Relationship and influence of entrepreneurial orientation, social capital, and warm glow on sustainable agricultural development in the border area of Sebatik Island

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Abstract. Sustainable agricultural development in the agricultural sector has a very significant contribution to the achievement of the targets and goals of the Sustainable Development Goals (SDGs) program, that is for human welfare. This study aims to analyze the relationship and influence of entrepreneurial orientation, social capital, and warm glow on sustainable agricultural development in the border area of Sebatik Island. The data was collected by distributing questionnaires and indepth interviews with 250 farmers as respondents. Sampling was done using purposive sampling method. The data collected was developed using structural equation modeling and assisted by the AMOS program. The results showed that entrepreneurial orientation, warm glow, and social capital had a significant effect on sustainable agricultural development in the border area of Sebatik Island.

1. Introduction
The development of the border area on the Sebatik Island is an integral part of national development, which is a program for structuring and managing national strategic areas. Agricultural development in Indonesia is directed towards sustainable agriculture development, as part of the implementation of sustainable development. Agricultural development, including sustainable rural development, is a strategic issue that is of concern and discussion in all countries. In addition to being a goal, sustainable agricultural development has also become a paradigm for agricultural development patterns [1]. Agricultural development also pays attention to its impact on the environment. Environmentally sustainable agriculture is an agricultural system that can create an optimal and sustainable agroecosystem ecologically, economically and socially [2]. The agricultural-based economic potential in the border area of Sebatik Island can be used as a commodity base as a contribution to local revenue.

Entrepreneurial orientation refers to processes, practices, and decision-making that lead to new inputs supported by entrepreneurial attitudes, namely taking risks, acting proactively, and always being innovative [3]. Entrepreneurial orientation is a determining factor for sustainable innovation that not only makes the entrepreneurial strategic disposition of an organization, but also contributes significantly to producing social impacts that can affect the entrepreneurial process [4]. Agricultural business performance can be improved by fostering an entrepreneurial orientation that is more focused on efficient production activities by increasing the managerial abilities of farmers [5]. In particular,
entrepreneurs are proven to be more proactive in solving social problems that occur through their entrepreneurial characteristics [6]. Previous research has shown that social capital is significantly related to entrepreneurship [7].

Social capital has a role in agricultural development. In addition to increasing production yields, there is another goal of agricultural development, namely to make social changes which include norms, values or behavior related to economic improvement through agricultural products. The agricultural system must be in line with the social and cultural norms that are upheld and upheld by the surrounding community. Social capital has an effect on entrepreneurial actors, including providing improvements in: (1) career success, (2) financial compensation, (3) job opportunities, (4) resource exchange and product innovation, (5) intellectual capital creation, (6) work effectiveness (7) entrepreneurship creation, and (8) new business formation [8]. Social capital can affect entrepreneurial success, such as reputation, social skills, adapting to social environments, and social support [9]. Social capital is a series of informal values or norms that are shared among members of a community group which allows for cooperation between them [10]. Social capital is reflected in trust, participation, norms, kinship, social networks, mutual cooperation [11]. Social capital in the form of trust, quality of relationships, mutual interest and cooperation, a sense of community, and culture and tradition have a very close and influential relationship in the process of agricultural and rural development [12]. To advance agricultural development, it is necessary to strengthen social relations between residents in facing all possible problems [13].

The warm glow theory shows that people help others to feel good about themselves [14]. Feelings of pleasure, comfort, and happiness shown by someone when giving and helping others without expecting and getting a reward from the help given is an attitude shown by the Warm Glow theory. The happiness that is felt turns out to have a positive impact on health conditions, both physically and psychologically. With this action based on the warm glow motif, the person who does it will feel satisfied and happy which can have a far-reaching impact on their life. This satisfaction and happiness must also be considered as benefits that are more important than economic. The benefits and kindness they receive are not always tangible, so it is sometimes difficult to measure the amount of benefits they get [15]. Research conducted by Allison shows that an investor's warm glow can provide entrepreneurial motivation to someone living in poverty, this condition is in line with the life of farmers in Indonesia [16].

Sustainable agricultural development, which is widely accepted, is sustainability by taking into account (1) economic indicators, which means that a development activity must be able to produce economic growth, capital maintenance and efficient use of resources and investment, (2) social which means a development activity should can create equitable development results, social mobility, social cohesion and institutional development, and (3) ecology which means that these activities must be able to maintain ecosystem integrity, maintain environmental carrying capacity and conserve natural resources including biodiversity [17]. This research was conducted on Sebatik Island, Nunukan district, North Kalimantan province, Indonesia-Malaysia border region. This study aims to analyze the relationship and influence of entrepreneurial orientation, social capital, and warm glow on sustainable agricultural development in the border area of Sebatik Island.

2. Research methods
The research was conducted using a survey design. Primary data in this study were obtained through questionnaires, interviews, and observations. Meanwhile, secondary data was obtained by using documentation method. In conducting the survey, researchers used a private approach to each farmer by conducting in-depth interviews with farmers about the contents of the questionnaire that the respondents would fill in to get the appropriate answers. The study population was farmers on the island of Sebatik, border region of Indonesia-Malaysia, Nunukan, North Kalimantan Province with a sample size of 250 farmers using purposive sampling technique with the criteria of farmers who practice rice cultivation and who have more than five years of experience.
The data analysis methods used are: 1) Confirmatory Factor Analysis (CFA) to test the construct validity of indicators or latent variables. The validity of the indicator is said to be valid and can reflect a variable or construct if the loading factor value of the indicator is indicated by the estimated value of standardized regression weights $> 0.50$ [18]. 2) Analysis of the Structural Equation Model (SEM) in full model to get a fit or feasible structural model by conducting a suitability test with reference to the fit criteria of the Goodness of Fit Index (GOF) model. The criteria for goodness of fit index that must be met in the structural equation model are: Chi Square value close to 0, probability $\geq 0.05$, CMIN / DF $\leq 2.00$, RMSEA $\leq 0.08$, GFI, AGFI, CFI, IFI, NFI and TLI $\geq 0.90$ [19].

The variables in this study consisted of three exogenous variables and two endogenous variables. The exogenous variable consists of (i) entrepreneurial orientation variables with six indicators, namely X1, X2, X3, X4, X5 and X6, innovative, each of which shows the courage to take risks, is proactive, creative, responsible, and confident [3, 20, 21]; (ii) the warm glow variable with four indicators, namely X7, X8, X9, and X10, each of which shows the sacrifices made to other parties in agriculture that are felt by farmers, the love and affection that exist in agricultural application felt by farmers, the feelings of loss due to had sacrificed for the party, the feeling of being happy at having sacrificed [14]; (iii) the social capital variable with six indicators, namely X11, X12, X13, X14, X15, X16 and X17 respectively showing trust, participation, norms, kinship, social networks, mutual cooperation and culture [10,11,22]. Endogenous variables consist of (i) sustainable agricultural development variables with three indicators, namely Y1, Y2 and Y3, each of which shows economic, social and ecological [23, 24].

3. Result and discussion
The value of confirmatory factor analysis in Table 1 below shows two indicators that have a loading factor value below 0.50 which means that they are invalid, namely indicators X16 and X17. Both of these indicators have no influence in forming social capital variables and cannot reflect a latent construct or variable, so they must be removed from the model and analyzed at a later stage. Entrepreneurial orientation is reflected in Innovative Indicators (0.708), each of which shows the courage to take risk (0.791), Proactive (0, 918), Creative (0.935), responsible (0.858) and confident (0.568). A proactive, creative, and responsible attitude has a large coefficient value from the six indicators that reflect entrepreneurial orientation. The proactive and creative attitude of farmers is a strength in supporting sustainable agricultural cultivation activities and a responsible attitude that farmers have can anticipate business changes.

Warm glow based on the covariance value obtained a strong and significant relationship between creative attitudes and the courage to take risks, which is a reflection of the entrepreneurial orientation that farmers have in supporting sustainable agricultural development activities. The same is shown by the strong and significant relationship between an attitude of self-confidence and social sustainability.

| Variable                | Indicator                                                                 | Standardized regression weight | Estimate | Explanation |
|-------------------------|---------------------------------------------------------------------------|--------------------------------|----------|-------------|
| Entrepreneurial orientation | [X1] Innovative                                                             | 0.708                          | Valid    |             |
|                         | [X2] Each of which shows the courage to take risks                         | 0.791                          | Valid    |             |
|                         | [X3] Proactive                                                            | 0.918                          | Valid    |             |
|                         | [X4] Creative                                                             | 0.935                          | Valid    |             |
|                         | [X5] Responsible                                                          | 0.854                          | Valid    |             |
|                         | [X6] Confident                                                            | 0.568                          | Valid    |             |
| Warm glow               | [X7] Each of which shows the sacrifices made to other parties in agriculture that are felt by farmers | 0.545                          | Valid    |             |
The love and affection that exist in agricultural application felt by farmers 0.909 Valid
The feelings of loss due to had sacrificed for the party 0.920 Valid
He feeling of being happy at having sacrificed 0.876 Valid

Social capital [X11] Respectively showing trust 0.886 Valid
[X12] Participation 0.923 Valid
[X13] Norms 0.948 Valid
[X14] Kinship 0.955 Valid
[X15] Social networks 0.789 Valid
[X16] Mutual cooperation 0.166 Tidak Valid
[X17] Culture 0.076 Tidak Valid

Sustainable agricultural development [Y1] Economic 0.637 Valid
[Y2] Social 0.988 Valid
[Y3] Ecological 0.952 Valid

Source: Primary data processed by researchers (2020).

Figure 1 Full Structural Model shows that overall the sustainable agricultural development model built in this study meets the required fit model principles, namely Chi-Square: 57.269; Probability: 0.502; CMIN / DF: 0.987; GFI: 0.947; AGFI: 0.904; and CFI: 0.100, which means that the model developed in this study is in accordance with existing empirical conditions and can explain the influence of entrepreneurial orientation variables, warm glow and social capital on sustainable agricultural development variables.

Figure 1. Full structural model.
Full structural model shows a positive and significant relationship between orientation entrepreneurial, warm glow, and social capital in shaping sustainable agriculture development. This result is in line with Zhang's research which states that entrepreneurial orientation and social capital can facilitate the development of small and medium enterprises that are identical to many farmers and still have small and household scale businesses and fall into the category of micro, small and medium enterprises [25].

| Table 2. Weight estimation of relationships and effects between variables |
|---------------------------------------------------------------|
| **Estimate** |
| Orientation_Entrepreneurial <-> Social_Capital | 0.375 |
| Orientation_Entrepreneurial <-> Warm_Glow | 0.313 |
| Social_Capital <-> Warm_Glow | 0.905 |
| Sustainable_Agriculture_Development <-> Orientation_Entrepreneurship | 0.419 |
| Sustainable_Agriculture_Development <-> Social_Capital | 0.632 |
| Sustainable_Agriculture_Development <-> Warm_Glow | -0.770 |

Source: Primary data processed by researchers (2020).

Table 2 shows the estimated size of the influence of orientation entrepreneurship (0.419) and social capital (0.632) which have a positive and significant effect on sustainable agricultural development. This result is in line with the research conducted by Larsson and Suh, where entrepreneurship and social capital play an important role in sustainable development for development in the regions in creating local economic development as well as collective and cooperative communal work in the agricultural sector resulting in social interaction and increasing integrity among community members. Thus, many synergies result from the joint development of traditional communities and intentional communities [26]. These results also support previous studies where entrepreneurial culture in the agricultural sector has been recognized as an important factor in the agricultural development process. Meanwhile, the effect of warm glow on sustainable agriculture development is negative, which means that warm glow has not been able to make a real contribution to sustainable agriculture development. Of the three variables forming sustainable agricultural development, the social capital variable shows a very large influence with a coefficient value of 0.632. This is in line with Gomez-Limon’s research which shows that social capital consisting of a series of shared norms, values, attitudes, and beliefs encourages cooperation among individuals in the community and has been shown to be a key factor in explaining the development process [27].

4. Conclusion

Local economic development in border areas by paying attention to economic, social, and environmental sustainability needs to be supported by government policies that are oriented towards the ability of farmers to manage agricultural-based natural resources. Entrepreneurial orientation, warm glow, and social capital have a close relationship and have a significant effect on sustainable agricultural development on the island of Sebatik. Stakeholders need to take a role in increasing the capacity of farmers’ entrepreneurial orientation which is supported by the strong relationship between warm glow and social capital in sustainable agricultural development activities in the border area of Sebatik Island.

References
[1] Rivai R S and Anugrah I S 2011 Konsep dan implementasi pembangunan pertanian berkelanjutan di Indonesia Forum Penelit. Agro Ekon. 29 13–25
[2] Serageldin I, Steer A D and Cernea M M 1994 Making development sustainable: from concepts to action (the World Bank Publications)
[3] Lumpkin G T and Dess G G 1996 Clarifying the entrepreneurial orientation construct and linking It to performance Acad. Manag. Rev. 21 135–72
[4] Pindado E and Sánchez M 2017 Researching the entrepreneurial behaviour of new and existing
ventures in European agriculture Small Bus. Econ. 49 421–44
[5] Veidal A and Flaten O 2014 Entrepreneurial orientation and farm business performance: the moderating role of on-farm diversification and location Int. J. Entrep. Innov. 15 101–12
[6] Dadvari P A A, Munkhdelger T, Lkhagvasuren G-O and Moslehpour M 2020 Sustainable Development of Entrepreneurial Orientation through Social Drivers Sustain. 12 1–19
[7] Raoof R, Sultana N and Sattar J 2019 Social capital as a determinant of individuals’ entrepreneurial intention Int. J. Innov. Manag. Technol. 10 179–83
[8] Adler P S and Kwon S-W 2002 Social capital: Prospects for a new concept Acad. Manag. Rev. 27 17–40
[9] Baron R A and Markman G D 2003 Beyond social capital: The role of entrepreneurs’ social competence in their financial success J. Bus. Ventur. 18 41–60
[10] Francis and Fukuyama 2014 The Great Disruption: Hakikat Manusia dan Rekonstitusi Tatanan Sosial (Yogyakarta: Penerbit Qalam)
[11] Mulyaningtiyas R D, Irham, Masyhuri and Suryantini A 2018 Aplikas Stuctural Equation Modelling (SEM) Pada Kajian Pengaruh Kelembagaan: Modal Sosial Jiwa Kewirausahaan Terhadap Kinerja Usaha Budidaya Ikan Nila Kabupaten Sleman Tekno Sains 7 83–154
[12] Rivera M, Knickel K, Maria Díaz-Puente J and Afonso A 2019 The role of social capital in agricultural and rural development: lessons learnt from case studies in seven countries Sociol. Ruralis 59 66–91
[13] Wibisono G M A and Darwanto D 2016 Strategy of strengthening social capital of farmer group in Agricultural Development JEJAK J. Ekon. dan Kebijak. 9 62–81
[14] Andreoni J 1990 Impure altruism and donations to public goods: A Theory of Warm-Glow Giving Econ. J. 100 464–77
[15] Munzoto, Irham, Mulyo J H and Suryantini A 2020 The existence of warm-glow motivation in indonesia organic farming IOP Conference Series: Earth and Environmental Science vol 518 (IOP Publishing) pp 1–9
[16] Allison T H, McKenny A F and Short J C 2013 The effect of entrepreneurial rhetoric on microlending investment: An examination of the warm-glow effect J. Bus. Ventur. 28 690–707
[17] Munasinghe M 1993 Environmental economics and sustainable development (The World Bank)
[18] Ghozali I 2017 Model Persamaan Struktural. Konsep dan Aplikasi Dengan Program AMOS 24. Update Bayesian SEM Model Persamaan Struktural. Konsep dan Aplikasi Dengan Program AMOS 24. Update Bayesian SEM
[19] Hair J F J, Black W C, Babin B J and Anderson R E 2010 SEM Basics: A Supplement to Multivariate Data Analysis Rev. Lit. Arts Am.
[20] Ajayi B 2016 The impact of entrepreneurial orientation and networking capabilities on the export performance of nigerian Agricultural SMEs J. Entrep. Innov. Emerg. Econ. 2 1–23
[21] Kuratko D F 2011 Entrepreneurship theory, process, and practice in the 21st century Int. J. Entrep. Small Bus. Vol 13 8–17
[22] Sharp J S and Smith M B 2003 Social capital and farming at the rural-urban interface: The importance of nonfarmer and farmer relations Agric. Syst. 76 913–27
[23] DeLonge M S, Miles A and Carlisle L 2016 Investing in the transition to sustainable agriculture Environ. Sci. Policy 55 266–73
[24] Bowler I 2002 Developing sustainable agriculture Geography 87 205–12
[25] Zhang X, Ma X and Wang Y 2012 Entrepreneurial orientation, social capital, and the internationalization of SMEs: Evidence from China Thunderbird Int. Bus. Rev. 54 195–210
[26] Larsson M 2012 Environmental entrepreneurship in organic agriculture in Järna, Sweden J. Sustain. Agric. 36 153–79
[27] Gómez-Limón J A, Vera Toscano E and Garrido Fernández F E 2014 Farmers’ Contribution to Agricultural Social Capital: Evidence from Southern Spain Rural Sociol. 79 380–410