Factors Contributing for the Underdeveloped Agri-Value Chain of Ethiopia

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Abstract

About 85% of all Ethiopians are employed in agriculture. However, Ethiopia stands in the extreme end of the continuum of value chain. Structurally, it means Ethiopian economy is mostly dependent on agricultural product of export commodity like coffee with little to no value addition on the extreme left side of the continuum of value chain, and finished goods import like vehicles on the extreme right side. As a result Ethiopia is characterized by underdeveloped agriculture for subsistence with little to no surplus as the country is continuously engaging in import of wheat commodity from abroad. Based on the survey from 322 respondents of East Wollega Zone, Gudeya Bila Woreda, Gate Canco Kebele farmers, located in the West of Addis Ababa, Ethiopia, factors attributed to the underdevelopment of Ethiopian agriculture are mainly explained by value chain governance dominance in the downstream supply chain, lack of subsidy and hedging to farmers, high logistics cost to market, and low level of mechanization and innovation. Based on the identified factors, the study recommends for provision of subsidy and hedging for farmers, and the need to govern the agri value chain of Ethiopia by setting maximum retail price and equitable sharing of the benefits according to the value addition made by each player in the agri value chain.

Key words: Agri value chain, subsidy, hedging, mechanization, value chain governance.

1. Background and Rationale of the Study

Logistics system should be built and led as a system instead of fragmented activities from source to end. The Logistics system demands the coordination of inbound to outbound logistics activities. About 85% of all Ethiopians are employed in agriculture [1]. However, Ethiopia stands in the extreme end of the continuum of value chain. Structurally, it means Ethiopian economy is mostly dependent on agricultural product of export commodity like coffee with little to no value addition on the extreme left side of the continuum of value chain, and finished goods import like vehicles on the extreme right side. The non-value addition of the export commodity has negatively affected Ethiopian trade balance with limited capacity to generate more export earning as compared to the high end finished goods to be imported to Ethiopia. This requires restructuring the position of Ethiopia in the continuum of the value chain by focusing on transformation of agricultural commodities in to finished goods (high value products) as a branded Ethiopian product in the international trade market and at the same time the production of import substitute finished goods in the industrial parks through domestic assembly or domestic manufacturing of imported goods with local materials. This directly affects the way logistics functions are built across the value chain in the Ethiopian context to shift the value chain position of Ethiopia to the center through additional value added services by logistics companies like third party, fourth party and fifth party logistics service providers[2].

To support Ethiopian value chain, logistics function should be developed in terms of infrastructure, regulation and operation. The logistics function development mainly relies on the way Ethiopian economy is structurally developed. Ethiopian economy is mainly agriculture driven, which is underdeveloped in terms of many aspects; say low value addition, low productivity, low mechanization, no automation (backward technology), low irrigation practice (from household to commercial scale or state farm), lack of innovation, small land size holdings by the household farmers with scattered location that hampers large scale production; little to no support by the government in terms of incentives to the household farmers, no subsidies and no hedging from mostly natural risks to their agricultural products. This underdevelopment of the sector negatively affected the way
Ethiopian economic structure is developed even if sustained double digit economic growth is registered for more than a decade. This structural flaw in the economic development of Ethiopia is characterized by low value of agricultural products at the production site with low return and low wealth creation for the household farmers who actually created the commodity value, contrary to no intrinsic value transformation with high wealth creation at the retail end of the agricultural products in Ethiopia. On the other side of the economy, developed agriculture should lead in to developed industrialization in terms of transforming the inputs to outputs through value addition at manufacturing sites. Contrary to the expectation of economic structural transformation from developed agriculture to developed industrialization in terms of manufacturing and then in turn to service development in terms of trade, finance, and logistics in the value chain; service economy dominated Ethiopian economic growth without development of agriculture, and also manufacturing. The reason behind under developed Ethiopian agriculture in the value chain is explained in the subsequent analysis.

2. Methods and procedures followed for Analysis

2.1. Sample
A cross sectional case observation of farmers in the East Wollega Zone, Gudeya Bila woreda, Gute Canco Kebele, where agricultural products like wheat, coffee, teff, maize, honey, etc. are highly produced. As the number of population in the Kebele are found to be large number (infinite), the sample size considered for this survey is 385. The case unit, Canco kebele, is purposively selected from the Woreda as it is characterized by surplus kebele capable of producing agricultural products that can be stocked at least for two years by the farmers.

2.2. Instrument and measurement
Eleven item questionnaire is distributed to randomly selected 385 farmers in the stated kebele, which is located about 277 km West of the capital city of Ethiopia, Addis Ababa. The measurement used for the factors identified is perception of the farmers on the degree of agreement on the importance of the factors in affecting agri value chain development in that particular area that can be used for generalizability, in a scale of 5. Being, 1 = Strongly disagree to 5 strongly agree, and 3 is the mean score.

3. Analyses and Discussion of Results
Based on the survey, a response rate of 88.6 %(341 respondents), of which 322 questionnaires were correctly and completely filled that can be used for analysis as it is.

<table>
<thead>
<tr>
<th>Factors</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
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<tbody>
<tr>
<td>Agri value chain should be regulated(governed) in Ethiopia</td>
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<td>4.5466</td>
<td>.50481</td>
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<tr>
<td>Farmers are not hedged (insured) in Ethiopia</td>
<td>322</td>
<td>4.3913</td>
<td>.48880</td>
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<tr>
<td>Farmers are not subsidized in Ethiopia</td>
<td>322</td>
<td>4.3882</td>
<td>.49444</td>
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<tr>
<td>Overall, Ethiopian agriculture is underdeveloped</td>
<td>322</td>
<td>4.3634</td>
<td>.54254</td>
</tr>
<tr>
<td>There is low mechanization of agricultural farms in Ethiopia</td>
<td>322</td>
<td>4.3385</td>
<td>.52980</td>
</tr>
<tr>
<td>Agricultural outputs are characterized by high logistics cost to market in Ethiopia and the world</td>
<td>322</td>
<td>4.2081</td>
<td>.40656</td>
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<td>Agricultural farm in Ethiopia is characterized by lack of innovation</td>
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<td>4.1832</td>
<td>.38746</td>
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<tr>
<td>Farm-gate prices for agricultural commodities are underpriced in Ethiopia</td>
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<td>4.1584</td>
<td>.42844</td>
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<td>Value is maximized in the downstream (wholesaler &amp;retailer) agrivalue chain of Ethiopia</td>
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<td>There is low value addition in the agri value chain of Ethiopia</td>
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<td>.67068</td>
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<tr>
<td>There is low productivity of agricultural products in Ethiopia</td>
<td>322</td>
<td>3.8416</td>
<td>.42844</td>
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Valid N (listwise) | 322 |

Source: Own survey, 2019
As depicted in Table 1, based on their experience, 322 respondents were asked to show and rank their degree of agreement on the statements based on the factors that contributed to agricultural underdevelopment in Ethiopia and the responses were analyzed and discussed as presented below.

3.1. Low Value Addition and Inequitable Value Sharing in the Value Chain Governance (mean 3.9, s.d 0.67; and mean 4, s.d 0.64, respectively)

When we look into the agricultural products in Ethiopia, which are oriented towards export trade, items like coffee, sesame, khat, flower, etc; these commodities are traded to the international market at raw stage with intrinsic value. Value addition like conversion, further processing, fabricating, etc are not done on the raw materials to change form, shape, synthesize or mix with other products to produce new products. Rather, as most of Ethiopian agricultural products are not branded at the origin when prepared for export market, they lose track of identity when they reach port of origin like Djibouti. This commodity export transaction gives the buyer exclusive right to ownership to further enhance the value addition of the product. Further value addition on Ethiopian agricultural product by the international buyer will give the benefit of creating a higher value product which is positively correlated with higher price and higher profit margin accounting the cost factors. On the other hand, farmers producing agricultural products up to commodity level with no further processing to add value to the existing product affects not only the amount of profit they generate from the product, but also the cycle time it takes to produce the product which becomes longer at the upstream supply chain as compared to high turnover of the commodity itself in the downstream supply chain players (retailers). Furthermore, the long chain created to trade the agricultural commodity in the domestic market further created inefficiency on the pricing of the product at retail shop as evidenced from seemingly high price to maintain retail margin but artificially kept low to subsidize urban dwellers by the government. This value distribution was drifted to the downstream supply chain (retailers) from the upstream supply chain (farmers) due to agricultural value chain governance problem. The drift in wealth distribution from Ethiopian farmers to Ethiopian traders, which is seemingly unfair, is mainly attributed to small land size holding of the farmer that results in small amount of product supply to the market, and the little bargaining power of the farmers on the price setting as it opens the opportunity for consolidators to exploit in not paying what farmers deserve for the effort they put in creating value for their agricultural products. Instead, they transfer the profit margin that should have gone to the farmer to themselves at the expense of the farmer.

Farmers are the ones who created the intrinsic value, but rewarded less with low price setting from the traders, which made them, remain poor as the profit margin they get from their product is meager to help them accumulate wealth and in turn help invest to modernize their agricultural activities.

Consumers on the other hand are the ones who will ultimately pay for the cost of the product for transaction and other inefficiencies like unnecessary and non-value adding players involved in the chain as brokers without justified value creation to elongate the chain. plus the profit margin that is calculated on top of each cost for each player for which the consumer is the ultimate bearer of the final retail price, which will be added to higher price than expected value added price.

Value maximization to the ultimate customer in Ethiopian context is unthinkable as a firm objective; especially traders of agricultural commodities have the objective of profit maximization at the expense of the farmer and the customer. For example, at one of the

Oromia region in Ethiopia, specific place known as Wollega, traditional lage coffee development takes a farmer 5 years on average to get yield which is to be sold at 60 Birr per kilo. The same commodity will be sold at 100 Birr per kilo at Addis Ababa (the capital city) by a retailer without intrinsic value addition to the coffee. And the same product can be sold at roughly 500 birr per kilo by a traditional coffee shopper at Addis Ababa with the rate of 5 birr per cup of coffee.

To justify why agricultural value chain should be governed in Ethiopia (which requires a regulated market by the government on how wealth is distributed based on the value created on the product), it took the farmer 5 years to produce, which is laborious, high cost of labor which in most of
the case unaccounted for in the Ethiopian context\(^1\), long year of cash to cash cycle time with high degree of risk like low yield, disease, etc and finally sold at the rate of 60 Birr per kilo. The same product is to be sold by the retailer with high profit margin quickly (daily turnover) contrary to 5 years for the farmer. That is why wealth should be redistributed for agricultural commodity. Wealth redistribution can be undertaken by the government policy intervention in two ways: 1) With the objective of value maximization for the customer setting maximum retail price for the consumers, which should be competitive price as perceived by the customer, 2) Considering the contribution that the farmer makes in the intrinsic value creation of the agricultural product, setting maximum profit margin to go to the farmer equitably This will in turn discipline the middle level players to stick to the theoretical lowest profit margin to secure from the agricultural commodity transaction in the entire supply chain activity in the domestic market.

A closer look into agricultural commodity value chain analysis in Ethiopia revealed the following: Considering the supply chain inefficiency created as a result of multiple players involved in the chain without justified activity as a value addition, the current retail price sold to the consumers in Ethiopian market is artificially kept low or subtly low priced by the government at the expense of the farmer. Here is why, almost all rural agriculture carried out at household farmer with small land size ownership is done manually or plough with traditional animals, mostly oxen or donkey for which daily labors and animal costs are unaccounted for (not calculated as part of production cost). In the agricultural sector, labor cost is supposed to be expensive (at least theoretically), as it is laborious and demanding diligence than intelligence, with low conducive work environment. This should be compensated for high pay and accommodation costs for this type of work design. However, in the context in which agriculture is considered as a family business and the family is not paid for its contribution, the production cost is not clearly accounted for, and the farm gate price is set like 60 birr per kilo in the coffee case. That is arbitrary and doesn’t reflect the real cost and profit margin of the product for the farmer. Or it is an imposed price by the trader to keep the price low to help the trader expand the remaining pie from the farmer to take the lion’s share of the profit margin at final selling price to the consumer market. If all costs been accounted for during the long cash to cash cycle from coffee development to harvest and selling time, it is logical to expect the farm gate price of coffee be higher than the current price which will naturally push the current retail price even higher. Therefore, it is safe to imply that, the current agricultural commodities in the retail market in Addis Ababa or major cities in Ethiopia are artificially kept low at the expense of farmer benefit, where they deserve a higher profit margin for their effort in creating the product as compared to other players in the value chain. Or, a viable alternate analysis to this is to subsidize farmer’s effort by the government through value chain governance for the value they created and still maintain the price of agricultural commodities artificially low to appease the urban dwellers.

The actor making the biggest profit is the wholesaler. The farmers have a higher profit per kg of onions, but the fact that they only get three harvests per year makes the annual profit low. The wholesalers have (by far) the highest sale rate and the second highest profit per kg.[3]

Furthermore, value chain development may need a multi-dimensional strategy of awareness creation between all stakeholders, specific nutrition-sensitive extension services, infrastructural and technical improvements and market development as well as political support from the local to the national level [4].

Low productivity (mean 3.84, s.d 0.42): - Value creation at the source, mainly for agricultural products which are the base for manufacturing for value addition, and economic transformation of Ethiopia into industrialization, are characterized by low productivity. As a result, Ethiopian farmer can’t be a surplus producer as an aggregate. Productivity is the ratio of output over input; value over cost; effectiveness over efficiency. i.e; yield per hectare in the agricultural productivity case. As population is growing at estimated rate of 2.42% [5]. And rural land holding per hectare per household
size is decreasing over the passage of time; more output per input is expected to increase agricultural productivity of Ethiopia. Agricultural efficiency is driven by improved seeds, improved cost of financing, skilled labor, productive land size, and the availability of modern agricultural tools. This in turn improves productivity of agricultural products like improved output per hectare. Otherwise, productivity of agriculture cannot increase by changing number by government’s annual plan set in its Growth and Transformation Plan (GTP), which is set between 2010 to 2020 as a five year strategic plan in two phases as GTP I and II [6]. Anomoly to low productivity of agriculture in the Ethiopian practice, being second most populous country in Africa with a population size of over 100 million, which puts more pressure on the government for increased demand for agricultural products. The current population growth is expected to reach over 150 million by 2035 [7]. However, based on the current mode of traditional farming practice by oxen almost in all over the country in scattered and piecemeal basis, which was practiced over the past thousand years with little or no improvement so far, it is naïve to expect improved productivity of agriculture and surplus products from the roughly estimated 20 million household farmers and feed the remaining urban dwellers. As a result Ethiopia will continue to import the basic commodities with hard currency like wheat to feed its growing population. For instance, Ethiopia awarded wheat import worth of 2.2 billion Birr UK-based Promising International and Intrade in 2017 alone [8].

3.2. Low Mechanization and Lack of Innovation in the Agriculture Sector(mean 4.34, s.d 0.53; and mean 4.18, s.d 0.39 respectively):-

Small land size holdings by the household farmers with scattered rural settlement pattern hampers the mechanization (in the form of using tractor, rig, combiner, harvester, etc) of Ethiopian farm in commercial scale, except for the commercial farms. Alternate option for the farmer is therefore, either to innovate on the existing and shared landholding to family descendant to maintain its productivity, or opt for frequent household level irrigation technology based production, many times a year or migrate to urban by leaving the farm space unoccupied.

The study on fruits and vegetables also identified the following horticulture value chain challenges: The main drivers, bottlenecks and potentials for the intensification and/or diversification of fruit and vegetable production include: on the supply side, seasonal constrained production systems, competition with cash crops (mainly coffee), crop damages through wild animals, lack of nutrition-sensitive farming systems, gender division in horticultural production, lack of research and extension supports, marketing problems and non-availability of improved technologies; on the demand side, lack of awareness for nutritional issues, existence of underutilized crops, reluctance to consume indigenous fruits and vegetables and low purchasing power; and on the intermediation side, technical problems with storage, processing and packaging, existence of weekly markets in the nearby towns but with inadequate infrastructure for perishable products, seasonal unavailability of products in the market [9].

The low productivity of Ethiopian agriculture will persist in the near medium term unless there is policy shift in the way the current agricultural operation is managed by the government. This is contrary to the behavior of Ethiopian government as it pursues developmental state where government play active and dominant role in key economic sectors. In the agriculture sector case, government’s role as active player, in conducting large scale mechanized farms and producing large volume agricultural commodities like wheat and maize is lacking, except for the active import of agricultural commodities like wheat and edible oil to fill demand supply gap in the domestic market. There is no evidence that indicates the current government runs large mechanized estate farmers like the practice that prevailed in the 1970s agricultural development units of Wollega state farm, Chilalo Agricultural Development Unit (CADU) and Wolaita Agricultural Development Unit (WADU), etc which was later disrupted, abandoned or improperly handled with lack of clear privatization of their continuation.
3.3. No Subsidies and Hedging to the Farmers (mean 4.388, s.d 0.49; and mean 4.39, s.d 0.49 respectively)

There is little to no support by the government in terms of financial incentives and subsidies for the household farmers, except for the commercial investors. If agriculture is important sector in holding over 20 million household employment including their rural livelihood, which is directly attached to agriculture for a population of over 80 million, special attention should have been given by the government to transform this underdeveloped sector through infrastructure development as initiated by the universal rural road access program (URRAP). Government tax incentive policy should prioritize and incentivize the current household farmers before attracting investment and investment incentives to the agricultural sector as commercial farm. This implies, as a matter of priority, Ethiopia should give tax incentives to buy more tractors than dozers or excavators, or other service sector incentives.

Lack of financing, incentives and subsidies to the large household farmers in Ethiopia has stifled them from wealth creation, which could help them to accumulate money for further investment, to mechanize and modernize their agricultural activity. As a result, most rural farmers continue to pursue subsistent economy with little or no progress in meaningful way in quality of life in general. However, overall economic growth has resulted in a positive spillover effect in improving the quality of life in the rural farmers as explained by rural electrification, accessible communication and roads, including other basic utilities and services (education, health, market, etc).

By its nature, agriculture is a risky business vulnerable to mostly natural risks like fluctuation of weather conditions. Ethiopian farmers depend mostly on rain to conduct their agricultural activity and any deviation of season from expectation results in yield loss or low productivity. As most of the rural farmers do not have adequate capital or credit financing for the next season, they dare risk (entrepreneurial) to access to credit informally through informal loan, which most of the time put them in poverty trap. Besides, lack of working capital during the farm season, the long cash to cash cycle time to get the money back from investment on agriculture, puts the farmers in speculative behavior (again entrepreneurial) to sell their crop in advance while on farm (before harvesting the actual crop) for shortage of working capital or life expenses. In this situation, negotiation is made at individual level, and most of the time brokers buy it at a very low price and sell it at market price in most of the case high profit margin goes to the broker at the expense of the farmer. If there is such a concept entrepreneur in Ethiopia, the only entrepreneurial behavior observed in value creation and risk taking activity that qualifies to the competencies of entrepreneurship, so far I know is Ethiopian farmers. Others rely on the work of farmers to circulate the product in the supply chain, which is more of trading than entrepreneurial behavior in Ethiopian context.

Similar risky encounter was observed by the European Union member farmers and were importers of agricultural products before European Union started to financially subsidize and hedged European Union member farmers that resulted in developed agriculture, developed economy and a surplus region. Such experiences can be benchmarked for Ethiopia, if its economy is to be developed, its agriculture must first developed through subsidizing Ethiopian household farmers, and hedging Ethiopian farmers from market price fluctuation which is controlled by brokers and speculators. Moreover, the government can build large scale warehouses to buy and stock during the hedging period. Otherwise, unlike the developed world, Ethiopia’s dominantly service economy with underdeveloped agriculture will not sustain since it lacks resilience towards agricultural product crises.

3.4. High Logistics Cost to the Market (mean 4.2, s.d 0.4)

Though there is Universal Rural Roads Access program (URRAP) in place to make dry to all weather rural roads access, it is found to be underdeveloped, mostly in accessible infrastructure which directly contributes to the high logistics cost of agricultural commodities to the market.

1. Respondents perceive that Ethiopian agriculture is characterized by its underdevelopment with mean 4.36, and s.d of 0.54).

2. Agricultural commodity maximum retail price (MRP) should be regulated through theoretical wholesale and retail price setting. Among the identified factors for agricultural underdevelopment in Ethiopia, value chain governance issues was identified as first ranked weakest link with mean 4.55 and s.d of 0.5.

Theoretically speaking if traders engage in commodity exchange to the end market at retail shop without further processing of the agricultural commodity bought from the farmer, they should maintain low profit margin as they be compensated for high turnover from quick transaction and economies of scale from consolidation that will keep them safe to earn their profit as they pursue cost led pricing strategy for what they resell. In the context of Ethiopian agricultural value chain governance, the two players in the extreme continuum of the value chain (farmers and ultimate consumers) are the victim

3. Incentivize use of household level irrigation technology

Household irrigation technology is one of the promising opportunities to be capitalized and further developed in Ethiopia to develop Ethiopian agriculture and have surplus agricultural products in Ethiopia.

The second option of gradual migration of the farmers and children of the rural farmers to urban through formal education will open room for vacating free agricultural land for mechanization in the long run, though this may take at least one generation to two generations. Agricultural innovation requires knowledge and financing through established institutions. Agricultural research institutes in Ethiopia are ideal candidates to support Ethiopian agricultural innovation which requires policy intervention by government to adequately finance research institutes to transform the knowledge output from their research to agricultural innovation in the field with successful ones to be scaled up to the viable household farmers

4. Subsidies and hedging to farmers

4.1. Provide financial subsidy and Tax Incentive for Household Farmers

The government could involve in supporting the agricultural sector through; financing (subsidizing) of agricultural inputs like improved seeds and fertilizers, chemicals, etc with, and tax incentives for household farmers to buy modern agricultural tools and farms like tractors through group lending to farmers’ cooperatives or lease financing for farmers’ unions to operate at kebele, woreda and zonal levels in each states of the country

4.2. Provide Hedging for Farmers

If Ethiopian agriculture should develop, Ethiopian farmers like the European Union or US farmers should be hedged (insured) from price fluctuations of their agricultural products. In addition to the financial incentives, and subsidies government should intervene and buy farmers’ product to mitigate the problem of price fluctuation if the market price of the commodity, say wheat falls below the cost of production, government should buy it at set price which accounts for cost of production and agreed profit margin, regardless of current market price. If the market price of the wheat is competitive for the farmer, the government allows the farmer to sell it at market price as far as the profit margin is within the agreed margin range

5. Improve Logistics Efficiency(cost and time)

Rural roads to the farm nodes for agricultural commodities should be accessible and regular logistics services primarily transport, warehousing and financing should be available at least at Woreda, at best at kebele level of rural Ethiopia.

This demands policy makers to shift resource allocation to rural livelihood development, which in turn generates huge employment, rural urbanization, freeing rural space for commercial farming and mechanization that will ultimately increase agricultural productivity of Ethiopia.
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