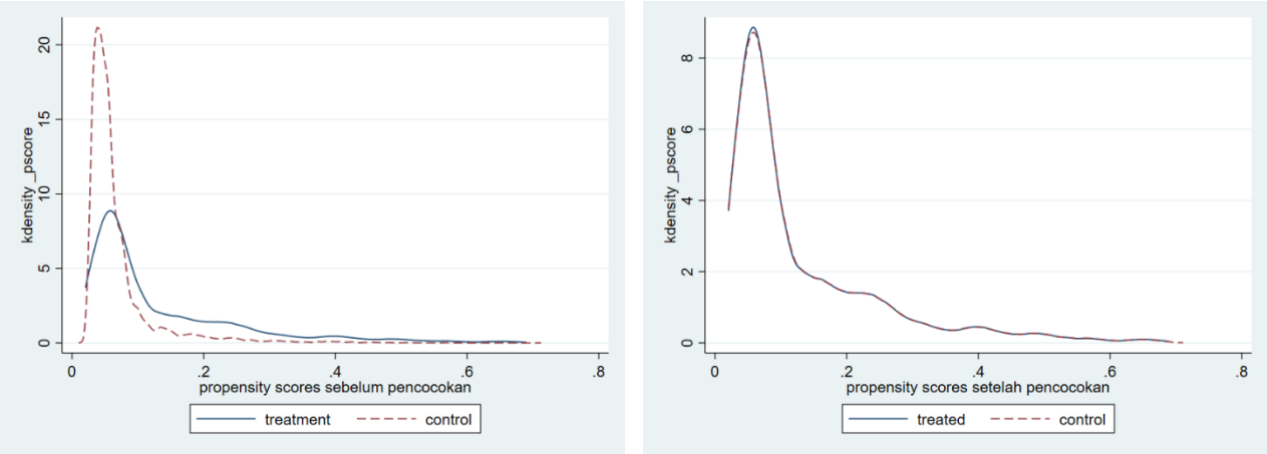


Figure 1. Covariate balance before and after matching

Based on the figure, it can be seen that there is a common area of support before and after matching. This shows that the sample propensity values are in the same range and have a match. This research focuses on the number of common support covariates according to the table below

**Table 3. Common support of covariates in matching**

| Treatment | On Support | Off Support | Total |
|---|---|---|---|
| Industries that implement certification | 1,837 | 0 | 1,837 |
| Industries that do not apply certification | 23,350 | 0 | 23,350 |
| Number of Covariates | 25,187 | 0 | 25,187 |

Source: Primary Data (2024)

Performance is a measure of the productivity of the business conducted by Micro and Small Industries. Firm performance consists of two main dimensions: financial and strategic (Phillipson et al., 2019). As the most important objective for a firm, financial performance consists of sales growth,

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

cost levels, and, ultimately, profit realization. Strategic performance, on the other hand, is concerned with the company's market position (e.g. market share, competitiveness), which in the long run affects the financial well-being of the company.

Micro and small industry performance is a multidimensional concept that includes both financial and non-financial aspects. The performance of micro and small industries includes various non-financial aspects that are not directly related to profits but are still essential in assessing the overall success of the business. These include product and service quality, which play an important role in ensuring customer satisfaction and loyalty. In addition, the ability to innovate and develop new products helps the industry stay relevant in a dynamic market. Employee satisfaction and productivity are also performance indicators, as good working conditions increase labour motivation and effectiveness. Operational efficiencies, such as reduction of wastage, also support industry performance.

On the other hand, the implementation of sustainable and environmentally friendly business practices contributes to the company's positive reputation in the long run. A good reputation and corporate image not only increase customer trust but also open up opportunities for cooperation with business partners. Solid relationships with suppliers and business partners strengthen a reliable and efficient supply chain. Compliance with regulations and industry standards is also key to maintaining business continuity and avoiding legal risks. By considering all these aspects, the performance of micro and small industries can be measured comprehensively, as business success is not only judged by financial returns but also by quality, efficiency, relationships, and operational sustainability. It encompasses the ability of a business to survive, grow and prosper, as well as its contribution to the economy and society. Performance also involves the achievement of business goals, both short-term and long-term, and can be influenced by various internal and external factors. (Fatoki, 2019) defined industry performance as the company's ability to achieve predetermined goals by using resources efficiently and effectively. The performance indicators in this study consist of turnover, profit, and labor which are adapted from research (Jono et al., 2023; Rachmawati et al., 2023; Silaban et al., 2024) which shows that performance can be described by the results of the company's performance. which shows that performance can be described by the results of business turnover, profits generated, and the number of workers recruited. The impact of certification on industry performance is explained in more detail in the following table:

**Table 4. impact of certification on industry performance**

| Variables | Sample | Treated | Control | Difference | S.E. | T-Stat |
|---|---|---|---|---|---|---|
| Turnover | Unmatched | 23,543,710.1 | 13,032,969.8 | 10,510,740.3 | 2,502,704.75 | 4.20 |
| | ATT | 23,543,710.1 | 18,529,220.5 | 5,014,489.66 | 3,343,103.77 | 1.50 |
| Profit | Unmatched | 7,570,717.22 | 3,547,310.85 | 4,023,406.37 | 408.342,226 | 9.85 |
| | ATT | 7,570,717.22 | 4,618,953.92 | 2,951,763.3 | 1.006.448,33 | 2.93*** |
| Labor | Unmatched | 33.286 | 22.334 | 10.952 | 0.470 | 23.27 |
| | ATT | 33.286 | 25.464 | 7.821 | 0.953 | 8.20*** |

Statistical significance level (robust): ***α=1%; 33**α=5%; *α=10%

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

**Certification impacts business turnover**

Business turnover is obtained from the product of the sales volume and the product price in the market. The results showed that the application of certification had no impact on business turnover. This is because the statistical value on ATT turnover is below 2.58 (T-stat < 2.58) which means it has no significant effect. Although certification can provide potential benefits to companies, its impact on turnover is not always positive or significant. While certification provides various benefits, such as increased consumer confidence and operational efficiency, its impact on company turnover is only sometimes significant. One of the main reasons is the high cost of certification, including audits and training, which can be a financial burden, especially for small businesses. In addition, the time needed to adapt to new standards often hampers operations and affects interim performance. In markets with price-sensitive consumers, certified products that are typically more expensive can lose out to products without certification. While certification opens up access to new markets, it only automatically increases turnover with a proper marketing strategy. The benefits of certification are usually felt in the long term, such as through increased consumer loyalty and operational stability, so they are not immediately reflected in the initial financial statements. In addition, the implementation of standards also depends on the consistency of management and labour. If well implemented, the potential for increased turnover is easier to realise. Therefore, while certification is important, its impact on turnover takes time and the right strategy is truly significant.

Influencing factors include cost, wrong focus, lack of differentiation in the market, mismatch with customer needs, internal resistance, over-reliance on certification and inability to capitalize on certification (Karapetrovic et al., 2010; Prajogo, 2011) which can reduce the effectiveness of certification in increasing business turnover. It is important for companies to carefully consider whether the benefits of certification will be worth the investment required, and to develop a comprehensive strategy to maximize the value of certification. When considered from a cost perspective, the certification process is often costly, especially for small and medium-sized enterprises. This includes the costs of applying, auditing, and maintaining certification. If these costs cannot be offset by a significant increase in turnover, then certification can actually reduce business profitability. Thus, in the short term, it has not been able to maximize business turnover. When identified from an administrative aspect, the process focuses too much on documentation and procedures, rather than on actually improving the quality of products or services. This can result in companies spending resources to fulfill administrative requirements without providing significant added value to customers. Not only that, some certification standards may not fully match the specific needs or preferences of customers in a particular industry. As a result, even if a company is certified, it may not have a significant impact on customer purchasing decisions.

**Certification impacts business profits**

Business profit is obtained from the difference between the revenue earned by the company minus the costs incurred. In this study, certification has an impact on increasing profits. Which means that certification has a positive and significant effect on business profits. The statistical value of profit is greater than 2.58 (T-stat > 2.58). It can be seen in the table that the industry group that has

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

certification has an average profit of Rp7,5 million compared to the group that does not have certification has an average profit of Rp4,6 million. The difference in profits between certified and non-certified industries is due to several significant factors. Industries with certification recorded an average profit of IDR 7.5 million, while those without certification only reached IDR 4.6 million. This profit difference of IDR2.9 million shows that certification plays an important role in improving business performance. Firstly, certified products are considered safer and higher quality by consumers. This creates market trust, increases customer loyalty, and drives higher demand. In addition, having certifications such as ISO or HACCP allows industries to penetrate new markets, including export markets, which usually set certain standards as entry requirements. Secondly, certification forces companies to improve operational efficiency and implement best practices in production. With more efficient and standardised processes, operational costs are reduced, and risks such as product failure or returns are reduced. Third, certified industries often have easier access to financing or government incentives, which support investment in business expansion or product innovation. Certification also helps improve a company's reputation in the eyes of business partners, expand opportunities for cooperation, and increase a company's bargaining power in price or contract negotiations. Overall, the combination of increased demand, operational efficiency, and wider business opportunities makes certified industries more profitable than non-certified ones. The difference between the two groups is Rp2,9 million. Certification can have a positive impact on business profits through a variety of mechanisms, including increased profit margins, reduced operational costs, increased market share, reduced product failure costs, improved supply chain efficiency, reduced insurance and litigation costs, improved resource use efficiency, and improved customer retention. This suggests that many studies have consistently shown the impact of certification on company profits. However, it is important to note that the effectiveness of certification in improving profits depends on proper implementation and integration with overall business strategy. Companies need to view certification not just as a formality, but as a tool for continuous improvement and increased competitiveness (Bakhtiar et al., 2023; Mdhlalose, 2023)

**Certification impacts the number of workers**

In the labor aspect, the impact of certification can increase business growth, which will increase labor needs, and increase the number of quality staff in meeting established standards. The results obtained show that certification has a positive and significant impact on the number of workers where the t-statistic value is greater than 2.58, which means it is significant. The average number of workers in micro and small industries that apply certification is 33 people compared to 25 people in industries that do not have certification, with a difference of 7-8 workers. This impact shows that certification drives business growth, which in turn creates more jobs. This is due to the increased demand for certified products that require greater production capacity and more standardised operational processes. In addition, certification often requires the implementation of new management systems, which demands additional trained labour to ensure compliance with quality and safety standards. Many studies have indicated that certification often opens up new opportunities for companies to access wider markets or large contracts that were previously out of reach. This can

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

encourage business expansion that requires additional manpower (Ullah et al., 2014). Not only that, the implementation and maintenance of certification standards often require specialized expertise, which can encourage the recruitment of new workers with specific skills. In addition, research shows that certification often results in more complex processes and procedures, which may require more personnel to manage effectively (Ariza et al., 2023)

## CONCLUSION AND SUGGESTION

Based on the results of the discussion and analysis that has been carried out, it can be concluded that there are factors that influence the industry to apply certification including company age, business entity status, business place status, owner's education level, owner's age, export activity, training activities, joining business associations, assistance from the government, access to credit, capital, and research and development. Not only that, the application of certification carried out by micro and small industries in the food and beverage sector has an impact on industrial performance including turnover, profit, and the number of workers. The group that applies certification has a significant impact, namely the average profit and the number of workers is higher than the group that does not apply certification. Therefore, it is expected that the food and beverage industry in Indonesia can have certification so that in the long run it can improve the performance and competitiveness of the industry. This can be done through education and socialisation about the importance of certification, access to financing and subsidies for certification fees and consultation centres provided by the government, collaboration, and the existence of regulations and certification policies that are monitored regularly so that the industry can compete.

## REFERENCES

Abate, G. T., Rashid, S., Borzaga, C., & Getnet, K. (2016). Rural Finance and Agricultural Technology Adoption in Ethiopia: Does the Institutional Design of Lending Organizations Matter? *World Development*, *84*, 235–253. https://doi.org/10.1016/j.worlddev.2016.03.003

Abebaw, D., & Haile, M. G. (2013). The impact of cooperatives on agricultural technology adoption: Empirical evidence from Ethiopia. *Food Policy*, *38*(1), 82–91. https://doi.org/10.1016/j.foodpol.2012.10.003

Abuhantash, A. (2023). The Impact of Human Resource Information Systems on Organizational Performance: A Systematic Literature Review. *European Journal of Business and Management Research*, *8*(3), 239–245. https://doi.org/10.24018/ejbmr.2023.8.3.1992

Aladin, A., Dewata, E., Sari, Y., & Aryani, Y. A. (2021). The Role of Small and Medium Enterprises (SMES) and Economic Growth in Indonesia: The VECM Analysis. *Proceedings of the 4th Forum in Research, Science, and Technology (FIRST-T3-20)*, *1*, 95–99. https://doi.org/10.2991/ahsseh.k.210122.017

Ali, J., Reed, M. R., & Saghaian, S. H. (2021). Determinants of Product Innovation in Food and Agribusiness Small and Medium enterprises: Evidence from Enterprise Survey Data of India. *International Food and Agribusiness Management Review*, *24*(5), 777–796. https://doi.org/10.22434/IFAMR2019.0210

Ariza, A., Hendrickson., A. B., Pinzon Reyes, A., Medina Rocha, A. H., Cabrera Perez, R., & Isabel Bermudez Santana, C. (2023). Innovation and Performance of SMEs in Nigeria Manufacturing

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

Firm. *International Journal of Managerial Studies and Research*, *11*(6), 36–51. https://doi.org/10.20431/2349-0349.1106005

Austin, P. C. (2011). An introduction to propensity score methods for reducing the effects of confounding in observational studies. *Multivariate Behavioral Research*, *46*(3), 399–424. https://doi.org/10.1080/00273171.2011.568786

Bakhri, S. (2020). Analisis Kepemilikan Sertifikat Halal Terhadap Tingkat Pendapatan Usaha Pelaku Industri Kecil Dan Menengah. *Al-Mustashfa: Jurnal Penelitian Hukum Ekonomi Syariah*, *5*(1), 54. https://doi.org/10.24235/jm.v5i1.6789

Bakhtiar, A., Nugraha, A., Suliantoro, H., & Pujotomo, D. (2023). The effect of quality management system (ISO 9001) on operational performance of various organizations in Indonesia. *Cogent Business and Management*, *10*(2). https://doi.org/10.1080/23311975.2023.2203304

Barbosa, L. C. F. M., Oliveira, O. J. de, Machado, M. C., Morais, A. C. T., & Bozola, P. (2021). Lessons learned from quality management system ISO 9001:2015 certification: practices and barrier identification from Brazilian industrial companies",. *Benchmarking: An International Journal*, *29*(8), 2593-2614. https://doi.org/https://doi.org/10.1108/BIJ-07-2021-0382

Bennett, R. (2008). SME policy support in Britain since the 1990s: What have we learnt? *Environment and Planning C: Government and Policy*, *26*(2), 375–397. https://doi.org/10.1068/c07118

Cândido, C. J. F., Coelho, L. M. S., & Peixinho, R. M. T. (2016). The financial impact of a withdrawn ISO 9001 certificate. *International Journal of Operations & Production Managemen*, *36*(1), 23–41. https://doi.org/http://dx.doi.org/10.1108/IJOPM-11-2014-0540

Cavusgil, S., Ghauri, P., & Agarwal, M. (2014). Doing Business in Emerging Markets: Entry and Negotiation Strategies. *Doing Business in Emerging Markets: Entry and Negotiation Strategies*. https://doi.org/10.4135/9781483328720

Costa Melo, D. I., Queiroz, G. A., Alves Junior, P. N., Sousa, T. B. de, Yushimito, W. F., & Pereira, J. (2023). Sustainable digital transformation in small and medium enterprises (SMEs): A review on performance. *Heliyon*, *9*(3), e13908. https://doi.org/10.1016/j.heliyon.2023.e13908

Djofack, S., & Camacho, M. A. R. (2017). Implementation of ISO 9001 in the Spanish tourism industry. *International Journal of Quality and Reliability Management*, *34*(1), 18–37. https://doi.org/10.1108/IJQRM-10-2014-0151

Fatoki, O. (2019). Green Marketing Orientation and Environmental and Social Performance of Hospitality Firms in South Africa. *Foundations of Management*, *11*(1), 277–290. https://doi.org/10.2478/fman-2019-0023

Feryanto, F., & Rosiana, N. (2021). Penggunaan Telepon Seluler Untuk Pemasaran Serta Dampaknya Terhadap Kesejahteraan Petani. *Jurnal AGRISEP Kajian Masalah Sosial Ekonomi Pertanian Dan Agribisnis*, *20*(01), 25–40. https://doi.org/10.31186/agrisep.20.01.25-40

Gunartin. (2017). Strengthening SMES As A Pillar of Building the Nation's Economy. *Eduka: Jurnal Pendidika, Hukum, Dan Bisnis*, *2*(2), 46–55.

Gupta, S., Gupta, P., & Bhati, B. (2023). Analysing Past to Prepare for Future: A Systematic Literature Review of Research on Human Resource Analytics in the last Decade. *5th International Conference on Future of Busin*, 1–38. https://doi.org/10.33422/5th.icfbme.2023.10.101

Harianto, H., Hutagaol, M. P., & Widhiyanto, I. (2019). Sources and Effects of Credit Accessibility on Smallholder Paddy Farms Performance: an Empirical Analysis of Government Subsidized Credit Program in Indonesia. *International Journal of Economics and Financial Issues*, *9*(5), 1–10. https://doi.org/10.32479/ijefi.8388

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

Hasanah, A. U., Shino, Y., & Kosasi, S. (2022). The Role Of Information Technology In Improving The Competitiveness Of Small And SME Enterprises. *IAIC Transactions on Sustainable Digital Innovation (ITSDI)*, *3*(2), 168–174. https://doi.org/10.34306/itsdi.v3i2.561

Iatridis, K., & Kesidou, E. (2018). What Drives Substantive Versus Symbolic Implementation of ISO 14001 in a Time of Economic Crisis? Insights from Greek Manufacturing Companies. In *Journal of Business Ethics* (Vol. 148, Issue 4). https://doi.org/10.1007/s10551-016-3019-8

Ikram, M., Zhang, Q., Sroufe, R., & Shah, S. Z. A. (2020). Towards a sustainable environment: The nexus between ISO 14001, renewable energy consumption, access to electricity, agriculture and CO2 emissions in SAARC countries. *Sustainable Production and Consumption*, *22*(July), 218–230. https://doi.org/10.1016/j.spc.2020.03.011

Ismael, B., & Muhamed, A. (2013). Entrepreneurial competencies, psychological capital, working capital management and perceived market share. A case study of small and medium enterprises in Dar-Es Salaam, Tanzania. *Journal of Business and Retail Management Research*, *7*(2), 1–13.

Joetarto, B., Setiawan, A., & Farida, F. (2020). The Impact of Village Fund Program on Improving Well-being. *Jejak*, *13*(2), 345–366. https://doi.org/10.15294/jejak.v13i2.24395

Johnson, R. D., Lukaszewski, K. M., & Stone, D. L. (2016). The evolution of the field of human resource information systems: Co-Evolution of technology and HR processes. *Communications of the Association for Information Systems*, *38*(1), 533–553. https://doi.org/10.17705/1CAIS.03828

Jono, S. Z., Tinaprilla, N., & Feryanto. (2023). Impact Of Agricultural Credit On Performance Of Red Chili Farms In Indonesia. *AGRISOCIONOMICS Jurnal Sosial Ekonomi Dan Kebijakan Pertanian*, *13*(06), 1434–1462. https://doi.org/10.4236/tel.2023.136081

Karapetrovic, S., Fa, M. C., & Saizarbitoria, I. H. (2010). What happened to the ISO 9000 lustre? An eight-year study. *Total Quality Management and Business Excellence*, *21*(3), 245–267. https://doi.org/10.1080/14783360903553149

Kartika, M. (2019). Public Service and Micro-Small Enterprise Developments in Indonesia. *Integrated Journal of Business and Economics*, *3*(1), 108. https://doi.org/10.33019/ijbe.v3i1.103

Kurniawan, S. & E. S. (2016). Kata kunci : Buruh, Serikat Buruh, Upah, PSM. *JEKT*, *2016*(2), 193–215.

Magodi, Daniyan, & Mpofu. (2022). An Investigation Of The Effect Of The Iso 9001 Quality Management System On Small And Medium Enterprises In Gauteng, South Africa. *South African Journal of Industrial Engineering*, *33*(1), 126–138.

Mahmood, S., & Hasan, R. (2012). Survey on impact of QMS ISO 9001:2000 in an organization, increases the effectiveness of its operations. *Proceedings of the 2012 UKACC International Conference on Control, CONTROL 2012*, *August*, 427–430. https://doi.org/10.1109/CONTROL.2012.6334668

Marsusvita, A., Suprayogi, S., & Sucipto, S. (2021). Barrier and motivations implementation of safety and halal assurance for apple processed products: A review. *IOP Conference Series: Earth and Environmental Science*, *924*(1). https://doi.org/10.1088/1755-1315/924/1/012068

Masakure, O., Henson, S., & Cranfield, J. (2009). Standards and export performance in developing countries: Evidence from Pakistan. *Journal of International Trade and Economic Development*, *18*(3), 395–419. https://doi.org/10.1080/09638190902986538

Mawarni, V., & Feryanto. (2023). Keputusan Petani Kopi Bergabung Pada Koperasi Dan Dampaknya Terhadap Kinerja Usahatani Kopi Di Performance in Indonesia. *Jurnal Ekonomi Pertanian Dan Agribisnis (JEPA)*, *7*(2), 783–796. https://doi.org/10.21776/ub.jepa.2023.007.02.30

Mdhlalose, D. (2023). the Systematic Review of Effective Performance Management Systems in

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

Organizations. *Jurnal Aplikasi Manajemen*, *21*(2), 319–330. https://doi.org/10.21776/ub.jam.2023.021.02.04

Melesse, M. B., & Bulte, E. (2015). Does land registration and certification boost farm productivity? Evidence from Ethiopia. *Agricultural Economics (United Kingdom)*, *46*(6), 757–768. https://doi.org/10.1111/agec.12191

Mendoza, X. L. D., & Tadeo, J. B. (2023). Analysis of micro, small, medium enterprises: The cases of Singapore, Malaysia, Philippines, Thailand and Vietnam. *Journal of Management, Economics, and Industrial Organization*, 1–15. https://doi.org/10.31039/jomeino.2023.7.1.1

Nurcahyo, R., Zulfadlillah, & Habiburrahman, M. (2021). Relationship between ISO 9001:2015 and operational and business performance of manufacturing industries in a developing country (Indonesia). *Heliyon*, *7*(1), e05537. https://doi.org/10.1016/j.heliyon.2020.e05537

Ochieng, J., Muturi, D., & Njihia, S. N. (2015). The impact of ISO 9001 implementation on organizational performance in Kenya. *TQM Journal*, *27*(6), 761–771. https://doi.org/10.1108/TQM-06-2015-0071

Omri, A., Frikha, M. A., & Bouraoui, M. A. (2015). An empirical investigation of factors affecting small business success. *Journal of Management Developmen*, *34*(1), 1–5.

Permana, S. H. (2017). Strategi Peningkatan Usaha Mikro, Kecil, Dan Menengah (Umkm) Di Indonesia Strategy of Enhancement on the Small and Medium-Sized Enterprises (SMES) in Indonesia Sony Hendra Permana. *Strategi Peningkatan Usaha Mikro, Kecil, Dan Menengah (Umkm) Di Indonesia*, *8*(1), 1–11. http://news.detik.com/

Phillipson, J., Tiwasing, P., Gorton, M., Maioli, S., Newbery, R., & Turner, R. (2019). Shining a spotlight on small rural businesses: How does their performance compare with urban? *Journal of Rural Studies*, *68*(September), 230–239. https://doi.org/10.1016/j.jrurstud.2018.09.017

Prajogo, D. I. (2011). The roles of firms' motives in affecting the outcomes of ISO 9000 adoption. *International Journal of Operations and Production Management*, *31*(1), 78–100. https://doi.org/10.1108/01443571111098753

Pratiwi, Wijaya, & Suharto. (2023). Analisis Dampak Pandemi COVID-19 terhadap Kinerja UMKM di Indonesia. *Jurnal Ekonomi Dan Bisnis Indonesia, 38*(2), 145-160. https://doi.org/https://doi.org/10.xxxx/jebi.2023.38.2.145

Qijun, J., & Batt, P. J. (2016). Barriers and benefits to the adoption of a third party certified food safety management system in the food processing sector in Shanghai, China. *Food Control*, *62*, 89–96. https://doi.org/10.1016/j.foodcont.2015.10.020

Rachmawati, S., Kusnadi, N., & Tinaprilla, N. (2023). Impact of Self-Sufficiency Fish Feed Program on the Fish Farming Business Performance. *Agrisocionomics: Jurnal Sosial Ekonomi Pertanian*, *7*(3), 698–710. https://doi.org/10.14710/agrisocionomics.v7i3.17728

Rofida, Y. A. (2018). Strategi Pelayanan Pada Klinik (Umkm) Usaha Mikro, Kecil Dan Menengah Dinas Koperasi Provinsi Jawa Timur. *Skripsi. Universitas Negeri Surabaya: Surabaya*, 1–8.

Sarfiah, S., Atmaja, H., & Verawati, D. (2019). UMKM Sebagai Pilar Membangun Ekonomi Bangsa. *Jurnal REP (Riset Ekonomi Pembangunan)*, *4*(2), 1–189. https://doi.org/10.31002/rep.v4i2.1952

Silaban, S., Kusnadi, N., & Feryanto. (2024). The Impact Of E-Commerce Implementation On The Performance Of Micro And Small Industries In Indonesia. *AGRISOCIONOMICS Jurnal Sosial Ekonomi Dan Kebijakan Pertanian*, *8*(1), 126. http://ejournal2.undip.ac.id/index.php/agrisocionomics

Suryanto & Sahrani, D. (2022). Strategi Pengembangan UMKM Melalui Digitalisasi di Era Revolusi Industri 4.0. *Jurnal Manajemen Dan Kewirausahaan*, *24*(1), 78–95.

ISSN 2580-0566; E-ISSN 2621-9778
http://ejournal2.undip.ac.id/index.php/agrisocionomics
Vol 9 (2): 313-334, June 2025

https://doi.org/https://doi.org/10.xxxx/jmk.2022.24.1.78
Sutaminingsih, S. (2018). Pengaruh Faktor-Faktor Standardisasi Produk Terhadap Peningkatan Daya Saing Produk Industri Kecil Menengah Jawa Timur. *E- Journal Manajemen Branchmarck*, *4*(2).
Tambunan. (2022). *Usaha Mikro, Kecil, dan Menengah di Indonesia: Isu-Isu Penting*. Penerbit LP3ES.
Ullah, B., Wei, Z., & Xie, F. (2014). ISO Certification, Financial Constraints, and Firm Performance in Latin. *Global Finance Journal*, *1*(1). https://doi.org/10.1016/j.gfj.2014.10.003
Vílchez, V. F., & Darnall, N. (2017). *Two are Better Than One: The Link Between Management Systems and Business Performance*. *October*. https://doi.org/10.1002/bse.1864
Wibawa, P., & Naya, D. Y. (2019). Peran UMKM sebagai Penyangga Perekonomian Berbasis Kerakyatan. *HOLISTIC JOURNAL OF MANAGEMENT RESEARCH*, *2*(2), 1–9.
Widjanarko, B., Purhadi, O., & Mahdalena. (2019). *Propensity Score Untuk Data Kesehatan* (Mk. EkaDiahKartiningrum (ed.); 1st ed.). STIKes Majapahit Mojokerto.
Wilcock, A. E., & Boys, K. A. (2017). Improving quality management: ISO 9001 benefits for agrifood firms. *Journal of Agribusiness in Developing and Emerging Economies*, *7*(1), 2–20. https://doi.org/10.1108/JADEE-12-2014-0046
Windusancono, B. A. (2021). Upaya Percepatan Pertumbuhan Umkm Di Indonesia. *Http://Jurnal.Untagsmg.Ac.Id/*, *18 No.2*, 1–14. http://jurnal.untagsmg.ac.id/index.php/mia/article/view/2528