ANALYSIS OF PRODUCTION AND ENERGY RELATED FACTORS TOWARD HOUSEHOLD BUSINESS DEVELOPMETN IN NORTH SULAWESI

ANALISA PRODUKSI DAN FAKTOR ENERGI TERHADAP PERKEMBANGAN BISNIS RUMAHAN DI SULAWESI UTARA

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Abstract: The MSMEs in the developing country is growing rapidly. MSMEs in Indonesia contributes 60% of Indonesia's economic growth which is dominated by a micro and small businesses and household production is a part of MSMEs. As the inputs of the production process, energy become one of the important factors on the household business and its development. The objective of this research is to find out whether the production and energy related factors such as Monthly Units Produced, Income From Production, Energy Happiness and Reasons To Do Energy Saving partially affect to household business development. This research use quantitative method with ordinal regression analysis. The population in this research refers to the micro businesses level from three different area in Sulawesi Utara (Minahasa, Tomohon and Bitung) and samples used in this study is 100 respondent who run household production. The results shows that three out of four variables are significantly affect the household business development, except monthly production. Recommendations concluded for this research are several such as learn more about financial management, calculating and estimated profits, also using separate energy between household activity and production.

Keywords: production and operations management, energy subsidies availability, household production, micro and small business enterprises

Abstrak: *Usaha Mikro, Kecil danMenengah (UMKM) di Negara berkembang menunjukan perkembangan yang pesat. UMKM di Indonesia memiliki kontribusi sekitar 60% terhadap perkembangan ekonomi yang di dominasi oleh usaha mikro, usaha kecil dan produksi rumahan sebagai bagian dari UMKM. Sebagai salah satu faktor dalam proses produksi, energy menjadi aspek penting untuk bisnis rumahan dan perkembangannya. Tujuan dari penelitian ini adalah untuk mengetahui faktor seperti unit yang dihasilkan per bulan, pemasukan dari produksi, kesenangan akan energy dan alasan untuk melakukan penghematan akan energi memberi dampak terhadap perkembangan bisnis rumahan. Penelitian ini menggunakan metode kuantitatif dan analisa regresi ordinal, populasi dari penelitian ini adalah usaha mikro dari tiga are di Sulawesi Utara yakni Minahasa, Tomohon dan Bitung. Sampel yang digunakan adalah 100 responden yang melakukan produksi rumahan, hasil dari penelitian menunjukan bahwa tiga dari 4 variabel yang ada mempengaruhi perkembangan bisnis rumahan. Hanya pemasukan bulanan yang tidak memiliki pengaruh terhadap perkembangan bisnis rumahan. Saran yang dapat diimplementasikan adalah mempelajari lebih banyak mengenai manajemen keuangan, adanya estimasi keuntungan bersih, serta memiliki penggunaan energi yang terpisah antara produksi dan energi dalam kegiatan rumah yang ada.*

Kata kunci: produksi dan operasi manajemen, ketersediaan energy bersubsidi, produksi rumah tangga, usaha mikro kecil menengah

INTRODUCTION

Research Background

SMEs in Indonesia contribute 60% of Indonesia's economic growth which is dominated by micro and small businesses. The number of small businesses in Indonesia reaches 93.4%, then medium businesses 5.1%, and only 1 % is categorized as big businesses (Liputan6.com, 2018). Household production or home industries are the smallest type in production or categorized as a micro businesses. Household production is where the production process of a product all done in household level or they produce their product at home. Household production is the production of the goods and services by the members of a household, for their own consumption using their own capital and their own unpaid labor but then it is develop and people seen an opportunity in the household production to be a businesses that can make money.

The lack of education making them (people who run micro businesses) cannot separate their spending for their household consumption and the cost of production because these people used the same equipment (Pristiana, Hidayati and Trihastuti, 2015). People who run the household productions in Indonesia are come from the lower-middle class and those who do not get proper education meanwhile in accordance of (Tasik, 2020), having good academic ranks in high school is associated with having better lives.

In Indonesia, the scarcity of the energy subsidies becomes the problem to the people who deserve help. The people in lower class economy purport that their rights used by the other people as the business opportunity; moreover when it happens in the rural areas that are far from urban or separate parts of the city itself. The more difficult to reach an area and the farther an area causes the price of the energy to increase; moreover to the energy subsidies become more expensive, even for people who used the energy subsidies only for their household needs complaint for this situations. Cheaper energy does reduce the energy cost (Mawati, Kindangen and Tasik, 2018). Seeing the condition; it will gives more damage to the household production whose depend a lot to the energy subsidies to produce their product and reduce the cost of production.

Research Objective

The research objectives are:
1. To findout if the household business monthly total production average have a significant effect on business development
2. To findout if the income from production have a significant effect on business development.
3. To findoutif the energy happiness have a significant effect on business development.
4. To findoutif the reasons to do energy saving have a significant effect on business development.

THEORETICAL REVIEW

Business Development

In its nature the business should develop through time so they will not stuck or even stop producing. The popularity of the term business development then not defined well. Business development is an often used but not well defined term in the business world (Achtenhagen, Ekberg and Melander, 2017). Long-term value creation can be just as relevant for other types of businesses, independent of whether they have created an explicit function of a business developer.

Household Production

Household production is the production of goods and services by the members of a household, for their own consumption, using their own capital and their own unpaid labor (Ironmonger, 2000). The household production nowadays then seen as a value to many people to do a business; produced their product from home and now categorized as household livelihoods in a micro businesses in Indonesia.

Income

Income is money or some equivalent value that an individual or business receives in exchange for providing a good or service or through investing capital. Income generated by the physical and financial capital of household enterprises (i.e. profits, rents, and interests) cannot be easily disentangled from income generated by the human capital of household members (Samphantharaka and Townsen, 2012)

Energy Happiness

To striving for happiness based on their literature review happiness might be a good measure to capture a number of aspects relevant to quality of life and subjective well-being (Hofstetter andMadjar 2003). The variable of the energy happiness in this research refers to determine the happiness level of the people who run household production towards the energy availability in their area.

Energy Saving

Over the past few decades, the increasing concern about climate change, scarcity of resources and energy supply has increasingly changed the attitudes of society and industry towards the environment. Industrial firms have been affected by growing energy prices, strict environmental regulations, customer demand and environmental awareness (May et al, 2016). Energy saving in this research refers to the energy savings in the production process that are mostly created due to the scarcity of energy subsidies or other reasons that make the production process hampered or forced the producer to reduce the amount (units) of production.

Previous Research

Lateh, Hussain and Halim(2017) in micro enterprise development and income sustainability for poverty reduction found that there is a linkage between micro enterprises development and poverty eradication. "The result of this study found that micro enterprise development were significant to micro entrepreneurs and found that the direct positive correlation between the micro enterprise development with the economic growth and alleviating poverty"

Prawira and Dewi(2019) in analysis of factors that affect business development and income of MSMEs in Denpasar city also founds thatincome affects the business development and vice versa. "Capital, labor, and social capital have a positive and significant effect on the development of MSMEs in Denpasar City. Capital, labor, social capital, and business development have a positive and significant effect on the income of MSMEs."

Tasik (2019) in a tale of income and and energy in rural area founds that income and energy availability affect the happiness level of individuals in rural area. "Income and energy availability significantly affect the happiness level of individuals with current job. The maginitude of the energy parameter is bigger than that income."
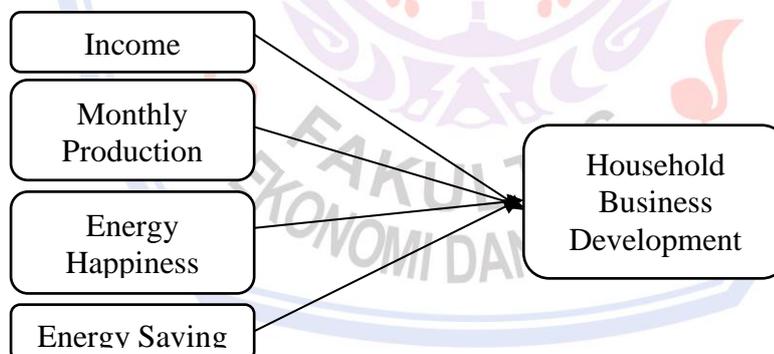
Conceptual Framework

Figure 1. Conceptual Framework
Source: Data Processed, 2019

RESEARCH METHOD

Research Approach

This is a quantitative research that emphasizes objective measurements and the statistical, mathematical, or numerical analysis of data collected through polls, questionnaires, and surveys, or by manipulating pre-existing statistical data using computational techniques. Survey method used as the source of primary data by distributing questionnaire to find out the direct influence of independent variables (X) income, monthly production, energy happiness, and energy savingon dependent variable (Y) household business development

Population, Sample, and Sampling Technique

The population of this research is MSMEs in Tondano, Bitung and Manado.Sample is a part of the population, within research sample is divided within the current population in order to find the right entity for the research. The sample size of the research will be 100 respondents in this case those who run the household production. Sample method that can be used for this research is simple random sampling. Simple random sampling is sampling technique where all member of population have the same opportunity to be chosen as a sample which is conducted randomly, regardless of strata in that population

Data Collection Method

To collect the research data, primary data collection was used through questionnaires. A questionnaire is a research instrument consisting of a series of questions (or other type of prompts) for the purpose of gathering information from respondents.

Operational Definition of Research Variables
Table 1. Variable Definition

Variable	Definition	Measurement
Monthly Production (X_1)	Total quantity of output produced by a firm for a given amount of inputs	Categorized with 5 point scale (1-5)
Income (X_2)	A business remaining revenues after paying all expenses and taxes.	Categorized with 5 scale (1-5)
Energy Happiness (X_3)	Refer to determine the happiness level of the people who run household production towards the energy availability in their area.	Categorizedwith9pointsc ale (1-9),
Reasons to do Energy Saving (X_4)	The reasons to do energy savings in the production process that are mostly created due to the scarcity of energy subsidies or other reasons that make the production process hampered or forced the producer to reduce the amount (units) of production.	Categorized with 6 point scale (1-6),
Business Development (Y)	The creation of long-term value for an organization from customers, markets, and relationships	Categorized with 3 point scale (1-3)

Source: Author's Note, 2019

Validity and Reliability

Validity test use to measure the obtaining data are in line with the research concept. In other words, the instrument items used to obtain the data is correct and related with the concept of the research that will be conducted.Reliability test use to measure the consistency of instrument items. Reliability test defined as an index that showed how far instrument items can be trusted or dependable.

Ordinal Regression Analysis

Ordinal Regression Analysis is used in this research. As a predictive analysis ordinal regression, it is describes and explains any relationship between one dependent variable and two or more independent variables and in the ordinal regression analysis the dependent variable must be ordinal or in statistically polytomous variable and the independent variables are in a form of ordinal or continuous level (ratio or interval). The major decisions in this research involved in the model building for ordinal regression were deciding which explanatory variables should included in the model and choosing the link function (such as logit link or complementary log-log link) that demonstrated the model appropriateness.

RESULT AND DISCUSSION

Result
Validity and Reliability

The validity test of monthly production (X1), income (X2), energy happiness (X3), reasons to do energy saving (X4) and Business Development (Y) are all valid. The variable is reliable because the value of Cronbach's Alpha is 0,609 bigger than 0,6.

Result of Ordinal Regression Analysis
Table 2. Case Processing Summary

		N	Marginal Percentage
Business Development	Decrease	7	7.0%
	Stuck	66	66.0%
	Increase	27	27.0%
Total Production in Unit (in a month)	< 1000	37	37.0%
	> 1000 – 10000	42	42.0%
	> 10000 – 20000	11	11.0%
	> 20000 – 30000	7	7.0%
	> 30000	3	3.0%
IncomeFromProduction	< 5.000.000	33	33.0%
	> 5.000.000 - 10.000.000	20	20.0%
	> 10.000.000 - 20.000.000	29	29.0%
	> 20.000.000 - 25.000.000	10	10.0%
	> 25.000.000	8	8.0%
Energy Happiness	Not Happy 2	3	3.0%
	Not Happy 3	3	3.0%
	Not Very Happy	6	6.0%
	Happy 3	28	28.0%
	Happy 2	32	32.0%
	Happy 1	26	26.0%
	Very Happy	2	2.0%
Reasons To Do Energy Saving	Do not saving	50	50.0%
	Insufficientincome	1	1.0%
	Expenditureforenergyisconsideredexcessive	30	30.0%
	Do not needmuchenergy	16	16.0%
	Limited Energy	3	3.0%
Valid		100	100.0%

Source: Data Processed, 2019

This part discuss about the result of the Ordinal Regression Analysis of this research used IBM SPSS software 25. Table 2 shows the case processing summary, the case processing summary shows all of the respondent answer in this research include the percentage of it. This research collected answers from 100 respondents, 40 from Minahasa, 30 from Bitung and the other 30 from Tomohon.

Table 3. Model Fitting Information

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	145.367			
Final	121.223	24.144	4	.000
Link function: Logit.				

Source: Data Processed, 2019

The value of R The test purposed to compare and measure the value between the parameters, its intercept only. Intercept only in this research is 145.367 as the expected mean value of Y (dependent variable) when all the X (independent variables) equal to 0 (= 0) while the final is the value when the independent variables (X) are put and computed where the value here is 121.223. The Chi-square provides those predictors of regression coefficient of the model which is $\neq 0$ and the chi-square value of this research is 24.144 with sig. 000 (5%) as the significant of the actual level.

Table 4. Goodness of Fit

	Chi-Square	Df	Sig.
Pearson	149.017	126	.079
Deviance	111.050	126	.826
Link function: Logit.			

Source: Processed Data 2019

The pearson chi-square of this research shows the value 149.017 with sig. 079 while the deviance chi-square value shows 111.050as the result with sig. 0.826. The values must be greater than 0.05 to considered good fit, it means the result value of this research shows that the pearson statistic shows of this research is considered invalid and the deviance is considered valid.

Table 5. Pseudo R-square

Cox andSnell	.215
Nagelkerke	.267
McFadden	.148
Link function: Logit.	

Source: Processed Data 2019

Pseudo R-Square are used to determines how big the independent variables (income production, production development, energy dependence, job satisfaction) in this research are able to explain the dependent variable (job happiness). The Cox and Snell, Negelkerke and McFadden are statistic analysis to measures meant to stimulate the R-Square analysis. The table shows that amongst those Psuedo R-Square Negelkerke is the highest with value 0.267. The results of this research indicated that all the independent variables are able to explain 26,7% of the dependent variable while the 73,3% of it is explained by other factors that not included in this research.

Table 6. Parameter Estimates

		Estimate	Std. Error	Wald	Df	Sig.	95% Confidence Interval	
							LowerBound	UpperBound
Threshold	[Business Development = 1.00]	-3.362	1.643	3.940	1	.047	-6.483	-.041
	[Business Development = 6.00]	1.152	1.632	.498	1	.480	-2.047	4.351
Location	MonthlyProduction	.265	.234	1.278	1	.258	-.194	.723
	Income	.462	.216	4.581	1	.032	.039	.885
	Energy Happiness	-.390	.195	3.988	1	.046	-.773	-.007
	Reasonstodo Saving	.386	.185	4.343	1	.037	.023	.750

Link function: Logit.

Source: Data Processed, 2019

Table 6 shows the wald value of every independence and its significant level. The result shows that three out of four independence variables are indicated significant (income, energy happiness and reasons to do saving) toward business development while monthly production indicated not significant with business development.

Table 7. Test of Parallel Lines

Model	-2 Log Likelihood	Chi-Square	Df	Sig.
Null Hypothesis	121.223			
General	118.387	2.836	4	.586

(Source: Data Processed, 2019)

To test the assumption that every category has same parameter or relationship with independent variable where the logit is equal with all logit equations, the test of parallel lines used in this research. The data shows that this study is a good fit model with sig. 0.586 (>0.05) with chi-square 2.836

Discussion

Income, energy happiness and reasons to do saving significantly affect the business development; it is in-line with findings that stated that income has direct contribution not only for the development but also for the poverty reduction (Lateh,. Hussain and Halim, 2017). On other findings; energy happiness and reasons to do saving have significant influence for the business development and vice versa (Prawira and Dewi, 2019). The other variable which is monthly production does not have significant affect toward business development; which may vary with previous research but it has exception. Even though the owner consistency of keep producing the same amount of goods in a month doing a production can affect the stability of the owner's monthly income (Triwulandari and Peni, 2011); but the research may not be fully applicable with the status quo. It because that the total production in unit within the research is not stable; differ from the previous researches.

CONCLUSION AND RECOMMENDATION

Conclusion
1. Monthly production, one out of four independent variables, does not significantly affect the Business Development that act as the dependent variable.
2. Income, one out of four independent variables, significantly affect the Business Development that act as the dependent variable.
3. Energy Happiness, one out of four independent variables, significantly affect the Business Development that act as dependent variable.
4. Reasons to do Energy Saving, one out of four independent variables, significantly affect the Business Development that act as the dependent variable.

Recommendation

Income has significant effect on Business Development. Owner should know and learn more about financial management for business so they can maintain their income in a proper way, the importance also to set the price is important to a household production owner. Even though monthly production is not significant with Business Development but owners should consider about the amount of units produced as one of the important things to calculate and to estimate the profit in a business. Energy Happiness and Reasons to do Saving both has significant effect on Business Development; in this case the people who run household production should also learn more about the energy management and efficiency so it can increase their business performance. Even though the business is done in the household level but then the producers' is better to separate the energy used for the household activity and household production

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