

Sectorial Transition Dilemma of Smallholder Coffee Farmers to Light Manufacturing Industry in Jimma Zone, Oromia Region, Ethiopia

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Abstract- The purpose of this study is to investigate sectorial transition dilemma of smallholder coffee farmers to light manufacturing industry. In Jimma Zone, Oromia region, Ethiopia. The vibrant question is, will coffee farmer remain in supplying coffee, go for alternative or change their occupation. Primary data was collected from three hundred ninety nine household heads using structured questioner. Based on this data the study examined smallholder coffee farmer's dilemma, willingness, ability, preferences, and motive descriptively. And, determinants of transition to light manufacturing industry using binary logit model. The study indicates majority of smallholder coffee farmers (84.96) needs to remain in farming coffee. The fact is good guaranty for certainty of coffee product supply in the areas for industries need to process the product and use coffee as other means of inputs. The remaining, 15.04 per cent, need to transform their current coffee farming livelihood to light manufacturing industry. Even if 78% of them has willingness only 7% of the farmers has financial ability for their stated need. The figure is appreciable for smallholder coffee farmer and agriculture dominated economy as starting point. These farmer's primary preference is agribusiness products among light manufacturing industry. Their second is wood products, and their third preference is metal products. Intervention targeted to enhance farmer's participation in light manufacturing industry will be effective if it consider the preferred products. Farmer's motive for transition is mainly profit making and overcoming loss. These motive implies, if these lights manufacturing industry flourished in the area it has possibility of rapid capital accumulation, will be invested further and leads saving lead industrialization. The intervention ways to enhance farmers participation on lights manufacturing industry development in the area shall target younger smallholder coffee farmer. Who has more family size, and has access for skilled labour. Additionally, those who has land access for light manufacturing industry, higher capital and awareness about light manufacturing industry.

Index Terms- Determinant Dilemma Industrialization Light Manufacturing Logit Motive Preference Smallholder Farmers Transition Jimma Zone.

Acknowledgment.- This research output article is from the three sub study compiled in one of our staff thematic research paper.

The thematic research was investigated in 2017/18 academic year. It entitled "Sectorial Transition Dilemma of Smallholder Farmers to Light Manufacturing Industry in Jimma Zone, Oromia Region, Ethiopia; Evidence from Coffee, Khat and Major Grain Farmers." The thematic research was organized by the three authors. Mr. Endeg Tekalegn Wolde, Dr. Leta Sera, & Mrs. Tesfaye Melaku. Coordinated by Mr. Endeg Tekalegn Wolde. Conducted under research and postgraduate studies' office of Business and Economics College guidance and supervision.

The thematic staff research paper is part of Jimma University effort targeted to encourage academic staff's research participation. The institution is doing a lot in financing staff research investigation targeted to solve community problem. Hence, we investigated, the stated research. In the process the institution allocated six hour credit for each three sub studies, during the year and fully financed the work. Consequently, we like to thank Jimma University for its commitment in credit hour consideration as well as financing the paper. Whereas, the views, facts presented, and any other aspects of the findings belong to the authors. Do not necessarily, reflect the view of the institution, Jimma University.

I. INTRODUCTION

One of the debate in rural livelihood transformation is farm size. The debate ranges from large commercialized to smallholder farmers use family labour. Smallholder farmers constitutes nearly 90 per cent of farm in Ethiopia. The figure is 98 per cent in China. 90 per cent in Egypt. 80 percent in India, 50 percent in Mexico and 20 per cent in Brazil (George Rapsomanikis, 2015). The base for farm size debate in agricultural transformation is the fixed agricultural land nature. Besides, there is optimum point of technological progress in the agricultural sector. As compared to industry and service sector. Again, as per capita income increases spending in agricultural output is inelastic. More elastic to service and industrial product (Kuznets, 1955). Along with this population number is increasing at alarm rate in rural. In return leading fast urbanization. Making urban centres area of job questions with related consequence. Scientifically thinking, urbanization is common economic phenomena. Via creating employment opportunity due to

industrial and service centrist and large technological progress in these sectors (See economic report on Africa by United Nations Economic Commission for Africa, 2017). To compliment this gap urban centres built with industrial centre is advisable. That industrialization needs to offer local people participation to realize inclusive growth. In Ethiopian many smallholder farmers engaged in coffee farming from the nearly 90 per cent farm constitutes smallholder farm. The crop is one of the cash crop produced in different part of Ethiopia. Henceforward, it is source of many Ethiopian livelihood. In direct farming engagement. For intermediates in the transaction process. Source of foreign exchange earnings at the national level (James, Tim & Leulseged, 2015). Demographically, coffee production is mainly dominated by Oromia region and South nation nationality peoples region within Ethiopia. For instance, among the top twenty-five (25) coffee producing Woredas of Ethiopian eighteen (18) of them found in Oromia region from 2009/10 to 2012/13. Five (5) of these eighteen (18) Woredas were from Jimma Zone twenty-one (21) total Woredas. These five (5) Woredas are; Limu Kosa Woreda, Gomma Woreda, Mana Woreda, Chora Boter Woreda, and Gera Woreda in order (James, Tim & Leulseged, 2015). The zone is one of the major coffee and Khat growing area among cash crops. Even in the rest unranked major Woredas. Coffees multiplier effect on livelihood of the area people, on other part of the country people and on international market via export is significant. In this study all the five (5) major coffee growing Woredas of Jimma Zone were selected purposely. The total number of households heads in these five Woredas are estimated to be 157, 821 (CSA, 2007). In this area the study investigated possibility of local smallholder coffee farmer's participation on light manufacturing industry development of Ethiopia. The question is, will the farmers remain in supplying coffee, go for alternative or change their occupation to light manufacturing industry. In the investigation process farmer's transition dilemma was assessed. It was in term of whether they need to stay on current coffee farming or need to transform to light manufacturing industry. Their willingness for transition to light manufacturing industry. Ability, motive, preference and determinants were investigated. The aim was to indicate the areas future in relation to the national plan light manufacturing industry development from the local farmers. The assessed ability indicated the expected outcome to help the farmers or other means of transition realization. The feedback from the motive and determinant showed instruments to discourage or encourage them and the areas empirics. That can increase policy makers input in term of important information availability. Mainly, concerning the areas light manufacturing industry participation possibility from the areas smallholder coffee farmers.

II. LITERATURE REVIEW

2.1. Industrialization and Economic Sector Transformation

Light manufacturing industry play enormous role in the process of economic transformation from agriculture to medium and heavy industrialization. Industrialization is not only the concern of transitional economy. Rather, the process includes reorganisation of the existing industries, re-industrialisation, and

deindustrialisation. The objective could be profit-making and competitiveness considerations could prevail over loss-making (Haiduk et al., 2004). Most of the time transformation is considered as the development process. Which is believed both cause and effect of economic growth. It is characterised by a shift of predominant share of agriculture to manufacturing activities. And a moderate to high level of increase in the share of services both for the national product and the work force. This pattern has holds across the countries with different levels of development (Swiecki, 2013). For Lewis (1958) the concept of transition is broader. For him economic transition from the backward agriculture to industrialization is considered as economic development. He associate transition process with the expansion of the modern manufacturing sector and the shrinkage of the traditional agricultural sector. In the process the backward rural sector is the supplier of cheap labour to the advanced industrial sector. Then the industry sector is believed to be profitable. Via rapid capital accumulation and investing further, the sector drives growth depends on savings. For Lewis' this transition of economy from agriculture to industrialization is characterized by dualism. His concept of dual economy is rooted in the classical approach of Smith and Ricardo. They assumes, there is almost unlimited supply of labour that keeps wages low and profits high. For them dualism is an economy consists of a small manufacturing sector and mainly large agricultural sector. Dualism split labour market into two parts. Labour in the manufacturing sector is comprised of relatively well-paid and skilled urban workers. Whereas, the agriculture sector consists full of poorly paid and low-productive rural workers. According to Linz, (2000), the analysis of economic transition with the concept of dualism is emerged out of the soviet legacy. Legacy of heavy industrialisation. The choices made over the years by the countries' policy makers explains the different pace at which the inherited economic structure is eroded. And, is replaced by a more market-oriented economic environment in the various post-Soviet countries. Almost, nearly all socialist economies were heavily industrialised. Historically, industrial revolution was started in England around 1780 (Matsuyama, 2009). Since then, many countries real incomes per capita rose. Modern world was born and changed world economic history. Along with this, modern economies start to experience steady rates of efficiency advance. Every year more output is produced per unit of input. And income per work-hour is growing in modern societies.

2.2. Industrialization and Economic Sector Transformation in Ethiopian

In Ethiopia the emergency of industry in modern unit traced back to the end of the 19th century following establishment of a strong central government. The driving motive necessitate emergencies of modern manufacturing were to respond for the increased demand for imported manufacturing commodities. Following the expansion and growth of cities, the connection of railways and the consolidation of foreign relations. Actually this modern manufacturing factories were emerged in the country in the 1920s, intense effort towards developing a modern manufacturing like the sector comprehensive plan to promote industrialization and economic development was began during 1950s (Mulu, 2013). During imperial regime three consecutive five year development plan was formulate; 1958-62,

1963-67, and 1968-1973. These plans includes development of the industrial sector, policies and strategies. The succeeded government 1974-1991 claimed socialism led to planned means of production, production targets and allocate resources based on the careful decision of the authorities. Production of large scale goods was almost entirely state owned as a result there was little room for private sector development except few effort exerted to promote production of intermediate goods, capital goods, and expansion of small-scale industries in the remaining ten years (Sarah and Mesfin, 2011). In the post 1991, the new regime adopted agricultural development led-industrialization as a guiding economic principle which allows and promotes the participation of the private sector in most sectors of the economy, including industry. Three different stages reform programs were supported by IMF/WB, export promotion strategy were adapted in 1998, complete industrial development strategy was formulated in 2002/03, five year overall development plan of the country from 2005/06 to 2009/10 was enunciated (Kenichi, 2009). Recently growth and transformation plan I (2010/11-2014/15) was implanted and its phase II (2015/16-2021) is ongoing. Regardless of all this efforts Ethiopia is one of the least industrialized countries in Sub-Saharan Africa group and the world. According to EEA (2013) the share of industry was only about 11.1% of the GDP and that of manufacturing sector was only about 3.7% of the GDP in 2011/12. Manufacturing sector industries share in GDP was declined from its figure of 6.4% in 2003/04 to 3.7% 2011/12. According to Mulu (2013) the contribution of manufacturing to the overall GDP of Ethiopia is less than 6 per cent its contribution to the national stock export is below 10 per cent which is again among the lowest in the world. Conferring to WDI (2013) the industrial sector had an average contribution of about 30.34% to GDP of all income levels of Sub Saharan African countries. In the world the sector had an average contribution of about 26.29% to GDP of all income levels of the world. Ethiopian MoFED (2013) indicates the contribution of manufacturing sector has stagnated at about 5% of GDP over the last 20 years, is largely limited to simple agro-processing activities like; sugar, grain milling, edible oil production, and leather tanning, and production of basic consumer goods beer, footwear, textiles and garment. Industries that might help to accumulate technological capabilities and create dynamic inter-industry linkages are almost non-existent such as chemical, electrical and electronics, metal-processing and other engineering industries. Overall, the technological level of firms is very low, even by Sub Saharan regional standards (Hinh et.al, 2012). Again, Ethiopian manufacturing industries are engaged in processing primary commodities and employing a few hundred thousand unskilled labour. Similarly, the sector is operating under critical constraints related to logistics and transport, access to land, as well as poor public services delivery (MoFED, 2013). Besides, facilitation hinder industries to be effective and competent. To realize a complete industrial development strategy via overcoming the constraint Ethiopian government is showing policy commitment. One of the evidence is the concern given to industrial development structural transformation on Ethiopia growth and transformational plan II, 2015. The industrial development strategic directions of GTP II includes establishment of light manufacturing industries and the micro and small enterprises development. The light manufacturing

industries are believed to build heavy industries and industrialize the country in the future. In addition the sector is expected to bring significant growth of the manufacturing industry then it can plays leading role in job creation, technology learning structural shift in Ethiopia's export and address trade imbalance. In its implementation strategy the directions are; to focus on the implementation of project and programs which gear towards attracting quality investment, enhancing production and productivity, boosting export shares, accelerating technological learning and strengthen the linkage among industries. Great emphasis is also given to micro, small and medium enterprises in generating employment, to serve as school of entrepreneurship, and to broaden the base for value adding domestic private sector (GTP II, 2015). Commonly light manufacturing industries are apparel products, leather products, agribusiness products, wood products, and metal products. In all the category context Ethiopia has many natural resources that can provide valuable inputs for light manufacturing industries able to serve both domestic and export markets. Cotton is one of abundant producible resource, which can support the garments industry. Cattles are the other abundant resource which can be processed into leather and its products. The available agricultural land and lakes can provide inputs for agro processing industries. The country has forests which can be succeeded for the furniture industry. Again, the existing natural resources, abundant low-cost labor, gives it a comparative advantage in less-skilled, labour-intensive sectors like metal product. The favourable climate, and the potential for cheap hydro-energy is a guaranty for the countries competitiveness (United Nations Industrial Development Organization, 2015). In some cases not only resource availability government policy and development strategy mater economic transformation. Agents consider different seen and unseen economic variables for any economic transformation decisions. Further this seen and unseen economic variables can be classified as controllable and non-controllable. Non controllable variable source of difference in individual and or country economic altitudes are many. Physical attributes, meaning distribution of natural ability is not equal for all human being. The other is personal preferences, in which relative valuation of leisure and work effort differs from person to person. The social process, is also the other source which means pressure to work or not to work varies across particular fields or disciplines (Todaro, MP & Smith, SC, 2009). Barbara Tocco, Alastair Bailey and Sophia Davidova (2013), had done working paper on, determinants to leave agriculture and change occupational sector: Evidence from an Enlarged EU. They stated the case by separating the determinant in term of pool and push factor. Their result suggest that as compared to the old younger individuals are more likely to leave farming activities whereas, self-employed and family workers are less likely to leave agriculture. The retirement of people is highly associated with largest outflows of agricultural labour. Peoples with low levels of educations are found to be ominously forced in entering the non-farm employment. Again, their finding indicates significance of labour market conditions at the regional level do matter for converting occupational sector. Kindeye Fenta (2014), had studied industry and industrialization in Ethiopia: policy dynamics and spatial distributions. According to him the large and medium manufacturing industries are not equally distributed across regions. Developed regions achieved

an increasing share of industrial development while the peripheral regions lagged behind. Once more he showed, presence of significant disparities among and within regions in the number of people engaged in the sector in term of wages and salaries paid to workers, the fixed assets possessed by the sector, the sector's contribution to national income account and capital expenditure. He pointed that this difference is primarily driven by difference in the productivity of the private sector in each region. Constraints related to accesses to land and finance and competition from informal sector affect each region to a different degree. There are striking differences among urban areas of the same regions. Cities that are the seat of the regional governments and their surrounding environs serve as centres of industrialization for their own respective region. In addition to the other means of intervention the way to minimize this regional difference is securing inclusive development. This can increase benefits from industrial development process, minimize risky in agriculture sector and with human population increment. The good proxy for this is increasing local farmer's participation. Mainly during initial intervention of light manufacturing industries development, in industrial development process. Considering this fact Ethiopian government has been supporting the industrial transformation policy via building industrial parking and providing related infrastructure. Jimma industrial

parking centre is under construction. To capacitate industrial transformation agenda in the area. In other way realization of this economic transformation plan in Jimma area and in Ethiopian is not only a function of paper work. In term of best written policy, government strategy and other countries path of transition. Frequently difficulty of firms and consumer future behaviour limits the expected best policies outcome. Again, unless agents behave and react accordingly the government strategy by itself is not the guaranty of implementing any plan. The world economic context is dynamic. Means of production, mode of transaction and consumption decisions of agents are changing over time. To examine this context, this research paper was designed to investigate possibility of local smallholder coffee farmer's participation on light manufacturing industry development. Will they remain in supplying coffee, go for alternative or change their occupation to light manufacturing industry. The study analysis skeleton is based on the following conceptual framework we developed from works of Barbara, Alastair, and Sophia (2013), Kotler et al. (2010), Pinki (2014) and Robert, (2014). Todaro & Smith (2009), Lewis (1954), Key (2005), Lewis, (1958), Haiduk et al. (2004), Kuznets (1955), (Baumol, 1967), United Nations Industrial Development Organization (2015) and Matsuyama (2009).

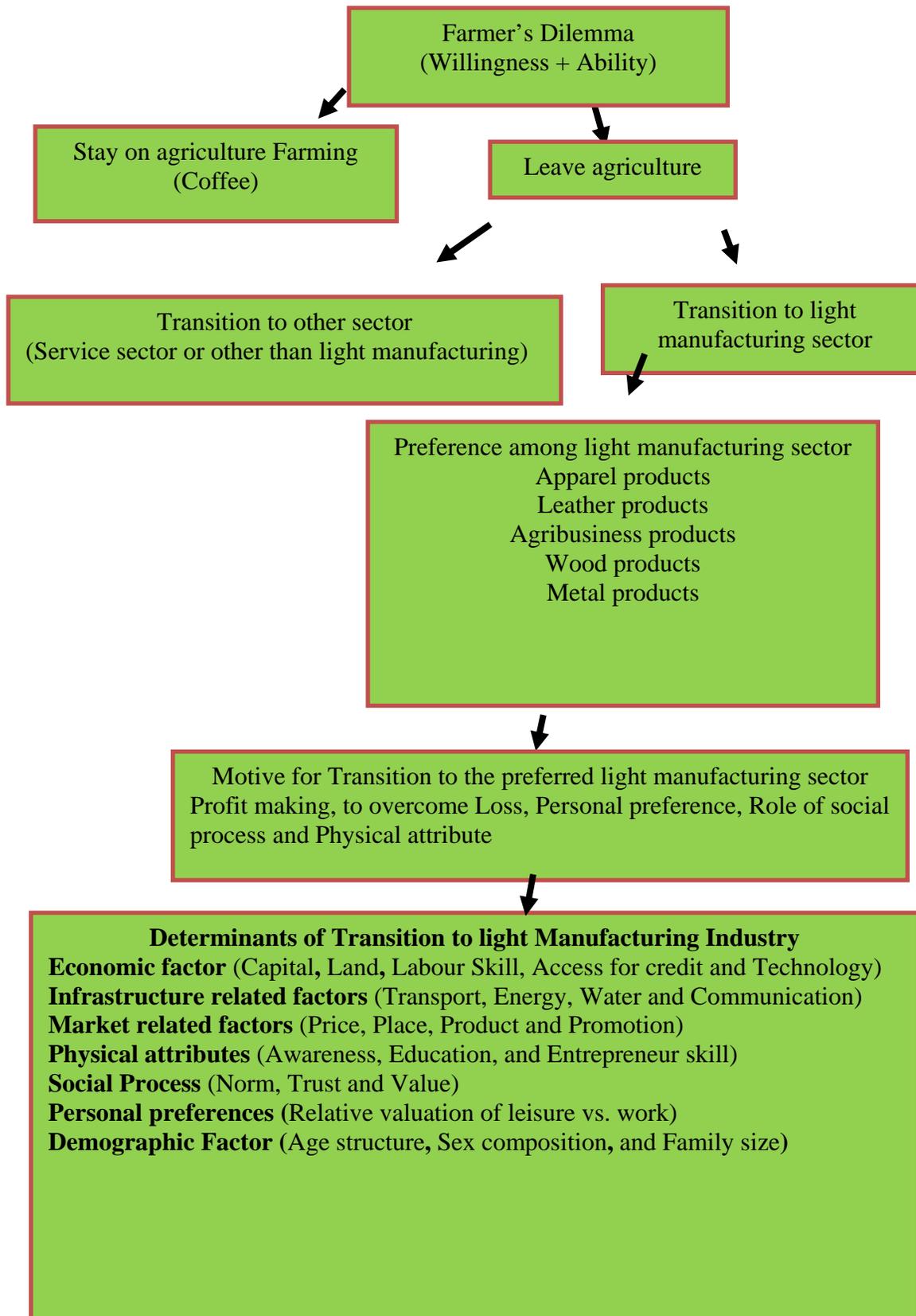


Fig – 1 Conceptual framework of the study compiled by authors, 2018.

III. RESEARCH DESIGN AND METHODOLOGY

The data for the accomplishment of the study was collected from primary data source. Probabilistic and non-probabilistic sampling technique was used to identify the representative sample. From non-probabilistic sampling technique the study employed two stage purposive sampling. That is, to select Woredas, that have great potential of farming coffee, in the first stage. In the second stage to classify Kebeles within each target Woreda according to their potential of farming coffee. Then, the data was collected using structured questioner. To select the last element, household, the study determined sample size first. Second, proportionally allocated sample for each Woredas. Then, sample frame was formed for each five (5) Woredas. The formation of sample frame contains each Woredas top five (5) Kebeles known in intensive production of coffee. Finally, the study element, household heads, were selected randomly, from the Kebeles strata sample frame. The sample size was determined using the following simplified formula for proportions (GfK Polonia, 2013).

$$n = \frac{N}{1 + N * (e)^2} \dots\dots\dots (1)$$

Where, n - The sample size, N - The population size and e - The acceptable sampling error (.05).

$$n = \frac{157,821}{1+157,821(0.05)^2} = \frac{157,821}{1+157,821(0.0025)} = 399. \text{ The above total sample size (399) was divided for the five Woredas based on the following proportionate sampling procedure: } n_j = N_j/N \times n \dots\dots\dots (2)$$

Where, n_j = Size of sample from j^{th} stratum, N_j = Population in j^{th} stratum, N = Total population size and n = Total sample size. Then, we specified the following model based on the scholars economic theory and empirical works. The dependent variable specification was based on decision tree of the labour outcomes see Barbara, Alastair, and Sophia (2013). A given labour will be employed on agriculture or non-farm work initial. The labour employed in agriculture will need to stay on agriculture or need to leave agriculture. Then, the labour will leave agriculture to join non-farm activities and or leave to non-employment. For Kotler et al. (2010) a decision-making process starts with the recognition of need that can be triggered by internal or external stimuli. In this decision making process

knowledge, motivation, attitude and experiences play significant roles see Pinki (2014). Concerning transformation of need to demand, demand (willingness and ability) determining variables modern microeconomics was consulted (Robert, 2014). Based on the consultation of these scholars we specified the following functional relationship of the model as dependent and independent. $CFTD = f(\text{Age, Sex, Family size, Capital, Land, Labour Skill, Access for credit service, Price expectation, Place, Technology, Promotion, Awareness, Education, Norm, Trust, Entrepreneur skill, Transport, Energy, Water, Communication.})$. The analysis of the data was done using both descriptive and econometrics techniques. Willingness, ability, preferences, and motive of smallholder coffee farmer's transition to light manufacturing industry was discussed descriptively. Smallholder coffee farmer's transition dilemma to light manufacturing industry and the determining factor was analysed using binary logit model. In the specification of the Logit model the dependent variable was dummy. Which takes a value of one (1), yes response, for smallholder coffee farmers needs to transit to light manufacturing industry. Or zero (0), no response, for smallholder coffee farmers needs to remain in farming coffee. The independent variables were both continuous and discrete. To estimate the transition dilemma of smallholder coffee farmers to light manufacturing industry and its determinant

Logit model was specified as follow;

$$P_i = 1 / (1 + e^{-Z_i}) \dots\dots\dots (3)$$

$$Z_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots\dots + \beta_n X_{ni} \dots\dots\dots (4)$$

$$P_i = 1 / [1 + e^{-(\beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \dots\dots + \beta_n X_{ni})}] \dots\dots\dots (5)$$

$$\text{Logit}(Z_i) = \ln(P_i / (1 - P_i)) = Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots\dots + \beta_n X_n + U_n \dots\dots\dots (6)$$

See Woodlridge, (2009). P_i = Probability of Transit to light manufacturing industry in relation with explanatory variables. e^{z_i} = is irrational number to the power of z_i . Z_i = A function of explanatory n variables. β_s = parameters. To confirm the result of the model the study checked diagnostic tests of binary logistic model. It includes fitness of the logistic model for estimation. Test of parameter association with explanatory variable. Test of multi-co linearity, to check exact or perfect association among explanatory variables. And test of how well the explanatory variable explained the dependant variable (Gujarati, 2003). Further, the study variables codes, definitions, scale measurements, types and their expected signs were summarized in Table 3.1.

Table 3.1: Variables definitions, scale measurements and their expected sign.

Code	Definition	Scale measurement	Type	Expected sign
A	Age	In year	Continuous	-
S	Sex	Male = 1, female = 0	Dummy	+/-
C	Capital	In Cash	Continuous	+
FSIZE	Family size	In number	Continuous	+/-
LA	Land for Manufacturing	Access = 1, No access = 0	Dummy	+
LS	Labour Skill Access	Access = 1, No access = 0	Dummy	+
AccCrSe	Access for credit service	Access = 1, No access = 0	Dummy	+
PrEX	Product Price Expectation	In birr	Dummy	+
Place	Place	Distance from market	Continuous	-
Tech	Technology	Technique of production	Dummy	+
Awar	Awareness	Yes = 1, No = 0	Dummy	+
Edu.	Education level	In year school	Continuous	+
Nor.	Norm	Yes = 1 No = 0,	Dummy	+
Tru.	Trust	Yes =1 No = 0,	Dummy	+
Value	Value	Yes =1 No = 0,	Dummy	+
EntrSkl	Entrepreneur skill	Yes =1 No = 0,	Dummy	+
Trns	Transport	In distance	Continuous	-
Engy	Energy	Yes =1 No = 0,	Dummy	+
Wtr	Water	Yes = 1 No = 0,	Dummy	+
Commu.	Communication	Yes =1No = 0,	Dummy	+

Source; Compiled by authors, 2018.

IV. THE STUDY RESULTS AND DISCUSSIONS.

4.1. Smallholder Coffee Farmer's Dilemma

The dilemma of coffee farmers were asked in term of whether they need to remain in farming coffee and or need to

transform to light manufacturing industry. Accordingly, their response were summarised in the following table 4.1. From 399 coffee farmers 339 of them, 84.96 per cent need to stay on coffee farming. The fact is good inference for sustainability of coffee product and related outcome in the study areas. Helping these

farmers to increase coffee product and enabling them to get a better price is one possible means of intervention to improve the areas smallholder coffee farmer's livelihood.

Table 4.1. Smallholder Coffee Farmer's Transition Dilemma.

. table CFTD

CFTD	Freq.
0	339
1	60

Source; - Own manipulation using STATA 12, based on authors survey, 2018.

The remaining smallholder coffee farmers, 15.04 per cent, need to transform their current coffee farming livelihood to light manufacturing industry. The figure is appreciable for smallholder coffee farmer and agriculture dominated economy as starting point. Helping these smallholder coffee farmers in selective means is advisable via identifying the required intervention. The purpose is to create enabling environment for them. That secure inclusive participation, to make them profitable, and aligning their plan with national economic transformation.

4.2. Willingness of Smallholder Coffee Farmers Transition to Light Manufacturing Industry.

In this part the study analysed willingness of coffee farmer's for their stated need. That is, to examine one aspect of their dilemma. Therefore, farmers might have a need to change their occupation. To be meaningful it needs to be supported by willingness and ability as well.

Table 4.2. Willingness of Smallholder Coffee Farmers Transition to Light Manufacturing Industry.

Response	Number	Percent
Yes	312	78
No	87	22
Total	399	100

Source; - Own survey, 2018.

Consequentially, 78 percent of coffee farmers 312 out of 399 in number revealed their willingness for transition to light manufacturing industry. The fact implies, if enabling environments will be created there is higher willingness from the farmers. Unlikely, higher willingness by itself is not enough for any decision. To be meaningful it must be supported by financial ability to pay for the stated willingness.

4.3. Ability of Smallholder Coffee Farmers Transition to Light Manufacturing Industry.

In addition to their willingness, coffee farmers were asked about their financial ability for transition to light

manufacturing industry. From 399 respondents 28 of them, 7 percent deserve financial ability for transition. The remaining 371 of them, 93 in percent, replied that they haven't financial ability for transition to light manufacturing industry.

Table 4.3. Ability of Coffee Farmers Transition to Light Manufacturing Industry.

Response	Number	Percent
Yes	28	7
No	371	93
Total	399	100

Source; - Own survey, 2018.

Hopefully, 7 percent of coffee farmers have ability for decision. The number is not exaggerated to indicate weak ability for transition to light manufacturing industry. For smallholder coffee farmer and agriculture dominated economy the fact is appreciable as starting point. The divergence of willingness and ability indicates two fact at least. The first fact is commitment of smallholder coffee farmer's transition to light manufacturing industry. Which was supported by high willingness feedback. The second fact indicates if enabling environments will be created coffee farmers are ready for transition to light manufacturing industry.

4.4. Preferences of Smallholder Coffee Farmers among Light Manufacturing Industry

The farmers were again asked about their preferences among light manufacturing industry. In the preference basket apparel products, leather products, agribusiness products, wood products and metal products are included.

Table 4.4. Preferences of Coffee Farmers among light manufacturing industry.

Response	Number	Percent
Apparel products	03	0.75
Leather products	01	0.25

Agribusiness products	219	55.00
Wood products	108	27.00
Metal products	68	17.00
Total	399	100.00

Source; - Own survey, 2018.

Agribusiness product is the primary preference of smallholder coffee farmers among light manufacturing industry. As seen from the above table 4.4. Their second preference is wood product. They prefer metal products as their third options. From this fact we can deduce that, any intervention need to enable and improve farmers participation on light manufacturing industry development will be effective if it consider agribusiness product mainly. Wood product, and metal product hierarchically.

4.5. Smallholder Coffee Farmers Motive for Transition to the preferred light manufacturing industry.

Coffee farmers primary motive for transition to the preferred light manufacturing industry is profit making and the second is overcoming loss. As seen from table 4.5.

Table 4.5. Smallholder Coffee Farmers Motive for Transition to the Preferred Light Manufacturing Industry.

Motive	Number	Percent
Profit making	318	79.70
To overcome Loss	49	12.28
Personal preference	18	4.51
Role of social process	11	2.76
Physical attribute	03	0.75
Total	399	100

Source; - Own survey, 2018.

It implies lights manufacturing industry development in the area will clue possibility of saving lead industrialization. See Lewis (1958). Profitability will lead rapid capital accumulation, investing further, and drives growth depends on savings. Then, the industry sector is believed to be profitable in economic transition from the backward agriculture to industrialization. By expansion of the modern manufacturing sector and the shrinkage of the traditional agricultural sector.

4.6. Determinants of Smallholder Coffee Farmers Transition Dilemma to Light Manufacturing Industry.

To identify the determinants of smallholder coffee farmer’s transition dilemma to light manufacturing industry binary logit model was employed. The dependent variable of the study is smallholder coffee farmer’s transition dilemma. It is a dummy response variable. Which takes a value of one (1), yes response, for smallholder coffee farmers needs to transit to light manufacturing industry. Or zero (0), no response, for smallholder coffee farmers need to stay on farming coffee. The explanatory variables are both dummy and continuous variables. STATA 12 was used to regress the data in binary logit model. Accordingly, the outcome was summarized here below in equation 7. The

detail of all the output is attached in the appendices. The analysis was started after checking multicollinearity, and χ^2 significance at 1%. Overall, nearly 46% of the decision to transit to light manufacturing industry or not is explained by the independent variables of the model. The equation of the line found from the regression output was summarized as follow;

$$\text{logit (CFTD)} = -.0130618 + 3.732702\text{Awar} + 3.50118\text{LS} + 3.054031\text{LA} + 1.163486\text{FS} + 1.000016\text{C} - .9186284\text{A} \dots\dots\dots (7)$$

Age of smallholder coffee farmers is negatively related to probability of transition need to light manufacturing industry. Hence, younger smallholder coffee farmers are more likely transit to light manufacturing industry. And aged smallholder coffee farmers are less likely transit to light manufacturing industry by .9186284 figure. As age of smallholder coffee farmer’s increase by one year likelihood of transition to light manufacturing industry decreases by .918628 factor. Hence, participation in light manufacturing industry development in the area is badly expected from the young smallholder farmers. And, again any means designed to intervene to enhance farmers participation in the industry will be effective if they target the young smallholder coffee farmers. Again, Smallholder coffee farmer’s family size is positively related to the probability of transition to light manufacturing industry. Farmers with more family size are more likely transit to light manufacturing industry as compared to small family size owners by 1.163486 factor. Further, smallholder coffee farmers who has skilled labour access, and land access for light manufacturing industry has higher likelihood of transition to light manufacturing industry by 3.50118, and 3.054031 factors respectively. Additionally, as farmers cash capital increases by one Birr, likelihood of transition to light manufacturing industry increases by 1.000016 unit. Moreover, awareness is positively related to probability of transition to light manufacturing industry. More aware smallholder coffee farmers are more likely transit to light manufacturing industry as compared to unaware farmers by 3.732702 factor. From these determining factors we can deduce that, the intervention ways to help smallholder coffee farmer’s participation on lights manufacturing industry development in the area shall target; younger farmer, who has more family size, and has access for skilled labour. Additionally, those who has land access for light manufacturing industry, higher financial capital and awareness about light manufacturing industry.

V. STUDY CONCLUSIONS AND RECOMMENDATIONS.

5.1. Conclusions from the study.

This study concludes majority of smallholder coffee farmers needs to remain in farming coffee. Which is good inference for sustainability of coffee supply and related outcome in the study area. The remaining, 15.04 per cent, need to transform their current coffee farming livelihood to light manufacturing industry. The figure is appreciable for smallholder coffee farmer and agriculture dominated economy as starting point. Even if 78 per cent of coffee farmers revealed willingness for transition to light manufacturing industry only 7 per cent of them deserve financial ability for transition. The divergence of

willingness and ability indicates two fact at least. The first fact is commitment of smallholder coffee farmer's transition to light manufacturing industry. Which was supported by high willingness feedback. The second fact indicates if enabling environments will be created coffee farmers are ready for transition to light manufacturing industry. Agribusiness product is the primary preference of smallholder coffee farmers among light manufacturing industry. Their second preference is wood product. They prefer metal products as their third options. From this fact we can deduce that, any intervention need to enable and improve farmers participation on light manufacturing industry development will be effective if it consider agribusiness product mainly. Wood product, and metal product hierarchically. Coffee farmers primary motive for transition to the preferred light manufacturing industry is profit making and their second is overcoming loss. It implies lights manufacturing industry development in the area will have possibility of saving lead industrialization. Age of smallholder coffee farmers is negatively related to probability of transition need to light manufacturing industry. Hence, younger smallholder coffee farmers are more likely transit to light manufacturing industry. And, aged smallholder coffee farmers are less likely transit to light manufacturing industry. As age of smallholder coffee farmer's increase likelihood of transition to light manufacturing industry decreases. Hence, participation in light manufacturing industry development in the area is badly expected from the young smallholder coffee farmers. And, again any means designed to intervene these industry development will be effective if they target the young smallholder coffee farmers. Once more, Smallholder coffee farmer's family size is positively related to the likelihood of transition to light manufacturing industry. Farmers with more family size are more likely transit to light manufacturing industry as compared to small family size holders. Further, smallholder coffee farmers who has skilled labour access, and land access for light manufacturing industry have higher likelihood of transition to light manufacturing industry. Additionally, as farmer's cash capital increases likelihood of transition to light manufacturing industry increases. Awareness is positively related to likelihood of transition to light manufacturing industry. More aware smallholder coffee farmers are more likely transit to light manufacturing industry as compared to unaware farmers.

5.2. Recommendations from the study.

Majority of smallholder coffee farmers, need to stay on coffee farming. The fact is good inference for certainty of coffee product supply in the areas for industries need to process the product and use coffee as other means of inputs. Again, from the fact we can deduce that one possible means of intervention to improve the areas smallholder coffee farmer's livelihood is targeting to increase coffee product productivity and coffee price. Helping smallholder coffee farmer need to transform in selective means is advisable to create enabling environment, to make them profitable, aligning their plan with national target and to match farmer's ability lagged behind willingness. The concern of intervention to enable farmer's transition to light manufacturing industry will be effective if it target agribusiness product, wood product, and metal product hierarchically. If these lights manufacturing industry flourished in the area it has possibility of

saving lead industrialization. As it was evident from the primary motive of coffee farmer's transition to the preferred light manufacturing industry is profit making. Followed by overcoming loss, personal preference, role of social process and physical attributes. In the means to enable farmer's priority shall be given to the way to make them profitable via reducing loss at any level. The intervention ways to help or realize farmers participation on transformation to lights manufacturing industry development in the area shall target younger smallholder coffee farmer, who has more family size, and has access for skilled labour. Additionally, those who has land access for light manufacturing industry, higher capital and awareness about light manufacturing industry.

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Appendices

1. Questionnaire Survey.

Jimma University

College of Business and Economics

Department of economics

Dear Respondent, the purpose of this questionnaire is to collect data for the research entitled, " Sectorial Transition Dilemma of Coffee farmers to light manufacturing Industry in Jimma Zone, Ethiopia. The information you provide is set aside confidential and used only for research purpose. Your response to the question has significant impact on the quality of data and result. Thus, you are politely requested to respond genuinely. Thank you for your cooperation!

1. Gender: - A. Male B. Female
2. Marital status: - A. Married B. Single C. In a relationship D. Divorced
3. Age: - _____. 4. Family size; - _____. 5. Education Level; - _____.
6. Do you need sectorial transition from coffee farming employment? A. Yes B. No
7. If you need transition from coffee farming how many years it will take?
 - A. In the coming 1 to 3 years. B. In the coming 3 to 5years.
 - C. In the coming 5 to 10years. D. More than 10years.
8. If you have transition need from coffee farming which one of the following choice is your option?
 - A. Light manufacturing industry. B. Heavy industry.
 - C. Service sector. D. Others
9. Do you have sectorial transition need to light manufacturing industry? A. Yes B. No
10. If you don't have sectorial transition need to light manufacturing industry, which one of the following is your reason?
 - A. I don't have willingness to leave coffee farming.
 - B. I don't have ability to transit to light manufacturing industry.
 - C. I don't have both ability and willingness to leave coffee farming.
 - D. I have both ability and willingness, rather I need diversification.
11. In case you have sectorial transition need to light manufacturing industry, which one of the following option is your choice?
 - A. Apparel products. B. Leather products. C. Agribusiness products
 - D. Wood products. E. Metal products.
12. Which one of the following is your deriving motive to the preferred light manufacturing industry transition?
 - A. Profit making. B. To overcome Loss. C. Personal preference.
 - D. Role of social process (Social pressure to transit from agriculture).
 - E. Physical attribute (I have unique ability to produce in the new sector).

F. Government incentive (like taxation and others).

13. Do you have financial capital to invest in light manufacturing industry in cash?

A. Yes B. No

14. If yes how many capital you have to invest in light manufacturing industry in cash?

_____.

15. If you don't have capital to invest in light manufacturing industry in cash, do you have access for credit? A. Yes B. No

16. If yes which one of the following is your source?

A. Commercial Bank. B. Development Bank. C. MFI

D. Other private Bank specify it; _____.

17. If yes for question number 15, how many capital you have access to invest in light manufacturing industry in credit? _____.

18. Do you have access to capital to invest in light manufacturing industry in other means than cash or credit? A. Yes B. No

19. If yes for question number 18 which one of the following is your source?

A. Ikub. B. Remittance. C. Selling asset. D. Group association.

20. Do you have access for Land to invest in light manufacturing industry? A. Yes B. No

21. Do you have skilled Labour access to invest in light manufacturing industry?

A. Yes B. No

22. Do you know the technology to invest in light manufacturing industry? A. Yes B. No

23. Do the following infrastructure related factor of production hinder your transition to the preferred light manufacturing industry? A. Yes B. No

A. Energy.

B. Water.

C. Communication.

24. Transport distance to production plant in Kilometre; _____.

25. Do you think you will get input at profitable price in the preferred light manufacturing industry? A. Yes B. No

26. Do you think you will get better price for your product in the preferred light manufacturing industry? A. Yes B. No

27. Do you think you will get better market place in the preferred light manufacturing industry, for your product? A. Yes B. No

28. Do you think you will able to produce quality and competitive product in the market in the preferred light manufacturing industry? A. Yes B. No


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Logistic model for CFTD, goodness-of-fit test

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number of observations =    399
number of covariate patterns =    399
Pearson chi2(378) =    365.70
Prob > chi2 =    0.6657
```

Source own manipulation using STATA 12, 2018

3. Correlation matrix of predictor variables.

. cor
 (obs=399)

	CFTD	A	S	C	FS	LA	LS	ACS	PPE	Place	Tech	Awar	Edu	Nor
CFTD	1.0000													
A	-0.2791	1.0000												
S	0.0258	0.0247	1.0000											
C	0.5202	-0.1510	-0.0280	1.0000										
FS	0.0862	0.0903	-0.0562	0.0452	1.0000									
LA	0.0641	0.0711	0.0299	-0.0320	0.0368	1.0000								
LS	-0.0091	0.1679	-0.0789	-0.2012	0.1296	-0.0754	1.0000							
ACS	0.0161	0.0647	0.1132	-0.0771	-0.0879	0.0805	-0.0841	1.0000						
PPE	0.0884	0.0054	0.2413	0.0507	-0.0335	0.0164	0.1115	-0.0746	1.0000					
Place	-0.0187	0.0258	0.0093	0.0476	0.0005	0.0129	-0.0789	0.0946	-0.0344	1.0000				
Tech	-0.0172	0.0100	0.0394	-0.0158	0.0101	0.0882	-0.0142	0.1655	-0.0650	-0.0634	1.0000			
Awar	0.2627	-0.1668	-0.0585	0.1684	0.0425	-0.1031	0.0877	-0.0519	-0.0650	-0.0383	-0.0161	1.0000		
Edu	0.0138	0.0594	-0.0122	0.0304	-0.0787	0.0410	-0.0250	0.0044	-0.1170	-0.0640	0.0335	-0.0606	1.0000	
Nor	0.0490	-0.0173	-0.1718	0.0696	-0.0440	-0.0216	-0.0584	0.0215	-0.0911	-0.0061	0.0182	0.0735	0.0830	1.0000
Tru	-0.0297	0.0575	-0.0668	-0.0491	-0.0511	0.0286	0.0650	-0.0608	0.1835	0.0818	0.0851	-0.0258	-0.0509	0.0640
EntrSkl	0.0105	0.0997	0.1201	-0.0292	-0.0044	0.1042	0.0125	0.0777	0.0269	-0.1479	0.0342	-0.0050	0.0026	-0.1024
Trns	-0.0997	-0.0224	0.0927	-0.1115	-0.0523	0.0707	0.0338	0.0329	0.0423	-0.0032	-0.0055	-0.0520	-0.0733	-0.0151
Enrgy	0.0664	-0.0372	-0.0449	-0.0079	-0.0247	0.0218	-0.0580	-0.1221	-0.0800	-0.0736	-0.3385	0.0334	0.0611	-0.0527
Wtr	-0.0536	-0.0453	0.0422	0.0072	-0.0135	-0.0220	-0.0283	0.0825	0.0172	0.1102	0.1440	-0.0027	0.1072	-0.0130
Commu	0.0269	-0.0161	-0.0635	0.0939	0.0529	-0.0328	-0.0445	-0.0554	-0.0355	0.0015	-0.0552	0.0172	-0.0315	0.0133
Value	-0.0355	-0.0312	-0.0513	-0.0402	-0.0171	-0.0723	0.0293	0.0439	0.0813	0.0699	0.1847	-0.0249	0.0241	0.0589

	Tru	EntrSkl	Trns	Enrgy	Wtr	Commu	Value
Tru	1.0000						
EntrSkl	-0.0861	1.0000					
Trns	0.0103	0.1602	1.0000				
Enrgy	-0.1633	0.0899	0.0508	1.0000			
Wtr	0.0256	-0.1107	-0.0027	-0.1258	1.0000		
Commu	-0.0817	0.0378	-0.0355	0.0383	0.0258	1.0000	
Value	0.1154	-0.0761	0.0214	-0.0939	0.0177	-0.0126	1.0000

Source own manipulation using STATA 12, 2018

4. Binary Logit output determinants of transition dilemma.

