

Research Article

Productivity of Siwalan Farmers in Madura (Past and Now) : A Demographic Analysis

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Abstract.

This study aims to analyze the productivity of siwalan farmers engaged in the production of brown sugar in Aeng Panas village, Madura, Indonesia. The analysis is conducted from social, historical, production, and demographic perspectives. The study seeks to reconstruct the productivity of Siwalan farmers through demographic analysis, highlighting the challenges posed by changes in the agricultural work environment over time, considering that the brown sugar business has been a part of their heritage. The method used is rapid ethnography, incorporating data collected through interviews. The study reveals that changes and expansion of land areas or the adoption of modern work safety technology do not influence the productivity of palm sugar farmers in brown sugar production. Instead, the productivity value is shaped by the labor structure pattern, the working class hierarchy, and the patriarchal mindset, which have undergone minimal changes over time. The findings of this study contribute to the understanding that productivity in this context is largely influenced by labor demographics, specifically the social patterns within the farmer's work environment.

Keywords: productivity, labor structure, working class hierarchy, patriarchal mindset

1. Introduction

The changes in the meaning and value of farmer productivity are not only influenced by factors related to agricultural production, but also by shifts in the social environment surrounding them. While climate uncertainty and rapid technological advancements are important factors affecting productivity (1), these changes are also significantly influenced by shifts in farmers' mindset and changes in the community around them. Social influence plays a crucial role in enhancing farmer productivity, encompassing behavior, social interactions, changes in norms, values, and local cultural phenomena. As farmers often reside in rural areas with strong ties to traditions, values, and culture (2), their decisions regarding productivity are heavily influenced by themselves and the

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level of social control over their work structure and outcomes. Consequently, this has led to implications for the role of farmer demographics.

Demographic facts will provide a clear picture historically, and also clearer about society, culture and environment. In recent years, demography has become a branch of economics that sheds light on social population issues and is closely linked to population policy (3). There are clear boundaries in birth, death and migration (4), calculating the few demographic events that occur, rather than analyzing the reasons and timing behind them. It uses demography as a way of thinking to understand farmer productivity. This approach is considered practical as it shifts the focus from simply discussing population numbers. However, the study will also explore demography as a critical theme. Critical demographers have identified various roles of demography that not only explain the spatial politics and quantification of population (5). But also introduces the challenge of demographic community involvement in other social issues (6). One of them is related to the issue of industrial demography (7), namely industrial issues (production processes) associated with population including the age of workers (8), work culture (9), gender conflict (10), and others that affect farmers' work productivity. This will be the main concern in this study and become a source of data in the analysis related to productivity issues for farmers.

Aeng Panas Village in Madura, Indonesia has great potential for developing brown sugar commodities. The village has a lot of siwalan (palm) trees, and many villagers are siwalan farmers who produce brown sugar. However, the age structure of farmers has changed over time. The number of young farmers (under 40 years old) has decreased, while the group of older farmers (40-65 years old) has increased, with a gradual rise in the number of farmers over 65 years old. Almost 90% of siwalan farmers producing brown sugar are over 55 years old. This demographic shift has led to an aging workforce, impacting farmer productivity in brown sugar production. Aeng Panas Village has faced challenges related to its socio-economic situation, a shrinking working population, an aging workforce, migration of young people, and skills gaps in response to the demographic changes. Understanding the relationship between humans and nature in the geographic discourse and the relationship between humans in a particular society and nature in demographic discourse is crucial. This relationship has revealed that the population situation influences work productivity (11). Investigations related to the productivity of siwalan farmers for brown sugar production have indicated temporal changes in social, cultural, and technological aspects. Siwalan farming and brown sugar production have been the mainstay of the village's economic supply and farmers since

ancient times. Despite using simple processing technology with high work safety risks (12), siwalan farming and brown sugar production remain the main economic activities in the village. Additionally, the simplicity of technology results in lower wages (13). Nonetheless, these farmers continue to survive to this day.

The introduction of siwalan tree plantations has significantly altered the landscape of the region, transforming the village area into a potential hub for brown sugar production. This transformation has had a profound impact on the community, affecting their livelihoods, cultural practices, and employment dynamics. The demographic perspective sheds light on the socio-psychological aspects of employment within the humanistic “workplace” of siwalan farmers. It explores the rules, motivations, and situational factors influencing farmers’ work. Therefore, this study seeks to uncover the situation and humanistic “place” within the scope of productivity of siwalan farmers when producing brown sugar. The study will also verify its findings by comparing them with the current demographic situation and highlighting the similarities and differences between past and present conditions. The changes observed will provide valuable insights into the productivity of siwalan farmers, particularly in relation to employment demographics influenced by social dynamics in the farmers’ working environment.

2. Methods

A qualitative approach using the rapid ethnography method was employed to uncover changes in the culture and mindset of farmers involved in brown sugar production over the past decades. The advantage of rapid ethnography lies in its ability to quickly understand and address problems related to habits, culture, and tradition, using research findings to inform a strong cultural design or model. Rapid ethnography, also known as quick ethnography, is a powerful technique that utilizes behavioral observation, contextual interviews, and rapid, in-depth study (14) to investigate culture, behavior, and context, revealing the motivations and triggers that influence decisions and actions. This research model aims to describe the cultural characteristics present in individuals or groups who are members of a cultural community.

The data was collected using semi-structured data through in-depth interviews with siwalan farmers who also produce brown sugar in Aeng Panas village, Madura, Indonesia. The informants were purposively selected based on specific criteria, including being siwalan farmers who have been producing brown sugar for more than 10 years, identifying themselves as native residents of Aeng Panas village, and having a hereditary

brown sugar business. The majority of the informants were men, as male farmers dominate the palm sugar industry, and women (farmers' wives) assist in the production of brown sugar. This study used 5 main informants (farmers) and 5 supporting informants (farmers' wives/those who process brown sugar). They work as a siwalan farmer and produce brown sugar. Despite these uses, the primary product is brown sugar. This business has been ongoing for decades, and traditional equipment is still used in the production process from the past until now. The research focused on: a) the background of the informant; b) characteristics of the production process and work environment; c) other values related to productivity arising from the job hierarchy. The cultural practices and habits that emerged were understood as the subjects' way of interpreting their experiences and shaping their social behavior.

This study uses the desired analysis in the rapid ethnography method, namely the method used is the same as the analysis in the conventional ethnography method, but only in a different time. Rapid analysis allocates a shorter/brief but effective time (14), with a design including: 1). Analysis of the background of the problem is carried out by focusing on narrow things; 2). Conducting interviews and observations within time constraints, but focused and effective; 3). Collecting data with a certain strategy/approach to informants; 4). Analysis of identification and exploration/reflexivity of findings with a theoretical context; 5) Reporting findings.

3. Result and Discussions

3.1. Historical Representation of Production and Work Situations (Past and Present)

Aeng Panas village, Madura, Indonesia represent an area with great potential for siwalan tree. The village's landscape, culture, and society have been renowned for siwalan (sugar palm trees) and brown sugar for many years. The majority of the area's siwalan trees are grown on residents' fields, and nearly all villagers are involved in processing them into brown sugar. Despite its potential, the village is not attractive to newcomers, leading to many young people migrating to work outside the village. The production of brown sugar is primarily carried out by the native population, resulting in little change in the village's demographics in terms of language, culture, and religion. This can be interpreted that the social construction of this village has not changed much (15).

The production of brown sugar is based on a hereditary work pattern. Production is carried out at home with simple equipment. The activity of producing brown sugar is the livelihood of farmers, with raw materials from the palm tree that they tap every day. A simple work pattern with a fairly long production time and simple raw materials does not require large capital. The process of making brown sugar takes 5 to 7 hours, depending on the amount of sap processed (cooked). Making brown sugar usually produces 3 kilos to 10 kilos per day, depending on the size of the buyer's order. The increase in brown sugar production sometimes shows an increase in the amount of results achieved (depending on people's orders), while the increase in productivity is not done by improving other methods. This means that from the past until now, the processing method remains the same. The increase in brown sugar production from the past until now is still relatively the same.

The narrative shared by the informants mainly focuses on the equipment they use, highlighting the working conditions and the fact that brown sugar production is primarily carried out in underdeveloped production areas, despite being a decades-old practice. Notably, brown sugar is produced by the workers' wives and sisters, with the majority of the workforce being women with familial ties, typically consisting of only 3 to 5 people. The village women engage in brown sugar production while working in minimal technological conditions, relying heavily on manual labor. This has resulted in low production value and competitiveness (16). The production methods have remained unchanged for decades, with workers still using wood for smoking, palm leaf stems for stirring, and buckets made from palm tree leaves. However, the production of brown sugar has been declining over time due to the limited production carried out only to meet specific orders, resulting in dwindling production quantities. As communicated by the informant below:

"There are fewer people who want to produce brown sugar. Because it takes a long time, and collecting the sap is difficult, because you have to climb a tall palm tree. Children also don't want to work making brown sugar. They like to go to the city" (Ahmad, 60 years old)

The information provided is related to the age of the workers and work safety. The work is associated with a high risk of accidents when climbing palm trees, and the income they receive is not commensurate with the risks they take (17). Traditional work involves the use of simple tools, but there is a high risk when harvesting sap from palm trees, which can be almost 30 meters high. Additionally, many palm farmers are older, over 50 years old, and their children prefer to work in other sectors outside the city. The

concept of aging in the context of this work is influenced by social and psychological factors. The classification of older workers can impact attitudes, relationships, and the distribution of benefits for these individuals in society (18). The decision to keep working involves allocating time and services to their families and communities. As a result, the overall productivity and output decrease due to the diminishing production input.

The issue of historical materialism that arises in the production process is quite concerning. The decreasing raw material of palm sap and production being carried out with simple equipment and by old workers are hindering productivity. The current situation shows that productivity is obtained from a decreasing number of palm sap trees, leading to a 40% decrease in potential land in the village. This has significantly impacted the acquisition of sap for brown sugar production. Most palm sap farmers emphasize the psychology and social situation around the lives of farmers. However, the brown sugar production process represents their unique position in framing their economic needs. Despite the long and risky production process and the low selling price of brown sugar, they continue with it. It's clear that the production process is slowly moving towards the "dark" side of production, and the glory of brown sugar production may eventually disappear, becoming only a part of history.

3.2. Productivity in labor structure patterns, working class hierarchy, and patriarchal mindsets

Traditional farm work is predominantly carried out by family members. Men (husbands) and women (their wives) work together in family teams, most of them live in economic deprivation. The division of labor is done by looking at gender and the side of appropriateness alone. The demographic scenario of palm sugar farmers who produce brown sugar has never changed since the past. In the case of specifications and types of work carried out between men and women remain static. This reflects that the composition of work and gender is regulated based on the level of job security alone, namely men who climb trees at the risk of injury, even death. And women (their wives) who process palm sugar sap into brown sugar. This may be due to the rigid patriarchal social structure and mindset. Low-income farmers will employ their wives, but not raise their wives' economic status, because the social and economic status of village women who marry farmers will be seen as part of household work (19). Rural women in Madura have almost no authority over themselves, and choices over their jobs. However, they tend to live with a strict patriarchal culture and have conservative religious attitudes (20).

In traditional rural communities, men typically hold authority in both family dynamics and working relationships. This traditional outlook has persisted over time, and the patriarchal norms in these communities have not evolved to support a market-based patriarchy.

For a long time, siwalan farmers have held traditional views about productivity. They don't see siwalan farming and brown sugar production as modern businesses. Their approach to productivity doesn't align with the use of human labor, such as their wives and sisters. These attitudes are rooted in a traditional status hierarchy, where the social class hierarchy of workers is almost nonexistent, and farmers don't consider their wives and sisters as workers. Instead, they treat them equally and provide them with a share of the brown sugar they produce. This social class structure is influenced by the traditional social culture in the countryside. Nevertheless, wives and sisters still persist in helping and relying on their husbands for their economic fate. The existence of physiocratic ideology, namely giving rise to the idea that work productivity is formed by natural work and with a simple way of thinking. However, the justification in this ideology can cover up the sad economic situation of farmers, from the past until now they still do it. Although their work is not economically profitable, farmers do not consider the use of technology in the work of taking palm fruit and producing brown sugar to be the main thing.

The contribution of women in the production of brown sugar remains as important as it was decades ago, but has gradually disappeared, because there is no more sap produced. And to this day, their participation remains unrecognized as workers. Their hard work is only recognized as part of the work that must be done, namely helping their husbands. Such people have contributed to the increase in collective action, although it is not economically meaningful. Low-educated workers often work in the family sector, and form a social hierarchy based on status perceptions (21). The status as a worker is only in subjective social status. Likewise, the constitution of the working class has never existed from the past until today. The family worker system has become a characteristic of palm sugar farmers and brown sugar production. Where, all heads of families (men) and women (their wives) work together, this type of system applies because they do not have the ability to provide a wage mechanism for other workers. This characteristic has also been able to identify that the work of siwalan farmers is only done by indigenous people. The livelihoods of many immigrants are as craftsmen and other jobs. This shows the differential in ownership of housing or dwellings, as a result of preferences for a sense of belonging that is formed as a result of production relations, which also causes

changes in access to village resources and changes in rural demographics (22), but this demographic condition is attached to the value of work productivity triggered by a decrease in the amount of production.

The relationship between productivity and the demographics of rural farmers has influenced whether some of them develop specific work habits. This is evident in the research findings, which indicate that changes in the demographics of farm workers have altered the interpretation of productivity values. However, these changes have not impacted the social labor behavior of siwalan farmers in Aeng Panas village, Madura. The distinct tasks performed by men (farmers) and their wives in managing brown sugar have led to uncomplicated industrial work relationships. The recognition of women as the most vulnerable participants in obtaining and accessing work in rural areas (23) has shaped cultural traits related to the productivity of siwalan farmers, which has been traditionally influenced by experience and work habits. This is further reinforced by an ingrained culture that determines power dynamics in work interactions, with men (farmers) traditionally holding influence over the quantity of production. Meanwhile, another critical factor impacting the farmers' productivity is the production system, where the quantity of production and income determine productivity (24). A decrease in production poses a risk of job loss for these workers, and over time, the traditional practice of processing brown sugar from palm sap in this village may disappear. This situation could be dangerous in the future sustainability of the brown sugar production business and have a significant impact on the work of siwalan farmers.

4. Conclutions

The productivity of siwalan farmers, both past and present, is indicated by the historical production process that has not changed, and the technology used is still simple. The processing of brown sugar from siwalan sap, produced by farmers, follows a simple work pattern, with men as the dominant workers as owners of siwalan land, and their wives and sisters helping them without being considered as workers. Demographic analysis of siwalan farmers and their productivity reveals that the work is primarily carried out by older farmers, assisted by their wives who are also older. There has been no change in the work system, and there is no social class hierarchy or rigid patriarchy among the workers. The decrease in siwalan sap production is attributed to the lack of adoption of modern technology. Social stigma, such as the control of siwalan land by native resident farmers, has made it difficult for immigrants and young residents to take up

siwalan farming. The complex work and social situation in the village reflect a unique productivity culture and habit. However, it is crucial to acknowledge that the village's long-standing source of pride, the siwalan trees and brown sugar, may become extinct if the farmers' productivity continues to decline and eventually disappears as they age.

The study's findings highlight the economic vulnerability of siwalan farmers and workers. The geographical and demographic characteristics of the village are intertwined with its social reality. The study's success lies in addressing productivity issues by not only changing the production system but also by considering shifts in employment demographics. It also indicates that sustainability from the past to the present day is not solely dependent on economic factors but also on regional demographic challenges. As a result, the study recommends that the concept of productivity should be focused on the employment demographics shaped by the social patterns in the farmers' work environment.

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