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SECTORIAL TRANSITION DILEMMA OF SMALLHOLDER GRAIN FARMERS TO LIGHT MANUFACTURING INDUSTRY IN JIMMA ZONE, OROMIA REGIONAL STATE, ETHIOPIA

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Abstract

This research was designed to assess willingness, ability, motive, preference and determinants of smallholder major grain farmer's transition dilemma to light manufacturing industry in Jimma Zone, Oromia Region, Ethiopia. The participants of the study were selected using two stage non probabilistic, purposive sampling. Then, we prepared sample frame from each Kebeles fall in our selection pool. Finally, 399 household heads (farmers) were selected for this study, using stratified sampling. Then, primary data collected via structured questionnaire was analyzed descriptively and in binary logistic regression. Accordingly, majority of smallholder major grain farmers need to stay on their current crop farming. Increasing these products productivity and price is one possible means of intervention to improve the areas smallholder farmer's livelihood. The descriptive statistics depicts that, small holder farmers' transitional dilemma to light manufacturing sector and the fate of industrialization plan in Jimma zone is at its infant stage and those small holder farmers have almost no any awareness, no know how about technologies, not trained and they have no entrepreneurial skill. The result revels that the major determinants of smallholder grain farmers sectorial transition plan in the study area was significantly affected by age, sex, marital status, skilled labour access, access to credit, price product expectation, place,Awareness, Education level, Entrepreneur skill, Training, Transport and Energy.Hence, effort should be geared in manner that build farmers capacity through adult literacy program, formal education and with short term training.

Keywords: *Grain, Dilemma,Teff, Maize, Smallholder Farmers Transition*

1. Introduction

1.1. Background of the Study

Transformationis the defining characteristic of the development process. It is both cause and effect of economic growth. One of the processes to define the structural transformation is characterized 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 not only been observed historically, but also holds across the countries with different levels of development (Swiecki, 2013). According to Lewis (1958), the economic transition from the backward agriculture to industrialization is considered as economic development. The transition process is associated with the expansion of the modern manufacturing 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 assume, 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. For other scholars, Industrialization is not only the concern of transitional economy. Rather, the process includes reorganization of the existing industries, re-industrialization, and deindustrialization. The objective could be profit-making and competitiveness considerations could prevail over loss-making. It might occur via stockpiling activities flourishing under the state socialist system of soft budget constraints (Haiduk et al., 2004).

According to Linz, (2000), the analysis of economic transition with the concept of dualism is emerged out of the soviet legacy. The choices made over the years by the countries' policy makers explain the different pace at which the inherited economic structure is eroded. And it is replaced by a more market-oriented economic environment in the various post-Soviet countries. Almost, nearly all socialist economies were heavily industrialized. Historically, Industrial Revolution is started in England around 1780. Following the revolution for the last two hundred year many countries real incomes per capita rose, modern world was born and changed world economic history. Since then 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.

Like other countries, Ethiopia has been striving to transform the structure of its economy since the end of the 19th century. Modern manufacturing factories were emerged in the country in the 1920s though a conscious effort towards developing a modern industrial sector did not start till the 1950s. And the sector got momentum since then during which a comprehensive plan to promote industrialization and economic development was commenced (Mulu, 2013). Since then, the successive governments of the country pursue their own respective industrial policy. The three consecutive five years development plans of the Imperial regime (1930-1974) were formulated that the development of the industrial sector and policies and strategies pertinent to materialize it were formulated. The Dergue Regime(1974-1991) and its claimed socialism led to planned means of production, production targets and allocate resources based on the deliberate 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. Later on, the Ten- Year Perspective Plan of the same regime (1984/85-1993/94) sought to promote the production of intermediate and capital goods, and expansion of small-scale industries (Sarah and Mesfin, 2011).

The EPRDF regime, adopted Agricultural Development Led-industrialization (ADLI) as a guiding economic principle which allows and promotes the participation of the private sector in most sectors of the economy. The first decade (1991-99) was marked by various reforms reversing the command economy of the preceding regime. The three phases of IMF/WB sponsored reform programs and the 1998 export promotion strategy were the major policy measures in this regard. Policy reform and adjustment continued of which a full-fledged Industrial Development Strategy (IDS) was formulated in 2002/03(Kenichi, 2009). In Ethiopia one of policy reform and adjustment continued to realize a full-fledged Industrial Development Strategy (IDS) was formulated in 2002/03.

Whereas, the policy dialogue in 2011, on the eighth high level forum of the Ethiopian-Japan Industry stated that industrial performance was less than expected in the PASDEP period, a five year overall development plan of the country from 2005/06 to 2009/10. In this period real GDP grew at an impressive rate of 11.0% per annum on average against the base case target of 7.0% and the high case target of 10.0%. This was the result of overachievement of the agricultural (8.4% against base case target of 6.0% and high case target of 6.4%) and services sector (14.6% against base case target of 7.0% and high case target of 10.0%). In the same vein, ministry of finance and economic development of Ethiopia (2013) demonstrated that compared to the 2010/11 performance of 15 percent and the 2011/12 target of 17.9 percent, the growth rate of the industrial sector in 2011/12 showed short falls of 1.4 and 4.3 percentage points respectively.

The share of industry in GDP remained stable at 13% though the target was 16.5%. In fact manufacturing has stagnated at about 5% of GDP over the last 20 years. The manufacturing industry is largely limited to simple agro-processing activities like; sugar, grain milling, edible oil production, and leather tanning. Industries that might help accumulate technological capabilities and create dynamic inter-industry linkages – such as chemical, electrical and electronics, metal-processing and other engineering industries – are almost non-existent (Altenburg, 2010).Overall, the technological level of firms is very low, even by regional standards. Only 4% of firms use technology licensed from foreign companies, and likewise only 4% have ISO certification, compared to 12% in both cases in Sub-Saharan Africa (World Bank / IFC, 2006).

Ethiopian Economic Association (2008) argued that the Ethiopian manufacturing industries are mired with complex problems of which industries operate with crude technology. They engaged in processing primary commodities and

employing a few hundred thousand unskilled labour. Similarly, the critical constraints related to logistics and transport, access to land, as well as poor public services delivery. MoFED (2013), stated that besides facilitation hinder industries to be effective and competent. To realize a full-fledged industrial development strategy via overcoming the constraint Ethiopian government is showing policy commitment. One of the evidence was the concern given to industrial development and structural transformation of Ethiopia growth and transformational plan II, 2015.

Operationally, major grain farmers were defined as Maize and Teff for this particular study. We consider four Woredas that have relative potential of producing these grains, two Woredas for Maize and two for Teff. The definition of the grain is based on Ethiopian food dish dependency.

The industrial development strategic directions of GTP II include 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 future. In addition the sector is expected to bring significant growth of the manufacturing industry. And, then it can play 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 an 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 serving 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 managed for the furniture industry and again, the existing natural resources, abundant low-cost labor, which gives it a comparative advantage in less killed, labour-intensive sectors like metal product. A favorable climate and the potential for cheap hydro-energy is a guaranty for the countries competitiveness in the stated sector (United Nations Industrial Development Organization, 2015).

Barbara et al., (2013) had done working paper on, determinants to leave agriculture and change occupational sector: Evidence from an Enlarged EU. They have stated the case by separating the determinant in term of pool and push factor. Their result suggests that, younger individuals are more likely to leave farming activities. The largest outflows of agricultural labour are mainly associated with the retirement of people. Self-employed and family workers are generally less likely to leave agriculture. Those with low levels of educations are found to be significantly constrained in entering the non-farm economy. Moreover, labour market conditions at the regional level do matter for switching occupational sector.

Kindeye (2014), had studied Industry and Industrialization in Ethiopia: Policy Dynamics and Spatial Distributions. His study explored the formulation and implementation of industrial policy under the successive regimes of Ethiopia and the sectors inter-regional and intraregional distribution. His research design was a mixed research approach using the analysis of the primary and secondary data. The study revealed that, industrial policy formulation in Ethiopia has undergone several changes across the regimes. The industrial policy menu and practice at one time or another consisted of market-oriented development (under the Imperial era and EPRDF regime), public oriented (under Dergue), foreign dominating industrialization (under Imperial Regime), and domestic ownership (Under EPRDF), and import Substitution Vs export promotion (under all regimes).

Besides this fact, agricultural land is fixed and there is optimum point of technological progress in the agricultural sector. As per capita income increases spending in agricultural output is inelastic and more elastic to service and industrial product. Along with this population number is increasing at alarm rate and return leading fast urbanization.

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 is 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 and it is matter of best written policy government strategy and other countries path of transition. Frequently difficulty of firms and consumer future behavior 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 thematic research paper was designed to investigate possibility of local smallholder farmer's participation on light manufacturing industry development. Will they remain in supplying major grain/Maize/Teff, go for alternative or change their occupation to light manufacturing industry. To address this purpose thematic research titled "sectorial transition dilemma of smallholder farmers to light manufacturing industry in Jimma Zone, Oromia Region, Ethiopia; Evidence from Major Grain (Maiza, Teff) Farmers" was investigated. In the investigation process farmer's transition dilemma to light manufacturing industry, willingness, ability, motive, preference and determinants were addressed.The paper was designed to investigate sectorial transition dilemma of smallholder major grain farmers to light manufacturing industry in Jimma Zone, Oromia Region, Ethiopia.

2. Literature Review

The path of economic development is historically associated with structural transformation of national economies. Economic growth is characterized by patterns of changing shares of different sectors in the national income and labour force. The transition of economy from agriculture to industrialization is characterized by dualism. Dualism is an economy consists of a small manufacturing sector and mainly large agricultural sector (Lewis, 1954). In the larger agricultural sector, the modes of production are more primitive and out-dated. Whereas, the smaller manufacturing sector characterized by features of many modern industrial economy. This dualism split labour market into two parts. Labour in the manufacturing sector is comprised of relatively well-paid and skilled urban workers whereasthe agriculture sector consists full of poorly paid and low-productive rural workers.

In dualism economy the difference is not restricted to the production alone. There is dissimilarity in demographic behaviour, social systems, and ethnic backgrounds. The behaviour of consumer expenditure and consumer savings is different. Another source of variation between large agricultural sector and the small manufacturing sector is the domestic and foreign sectors (Key, 2005). Again the economic transition from the backward agriculture to industrialization is considered as economic development. The transition process is associated with the expansion of the modern manufacturing sectorand, 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 (Lewis, 1958). Of course, Lewis' concept of dual economy is rooted in the classical approach of Smith and Ricardo. They assume, there is almost unlimited supply of labour that keeps wages low and profits high.

The explanation of Barkley, (1990) indicates diminishing and not disappearing differences in production conditions through time that result in the mere attenuation of dualism. Barkley argues that dualism cannot fully elapse since 'some degree of dualism exists in virtually every economy. The examination of the Lewis model with the assumptions of micro foundations, unlimited supply of labour is over, and agricultural sector is fully commercialized results in the elimination of dualism. Structural change is, shifts in the allocation of labor and expenditure across broad sectors of agriculture, manufacturing and services. A number of theoretical explanations of this process have been proposed in the literature. There is little consensus, however, on the relative importance of the suggested mechanisms.

The first classic source of structural change is sector-biased technological progress. If productivity growth in a sector is slow relative to other sectors then the relative price of the sluggish sector increases over time. With sectoral outputs being gross complements in consumption, expenditures and labor shift towards sectors with relatively slow productivity growth. This substitution mechanism, which can be traced back at least to Baumol (1967), is often modeled by combining homothetic cross elasticity of substitution preferences andwith elasticity of substitution less than one together with exogenous sector-specific productivity growth.

The second classic explanation of structural change relies instead on non-homothetic preferences. As incomes rise, households spend relatively less on agricultural goods and more on services. In its simplest form, these income effects are frequently captured by Stone-Geary preferences. To allow both substitution and income effects to operate, he used a flexible specification of consumer preferences. The augmented of these preferences is that introduce to the structural change literature nest other commonly used preference specifications. The extra flexibility helped him to better asses empirically the importance of sector-biased productivity growth (substitution effect) and of the overall rise in aggregate productivity (income effect) for structural change in a broad sample of countries.

International trade is the third channel affecting the sectoral composition of economies. Matsuyama (2009) formalizes an argument that the same underlying forces can have quite different implications for structural change in a closed economy and in an interdependent world. For example, whereas fast productivity growth in manufacturing would lead to decline in the manufacturing labor share in a closed economy due to the substitution effect, in an open economy manufacturing employment can expand because of the specialization according to comparative advantage. This consideration is potentially important given that in recent decades many countries become substantially integrated with the world economy. He therefore embeds his framework in a three-sector general equilibrium model of international trade. He treats agriculture and manufacturing as tradable sectors as in the Ricardian model of services are treated as non-tradable. In order to better capture the impact of openness on sectorallabor shares he allow for trade imbalances both at the sectoral and at the aggregate level.

The last force influencing structural change is represented by changes in relative labor costs across sectors. It is well known that the breakdown of economic activity at a level of broad sectors looks different when measured in nominal terms (expenditure and value added shares) and in terms of factor allocation (labor shares). Buera and Kaboski (2009) observe that quantitative models therefore need to allow for factor cost differences across sectors in order to be consistent with both nominal and realmargins of structural change. In his model, as in most quantitative work on structural change, homogenous labor is the only primary factor of production. Factor costs differentials are therefore summarized by inter-sectorallabor wedges. An open empirical question is the extent to which changes in wedges over time can account for the relocation of real resources across sectors.

2.1 Conceptual Framework

From the above theoretical and empirical literature of the study, the following conceptual framework is developed. Accordingly, conceptual framework is developed for, sectorial transition dilemma of smallholder major grain farmers to light manufacturing industry in Jimma Zone, Oromia Region, Ethiopia.

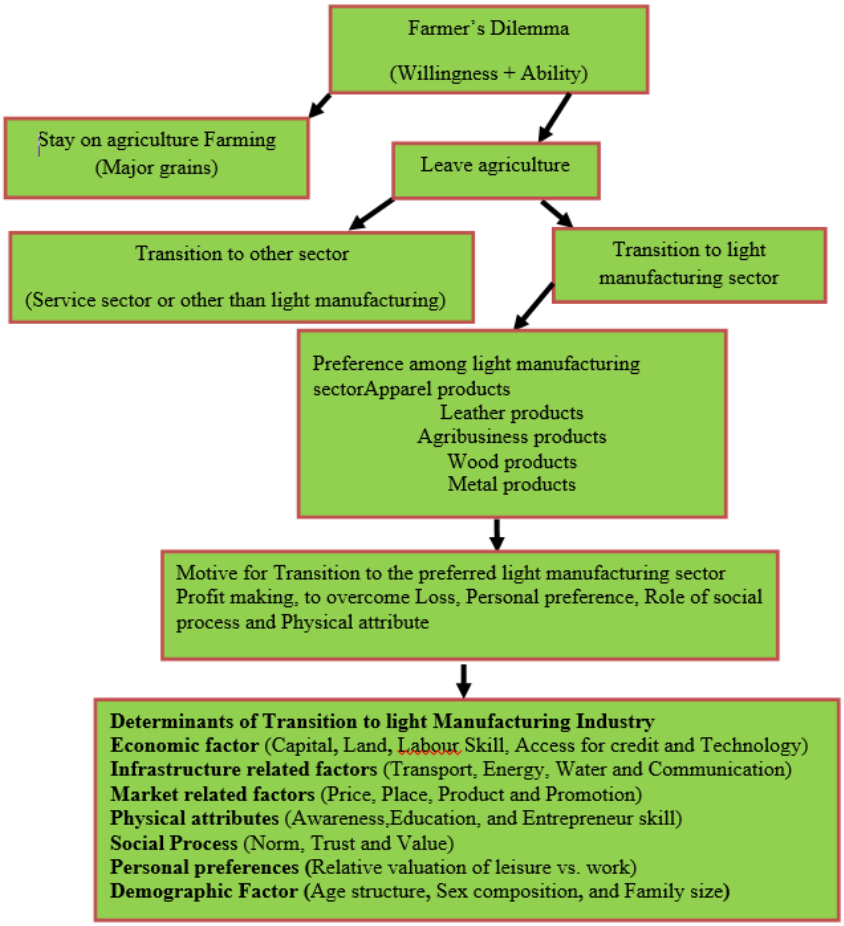

Figure 1.1 Conceptual framework of Smallholder Farmers Economic Sectorial Transition Dilemma to Light Manufacturing Industry

3. Research Methodology

The study was conducted in Jimma Zone, Oromia region, Ethiopia. According to Jimma Zone agriculture office (2017), the zone is divided into 21 Weredas. Jimma zone is hostinga total population of over three million with an agro-ecological setting of highlands, midlands and lowlands. The zone is one of the major coffee, and Khat growing area among cash crops and Maize and Teff among cereal. The area is well-endowed in Oromia region with natural resources and contributing significantly to the national economy of the country. Naturally, the area receives good rain, ranging from 1200-2800 mm per annum.

The approaches employed in this research have both quantitative and qualitative aspects. The quantitative instrument is planned to capture the measurement of quantitative figure or amount. Qualitative approach is concerned with subjective assessment of attitudes, opinions, and behavior. 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. Then, the data was collected using structured questioner.

Both non probabilistic and probabilistic sampling techniques were employed. From non-probabilistic sampling technique the study used two stage purposive sampling.From probabilistic we appliedagain two stage stratified sampling. With this a total of 399 farmers were considered for this study. The analysis of the data contains both descriptive and econometrics techniques. Willingness, ability, preferences, and motive of smallholder farmer's

transition to light manufacturing industry were discussed descriptively. Smallholder farmer's transition dilemma to light manufacturing industry and the determining factor was analyzed using binary logit model.

In this study, the dependent variable was a dummy. Which takes a value of one (1), yes response, for smallholder farmers needs to transit to light manufacturing industry. Or zero (0), no response, for smallholder farmers needs to remain in producing the current crop. The independent variables were both continuous and discrete. There are several methods to analyze the data involving binary outcomes. For this particular study, logit model was selected over discriminant and linear probability models. If the independent variables are normally distributed the discriminant-analysis estimator which follows ordinary least square procedures (OLS) is the true maximum likelihood estimator (MLE) and therefore asymptotically more efficient than the logit model which requires maximum-likelihood method. However, if the independent variables are not normal in their distribution, the discriminant-analysis estimator is not consistent whereas the logit MLE is consistent and therefore more robust (Woodlridge, 2009).

To estimate the transition dilemma of smallholder farmers to light manufacturing sector and the determinants Logit model was specified as follow;

Pi = 1/ (1 + e-Zi) ……. (1)

Zi = β0 + β1Xii + β2X2i + ……..+ βnXni …….. (2)

Pi = 1[1 + e-(β0 + β1Xii + β2X2i + ……..+ βnXni)] …….. (3)

Logit (Zi) = ln (Pi/ (1-Pi)) = $Zi = \beta 0 + \beta 1X1 + \beta 2X2$ + -------βnXn + Un ……... (4)

Pi = Probability of Transit to light manufacturing industry in relation with explanatory variables.

ezi = is irrational number to the power of zi.

Zi = A function of explanatory n variables.

βs = parameters.

4. Result And Discussion

This section presents both the descriptive and econometric result and findings of the study. The study examined Smallholder Grain Farmers Economic Sectorial Transition Dilemma to Light Manufacturing Industry and the Fate of Industrialization Plan in Jimma Zone Ethiopia, Evidence from grain Farmersbased on primary data collected from grain farmers in the study area. The questionnaire was designed in line with the pre-determined objectives of the study and distributed to the sampled respondents. The information given in the questionnaire was checked with semi-structured interview from randomly selected sampled respondents.

4.1. General Characteristics of the Respondents

From the total sampled respondents, the data was collected from 396 respondents. Of the total respondents 365 of them are males while remain 31 of them are females. Regarding the response rate of the questionnaire, 99.74%of respondent returned the questionnaires and around 0.3% of the respondents were not willing to give information because some of them were on work and some others were not available at the time of the survey around their home or village.

Regarding sex of respondents, 307 (77.53%) of them were males and 89 (22.47%) of the respondents were female respondents.

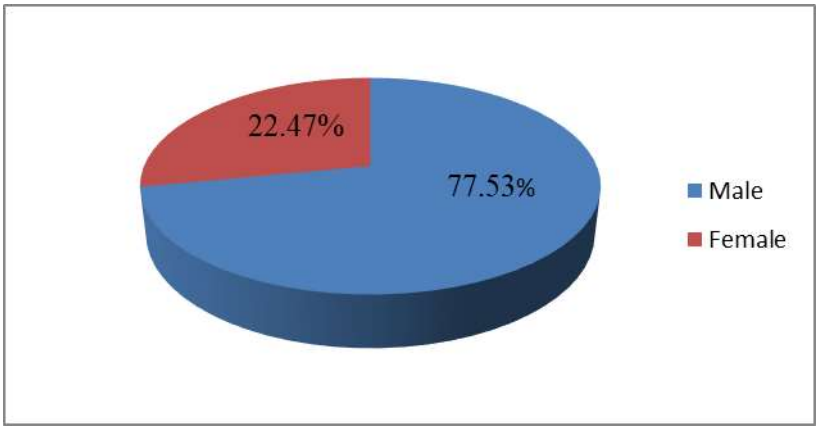

Figure 4.1 Sexesof Respondents
Source: Own Computation, 2018

The total sample result of age distribution depict that 17.57% respondents were between the age 18 to 34 while 44.59% of the respondents are between the age 35 to 55 and 25.68% of respondents are between the age of 56 to 72. From the total samples 12.16% of respondents are above the age of 72. The minimum and maximum age of the respondents is 18 and 73 respectively. The age distributions of the respondents indicate that most of the respondents are in the working or productive age group.

Table 4.1 Age distribution of the respondents

Variable	Obs	Min	Max
Age	396	18	73

Source: own computation, 2018

Regarding Marital status,the sample result show that 82.58% of the respondents were married whereas out of the total respondents 10.61%, 4.04% and 2.78% of them aredivorced, in relationship and single respectively.Education status of respondents show that;35.10% of them were illiterate, 43.43% of them were learned from grade 1to 8 (elementary level) while12. 12% of them are learned from grade 9 to 12and 9.34% of them are having certificate (See table 6.2 and 6.3 below respectively).

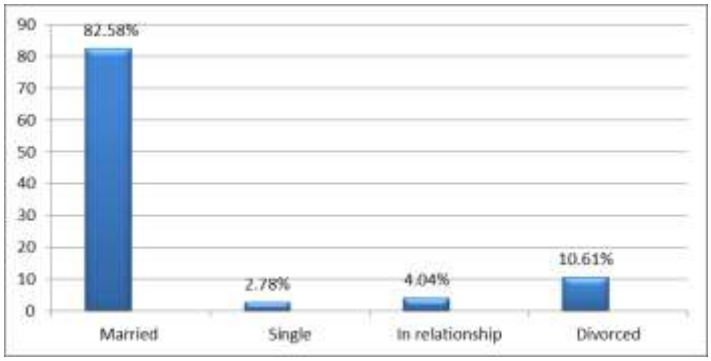

Figure 4.2 Martial Status of respondnets
Source: Own computation, 2018

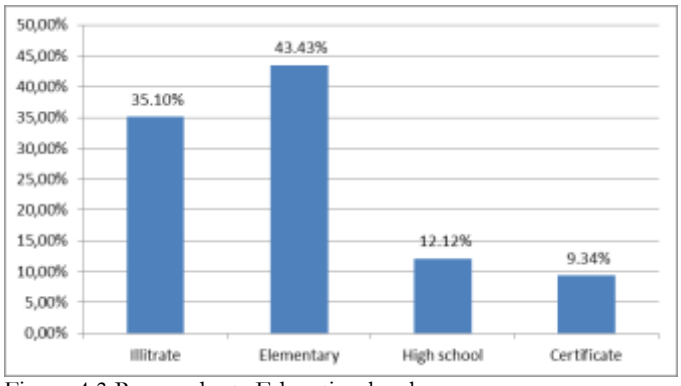

Figure 4.3 Respondents Education level
Source: Own computation, 2018

The respondents' family size ranges from 3 to 14 individuals. The minimum and maximum family sizes of respondentwere3 and 14.

Table 4.2 Family size distribution of the respondents

Family Size	Frequency	Percent (%)
1-5	196	49.62
6-10	151	38.23
11-15	43	10.89
Above 15	5	1.27
Total	395	100.00

Source: Own computation, 2018

On the other hand, regarding the capital status of respondents, the descriptive statistics revealed that, 45.78 % of respondents responded that they have the required capital to transit from the existing sector to light manufacturing keeping other things constant. But 54.22% of respondents were answered that they have no any capital, so that they said that they never think for transition.

Regarding respondents accesses to credit, 72.73% of the respondents said that they have no any access about credit, particularly for high credit which may use for transitional purpose since it requires large amount. As it can be seen from table 4.3 below, only 27.27 % of the total respondents have access to credit regardless of the size of credit. Most respondents, indicated that accesses for credit should not measure with microfinance institution only because their loan size too small and never support transitional plan of respondents.

Table 4.3 Credit service access distribution of the respondents

Access for credit	Freq.	Percent
Yes	108	27.27
No	288	72.73
Total	396	100.00

Source: own computation, 2018

Respondents' awareness to transit from the existing traditional framing to light manufacturing industries was almost to lowest stage. To put it in actual figure, around 93.18% of respondents considered under this study have no at all any awareness about transition to light manufacturing and they said that there is nobody around there who can give such kind of awareness. The data depicts that only 6.82 % of the respondents have such kind of awareness to light manufacturing (see table 4.4 below).

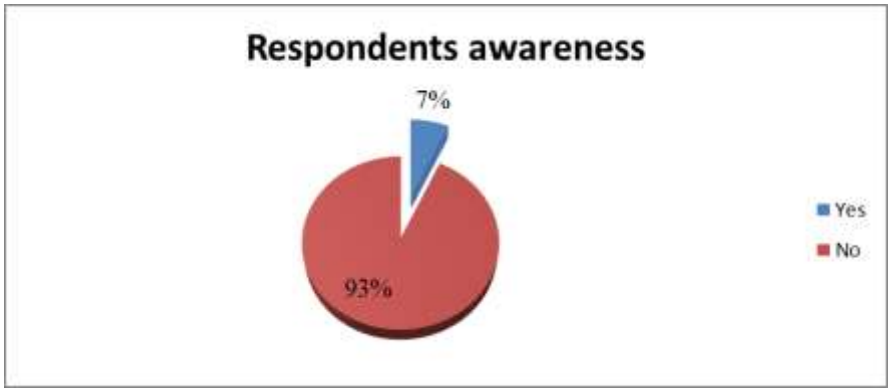

Figure 4.4 Distribution of respondents'awarenessabout transition to light manufacturing industry
Source: own computation, 2018

The descriptive statistics depicts that only 8.33 % and 20% of respondents have entrepreneurial skills and have taken training regarding how to transit to light manufacturing from their traditional farming life. The rest 91.67% and 80 % of respondents told us they didn't have any entrepreneurial skill and haven't taken any training in this aspect respectively (see table 4.4 and figure 4.5 below respectively).

Table 4.4 Distribution of Respondents' Entrepreneurial Skill

Entrepreneurial skill	Freq.	Percent
Yes	33	8.33
No	363	91.67
Total	396	100.00

Source: own computation, 2018

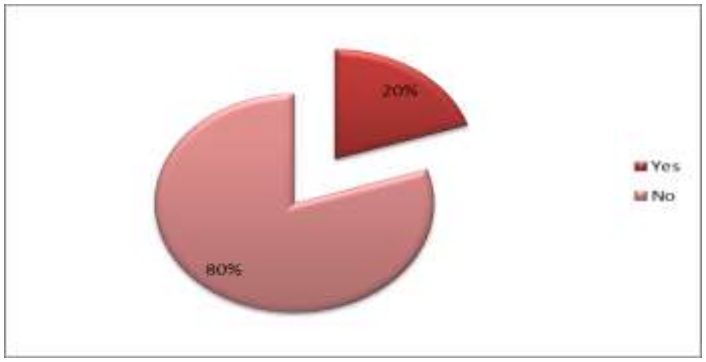

Figure4.5 Distribution of respondents' Trainingabout light manufacturing
Source: own computation, 2018

Respondents were asked about their know-how about different types of technology regarding light manufacturing industries and surprisingly, 83.21% of the total respondents answered that they have no any know how about those technologies. Only 16.79% responded that more or less they have limited know how.
On the other hand respondents were asked which infrastructure related factors may affect their plan to transfer to their preferred light manufacturing and they answered as follows. 64.29%, 89.09%, 78.83% 34.86% of the respondents said that transportation, communication, energy and water supply will significantly affect their transitional plan respectively. From this we can deduce that communication and energy related problems are the most factors that may hinder their transition plan.
Overall, from the total 396 respondents surveyed in this study, 104 respondents (26.26%) responded that they have sectorial transition plan like wood products, metal products and agribusiness products. While 212 (53.54%) household respondents said that they have no any sectorial transition plan particularly to any light manufacturing industries. The remaining 80 (20.20%) respondents said that particularly they have no any sectorial transition plan rather they have plan to diversify their existing farming style.

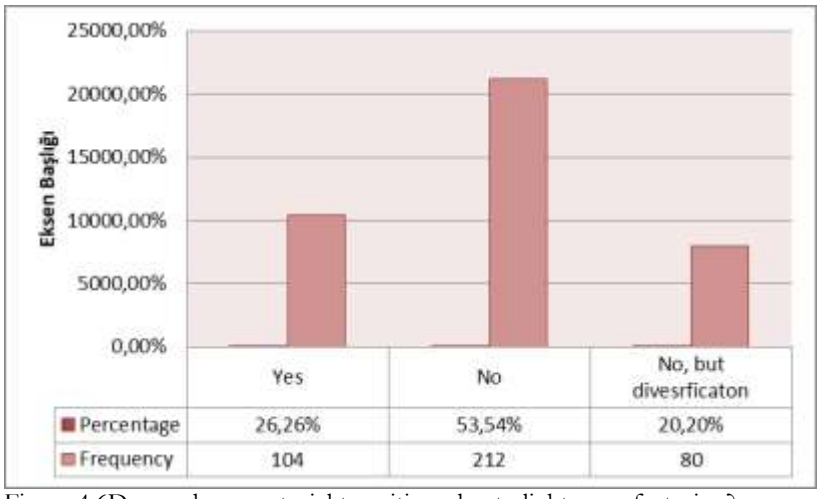

Figure 4.6Do you have sectorial transition plan to light manufacturing?
Source: own computation, 2018

As we asked respondents what is (are) your final motive of sectorial transformation, around 84% of the responded that they have combined motives like profit making, to overcome loss, social pressure to transit from the existing sector, government incentive and personal preference. On the other hand 16% of the total respondents' final motive of transition is only seeking profit making.
88.51% of respondents' choice option was to transit from agriculture sector to light manufacturing sector and 11.49% of respondents' choice was from agriculture to service sector.
Similarly, wood products, agribusiness products, apparel products, leather products and metal products were respondents' first choicesamong light manufacturing industries respectively. Their preference was 37.37%, 21.73%, 16.66%, 14.40% and 9.84%in a descending order as it can be seen from the table below. Wood products and agribusiness was their first choice due to the ease accessibility of woods (dense forest around the study area) and they can easily access agricultural products in the area as they demand.

Table 4.5 Distribution of respondents' preference among light manufacturing

Choice of light manufacturing sectors	Freq.	Percent
Apparel products	66	16.66%
Leather products	57	14.4%
Agribusiness products	86	21.73%
4Wood products	148	37.37%
Metal products	39	9.84%
Total	396	100.00

Source: Own computation, 2018

In conclusion, the descriptive statistics depicts that, small holder farmers' transitional dilemma to light manufacturing almost no any awareness, no know how about technologies, not trained and they have no entrepreneurial skill.

4.2. Estimation Econometric Model

Under this sub-section, the result of thebinary logistic regression model was presented to determine the determinants of Sectorial Transition Dilemma of Smallholder grain Farmers to Light Manufacturing Industry in Jimma Zone, Oromia Region, Ethiopia.

Before looking the econometric regression result, it is better to cheek the fitness of the model usually the problem of heteroscedascity and multicollinearity. Accordingly, the problem of heteroscedascity which is common in cross-sectional data was checked and solved by robustness of standard error before the estimation of the model.To detect multicollinearity problem, variance inflation factor (VIF) was calculated and the result depict that the data had no problems of multicollinearity

4.2.1. Determinants of Smallholder Grain Farmer's Transition Dilemma to Light Manufacturing Industry

The logistic regression model used nineteenexplanatory variables such as age, sex, marital status, capital, family size, land access to manufacturing, skilled labour access, access to credit, price product expectation, place, Technology, Awareness, Education level, Training,Entrepreneur skill, Transport, Energy, Water and Communication.The dependent variable is a binary variable taking a value of 1 if "a farmer has a plan to transit to light manufacturing industry sectors and 0 if not.

Thebinary logistic regression estimate was made to identify factors that affect Sectorial Transition Dilemma of Smallholder Grain Farmers to Light Manufacturing Industry in Jimma Zone, Oromia Region, Ethiopia.Among all variables employed in the model, farmers' sectorial transition dilemma was affected by thirteen variables and six variables were insignificant in affecting their transition plan. Accordingly the logit regression estimate depict that smallholder grain farmers sectorial transition dilemma was significantly affected byage, sex, marital status, skilled labour access, access to credit, price product expectation, place,Awareness, Education level, Entrepreneur skill, Training, Transportand Energy(see Table 6.6 for detail information below). As it can be seen from the logistic regression below Pseudo-R2is around 0.7682 which implies that the variables included in this analysisexplains the model about 77% and the fitness of the model is said to be so nice for such a large cross-sectional data's. Overall speaking, the fitness or goodness of the model is plausible as depicted by Pseudo-R2. So, now we can proceed to the next step of estimating the model since we already fulfilled the preconditions in validating the data.

Table 4.6 Results of logistic regressionmodel

Logistic regression	**Numberof Obs=396**
Log likelihood = -50.028581	LR chi2(19)=331.64 Prob> chi2=0.0000 Pseudo R^2=0.7682

Grain Farmers Transition Dilemma (GFTD)	**Coefficient**	**RobustStd. Err.**	**Z-Statistics**	**P-value**
Age	1.36337	.6833352	2.00	0.046**
Sex	-17.99783	4.876872	-3.69	0.000*
Marital status(Mstat)	4.380758	1.085154	4.04	0.000*
Capital (Captl)	-.1268041	.7667756	-0.17	0.869
Family Size (FS)	1.050867	.6493165	1.62	0.106
Land access (LA)	.49981	.967533	0.52	0.605
Skilled labor access (LSA)	-11.70583	3.17658	-3.69	0.000*
Credit access (ACSc)	-3.142442	1.310998	-2.40	0.017**
Product price expectation (PPE)	-4.144027	1.59332	-2.60	0.009*
Place	-1.150256	.6915548	-1.66	0.096***
Technology(Tech)	.7811438	1.480508	0.53	0.598
Awareness (Awar)	-21.53031	5.722168	-3.76	0.000*
Education (Edu)	3.928719	.7881433	4.98	0.000*
Entrepreneurial skill (EntrSkl)	5.069024	1.553029	3.26	0.001*

Training	-10.92641	2.972873	-3.68	0.000*
Transport (Trns)	2.527803	.9009601	2.81	0.005*
Energy (Enrgy)	-9.476098	3.392518	-2.79	0.005*
Water (Wtr)	.7831606	.8348358	0.94	0.348
Communication (Commu)	1.480444	1.015285	1.46	0.145
_cons	80.58584	26.03889	3.09	0.002

Source: Authors computation from sample survey data (2018).

Asterisks like*, ** and *** are indicating variables that are significant at 1%, 5% and 10% significance level respectively

The equation of the line found from the binary logistic regression output is summarized below as follow;

Logit(GFTD) = 80.58584+1.36337Age-17.99783Sex+4.380758Mstat+3.928719Educ-21.53031Awar-11.70583LSA-1.150256Place+5.069024EntrSkl+2.527803Trns-9.476098Enrgy-10.92641Training-3.142442ACSc-4.144027PPE

As depicted from the above equation, explanatory variables like age, marital status, education level,having entrepreneurial skill and access to transportation services are the variables that positively determine grain farmer's transition decision to light manufacturing industry.

As it can be seen from the above equation, age of smallholder grain farmers were positively related to the chance of transition need to light manufacturing industry in the study area. This depicts that, older smallholder grain farmers are more likely to transit to light manufacturing industry than younger smallholder grain farmers. So that, if age of the smallholder grain farmers increase by one year, on average, thepossibility of grain farmers' transition to light manufacturing industry increases by 1.36337factor.

Again the result of the model indicates that age of respondents was significantly affects grain farmers' sectorial transition plan to light manufacturing industries at 5% significant level. This is may be because of aged grain farmers' may have high interest to change from the existing way of life because they know that the existing grain farming doesn't change their life significantly. Similarly sex of the respondents affects grain farmers' sectorial transition dilemma significantly at 1% level of significance. The implication is that, if the sex grain farmer is male, he has better chance to transform from the existing work to light manufacturing industries. If the sex of smallholder grain farmers is female, then the probability of transition to light manufacturing decreases by 17.99783 units.

Respondents' level of education significantly affects grain framers sectorial transition dilemma to light manufacturing at 1% significant level. As the grain farmers level of education increases their awareness and attitudes towards light manufacturing industries and/or diversification. So, we can conclude that respondents level of education is one the basic determinants of grain farmers sectorial transition to light manufacturing sectors and this empirical finding is also supported by the theory.Respondents' level of education of was directly related to probability of transition to light manufacturing industry. The more educated smallholder grain farmers were more likely to transit to light manufacturing industry as compared to uneducated or illiterate farmers by 3.928719units. The justification is that educations increases the probability of searching and comparing different alternatives and assist to make rational decisions. The value of education is also theoretically supported that, it a key for any positive changes.

Similarly, grain farmers' awareness for transition is one of the major determinants of grain farmers' sectorial transition dilemma to light manufacturing and it affects significantly at 1% level of significance as it can be seen from table 6.6 above. This implies that awareness regarding transition to other sectors particularly, to light manufacturing industries is very essential. Without any awareness nothing will happen because awareness is the beginning for the next action.

On the other hand, entrepreneurial skills and training were the major determinants of respondents'sectorial transition dilemma and both of them affects significantly at 1% level of significance. This is may be because of grain farmers' needs entrepreneur skill to decide and to engage in light manufacturing industries and then to manage them wisely and sustainably. The same is true regarding training, training is very important to have the know-how and the overall characteristics of light manufacturing industries.As it can be seen from the above equation the coefficient of entrepreneur skill tells us, the more entrepreneurial smallholder grain farmer were more likely to transit light manufacturing industry as compared to non-entrepreneurial framers by 5.069024units.

Access for skilled labour, availability of transportation service, energy service, and product price expectation were the major determinants of grain farmers' sectorial transition dilemma to light manufacturing industries and affects significantly at 1% level of significance. The coefficients of access to skilled labour depict that, if the accessibility to skilled labour of smallholder grain farmer increases by one unit, the probability of transition light manufacturing industrygoes down by 11.70583 units. This might be due to different reasons and it may associate with other factors or variables. As it can be seen from the above equation, smallholder grain farmer who have access to transportation services were more likely to transit light manufacturing industry as compared to in access farmers by 2.527803units.

While credit service, and place or distance from the market center were the other major determinants of grain farmers sectorial transition dilemma to light manufacturing industries and affects significantly at 5% level of significance.If smallholder grain farmersaccess to credit increase by one unit, thepossibility of transition to light manufacturing industry goes down by 3.142442factors. This might be due to farmers' unwise or unproductive use of credit services.

5. Conclusion And Recommendation

5.1. Conclusion

From the total surveyed 396 smallholder grain farmers surveyed in this study, 104 (26.26%) farmers replied that, they have sectorial transition plan to light manufacturing sectors like wood products, metal products and agribusiness products. But the largest proportion of the surveyed samplesof which 212 (53.54%) of the respondents said that they have no any sectorial transition plan particularly to any light manufacturing industries. Probably this is because of low awareness, low (no at all) training provisions and lack of entrepreneurial skills. While the remaining 80 (20.20%) grain farmers said that particularly they have no any sectorial transition plan rather they have plan to diversify their existing farming style.Thesediversificationsmight be towards horizontal diversification of the existing sector like form producing few agricultural crops to many crops, vegetable and fruits, irrigation and animal rearing.

The major determinants of smallholder grain farmers sectorial transition plan in the study area was significantly affected byage, sex, marital status, skilled labour access, access to credit, price product expectation, place,Awareness, Education level, Entrepreneur skill, Training, Transportand Energy.

In summing up, both the result of the descriptive statistics was supported by the econometric analysis and all the findings depicts that, small holder grain farmers' sectorial transitiondilemma to light manufacturing industries and the fate of industrialization plan in Jimma zone is at its infant stage. And those smallholder grain farmers have almost no any awareness, no know how about technologies, not trained and they have no entrepreneurial skill.

5.2. Recommendation

Based on the findings of the study, the following policy recommendations were forwarded:-

- The findings of this studydepict that around74% grain farmers have no any plan or willingness to transform to light manufacturing sectors. This indicates that it is against the national government plan of transforming the agriculture sector to different agro or light manufacturing sectors. So that it is too recommended that, government and other responsible body should foster the institutional mechanism that support grain farmers in creating awareness, providing trainings at the grass rot levels.
- More than one third (35.1%) of the sampled grain farmers are found to be illiterate in study sites. However, education has positive impact whether enabling grain farmers to transform from their existing agriculture

sector to light manufacturing industries. Hence, effort should be geared in manner that build farmers capacity through adult literacy program, formal education and with short term training.

- On the other hand from the econometric model analysis, we observed that access for credit service, access for energy and access for transport service were among the major determinants of smallholder grain farmers' sectorial transition plan.Therefore better credit provision, improved and sustainable energy service supply and well-furnished transportation services should be given priority. Taking these actions may open paths one step to smallholder grain farmers' to transform to light manufacturing industries and benefit from it in a diversified way.
- Agricultural Offices should take appropriate measures to ensure its organizational mandates, objectives and commit to benefit smallholder grain framers from its services by providing training, advisory services and continuous follow-up to assist their transformation plan. Linkages with other governmental organizations like trade and industry offices should be made to work cooperatively and address problems.
- In-conclusion, additional researches should be carried out toacquire more empirical findings on sectorial transition dilemma of smallholder grain farmers to light manufacturing industries and the fate of industrialization in Jimma zone in particular and Ethiopia in general.

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