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Employment effects of the 40% cassava-wheat bread policy in Nigeria; the smallholder model

Abstract

The rate of unemployment in Nigeria was 23.9% in 2012. Unemployment is linked to youth restiveness and crime all over the world. In Nigeria, ethnic militias who are mostly youths are threatening the oil and gas industry in the Niger Delta (southern Nigeria), while Islamic militants are threatening agriculture in the north. The government wants to boost employment and wealth creation in Nigeria using the 40% cassava flour inclusion in bread policy, because cassava is locally grown. The employment effects of the cassava bread policy have not been quantified. Hence, the aim of this study is to estimate the employment effects of the 40% cassava bread policy. Implementation of the policy could create a demand of 1.3 million tonnes of high quality cassava flour (HQCF), which will require about 5.2 million MT of cassava, which has potential local employment effects. Results show that implementation of the policy could create employment for 260,000 persons in the cassava farming enterprise, 43,333 persons for cassava processing to HQCF, and 3,350 persons for equipment manufacturing. Applying the multiplier effect of 2, the implementation of 40% cassava bread policy could create direct employment of 613,366 persons excluding transportation and bread improver's value chains.

Key words

Cassava bread policy, employment effects, unemployment rates,

Introduction

Unemployment is one of the major causes of youth restiveness all over the world today. Youth restiveness has caused major political problems especially in the Middle East and North Africa. In Nigeria, ethnic militias who are mostly youths are threatening the oil and gas industry in the Niger Delta (southern Nigeria), while Islamic militants are threatening agriculture in the north.

Most of the unemployed in Nigeria are youths. Cassava millers (2014) reported that over 86% of the Nigerian population are youth of 35 years and below. The author reported that 86% are either unemployed or under-employed. Unemployment rates are increasing over the years, and were 5.8% in 2008, 11.8% in 2009, 19.7% in 2010, 21.1% in 2011, and 23.9% in 2012 (Elemo, 2013; Olukayode, 2012). It has been reported that unemployment is the root cause of poverty and social devices in Nigeria such as kidnapping/hostage taking, gangsterism, occultism, bank robbery, assassination, youth restiveness and lawlessness.

Nigeria is a large country of 923,768 km^2 with 79 million ha total agricultural land out of which 35 million ha have been cultivated. The total irrigated land is 2,330km. The country rainfall is quite divergent, ranging from 300mm in the north to 4000mm/year in the south. The population of the county is about 167 million people (Mokwunye, 2010). The Federal Ministry of Agriculture and Rural Development (FMARD, 2014a) reported that only 40% of the nation's 84

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million ha of arable land is under cultivation. Agriculture used to be the mainstay of the country until the oil boom of 1970's. Average agriculture share of the nation's GDP was 49.9% in 1961 – 1970, 25.7% in 1971 – 1980, 40.4% in 1981 – 1990, 38.7% in 1991 – 2000 and 41.4% in 2001 – 2007, corresponding to agricultural growth rate of 4.5%, -2.6%, 4.1%. 3.7% and 5.2% respectively (CBN, 2010). Agriculture employs at least 70% of Nigeria's population. The oil industry on the other hand is capital intensive, but employs relatively fewer people, who are mostly expatriates because of the specialized nature of the sector. Hence, Nigeria want to revert to agriculture as a driver for employment and wealth creation especially among the teeming youth population.

In 2011, President Goodluck Jonathan launched the Agricultural Transformation Agenda with the goal of adding 20 million MT of food to the domestic food supply by 2015 and stimulating the creation of 3.5 million jobs along the agricultural value chain. The government is focusing on creating value added products from staple food crops through aggressive import substitution and other policy reforms (FMARD, 2014a). One of the policy drivers that the government want to use to boost employment and wealth creation in Nigeria is the 40% cassava flour inclusion in bread policy. Implementation of the policy could create a demand of 1.3 million tonnes of high quality cassava flour (HQCF), which will require about 5.2 million MT of cassava tubers (Ohimain, 2014a, Ohimain, 2014b, Ohimain, 2014c). Implementation of the policy therefore has potential employment effects. It could create direct jobs in cassava farm enterprise, farm produce/product transportation, processing of cassava flour into HQCF and domestic production or importation of cassava bread improvers/additives. Hence, the aim of this study is to estimate the employment effects of the 40% cassava bread policy, which could aid the Federal house of assembly to pass the cassava bread bill into law.

2 Materials and Methods

It has been well documented that the majority of Nigerian cassava farmers (over 90%) are small scale farmers with land holdings of only 0.5 – 2 ha. Hence, in this study a nominal value of 1 ha/farmer is used for calculation despite the fact that there are few emerging large scale cassava farmers/processors in the country having >1000 ha cassava farm e.g. Obasanjo farms, Nigerian starch mills, Ekha Agro farms and Zimbabwean farmers (Sanni et al., 2009). The production of all these large scale farms are not sold to third party, but are used internally for their own processing.

The full implementation of the 40% cassava bread policy could create a demand of 1.3 million MT of HQCF, which could require 5.2 million MT of cassava tubers (Ohimain, 2014a, Ohimain, 2014b, Ohimain, 2014c). It has been reported that the adoption of improved varieties have increased the yield of cassava from 10.8 to 25 t/ha (Sanni et al., 2009) but a conservative estimate of 20t/ha was used for computation. Most of the 157 existing flash dryers are small scale processing 2-5 tonnes of HQCF daily (Ohimain, 2014a), hence we used 2 tonnes/day for calculation. Notwithstanding, the two large scale plants (DADTCO and Thai Farmer) that produce 60 MT/day each and the government planned 18 processing plants of 240 t/day each.

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Because of the drudgery of cassava peeling, staff strength of 20 is estimated for each of the 2 t/d locally fabricated flash dryers (Momoh, 2011). Economic multiplier effects of the agricultural sector have been estimated to be between 2 and 2.5 (Olukayode, 2012; Knipsacheer et al., 2007), but a conservative estimate of 2.0 was used for this study.

3 Results and Discussion

With a conservatively estimated yield of 20t/ha, it will require 260,000 ha to produce the 5.2 million MT of cassava required for the 40% cassava bread policy (Table 1). If a small scale farmer owns 1 ha of land, the policy could therefore provide employment for 260,000 persons in the cassava farming enterprise. Elemo (2013) estimated employment effects of 283,000 farmers to produce 6 million MT. Cassava millers (2014) estimated that 384,000 job could be created during cassava cultivation.

Table 1: Employment effects of the 40% cassava bread policy value chain

Value chain	Computation	Employment effects
Cassava farming	5.2 million MT tubers 20t/ha	260,000
Cassava processing	5.2 million MT /8 tonnes*/300 working days** will require 2166.7 flash dryers 2166.7 x 20 workers	43,333
Fabrication	It could take 20 workers in a month to assemble a single flash dryer and other equipment $\frac{\text{20 workers x 2010 flash dryers}}{\text{12 months}}$	3350
Flour mills	Existing	NE
Bakery	Existing	NE
Bread improvers	Not yet quantified	-
Bread vendors	Existing	NE
Transportation	Variable depending in distance	-
	Multiplier effect x 2	613,366

*8 tonnes of cassava processed to 2 tonnes of HQCF
**312 working days Monday – Saturday (6) x 52 weeks, but 12 days is reserved for maintenance
NE=No employment

Each of the small scale flash dryers will require 8 MT of raw cassava tubers to produce 2 MTHQCF daily. Computing with 6 working days weekly (Monday – Saturday), there are 312 working days in a year. Though 300 working days was used for computation, while the rest 12 days is reserved for maintenance. Therefore, processing of 5.2 million MT of cassava will require 2166.7 flash dryers of 2 t/day capacity. Each employing 20 workers will generate an employment effects of 43,333. Elemo (2013) estimated that about 3000 SME flash dryers shall be required and with each employing 50 persons could generate 150,000 employment opportunities nationwide.

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Since there only 157 flash dryers installed in the country during the implementation of 5 – 10% cassava bread policies by previous regimes, it therefore follows that over 2000 flash dryers of 2t/d capacity shall be fabricated and installed. This approach can create employment not only for fabrication of flash dryers but other equipment including peelers, graters, hydraulic pressers, sieve and hammer mills. It could also create employment opportunities for equipment vendors especially for the supply of generators/prime overs, gear switches, cables and other electrical equipment. Fabrication of over 2000 flash dryers could create a direct employment of 3,350 persons excluding equipment vendors and suppliers of electrical components. However, this effect is unlikely to happen if the Federal Government facilitates the importation of 18 large-scale (240MT/day) HQCF plants from China (Ohimain, 2014a, Ohimain, 2014b, Ohimain, 2014c; FMARD, 2014b).

Some aspects of the value chain already exist such as flour mills, bakeries and bread vendors. It is unlikely that Nigerians will increase their bread consumption simply because it contains 40% cassava. However, Elemo (2013) estimated that implementation of the policy could result in the establishment of 19,250 additional small scale bakeries employing 7 workers each, which could create employment for 135,450 persons within 3 years.

One aspect of cassava bread value that has not been assessed is the production and supply of bread materials to improve quality (improvers). 40% inclusion of HQCF in wheat bread will require the use of bread improvers such as enzymes, lipids, emulsifiers, hydrocolloids and chemicals. Most of these additives are not produced in Nigeria. There are opportunities both in their importation and domestic production.

Applying the multiplier effect of 2, the implementation of 40% cassava bread policy could create direct employment of 613,366 persons excluding transportation and bread improver's value chains. But many other researchers have reported varying values that are by far higher. May be these estimates contain indirectemployment effects. Cassava millers (2014) reported that the policy could create 6 million jobs with over 5 million new cassava growers. Essiet (2014) concluded that if the 40% cassava bread policy is properly implemented, the new initiativecould create about 3 million jobs within the next 3 years. Knipscheer et al. (2007) estimated that rapid expansion in the cassava value chain can create 480,000 jobs. Anonymous (2012) estimated that the 10% cassava bread policy could create 80,000 jobs. Oludiran (2012) reported that the policy could create 1,600 jobs in the HQCF plants and 250,000 in the expansion of farm. Reports also show that when large scale processors produce cassava flour, starch or glucose, they still rely on out growers for the supply of feedstocks. For instance, 60 MT/day Thai farmers Ltd employ about 1000 cassava farmers and use about ₦ 1 million in the purchase of cassava tubers daily (Ohimain, 2014a). Also, Ekha Agro Farms, which invested ₦ 2.4 billion on a glucose syrup plant is collaborating with over 3000 cassava out-growers for the supply of feedstock to support the factory (Awoyinka, 2009).

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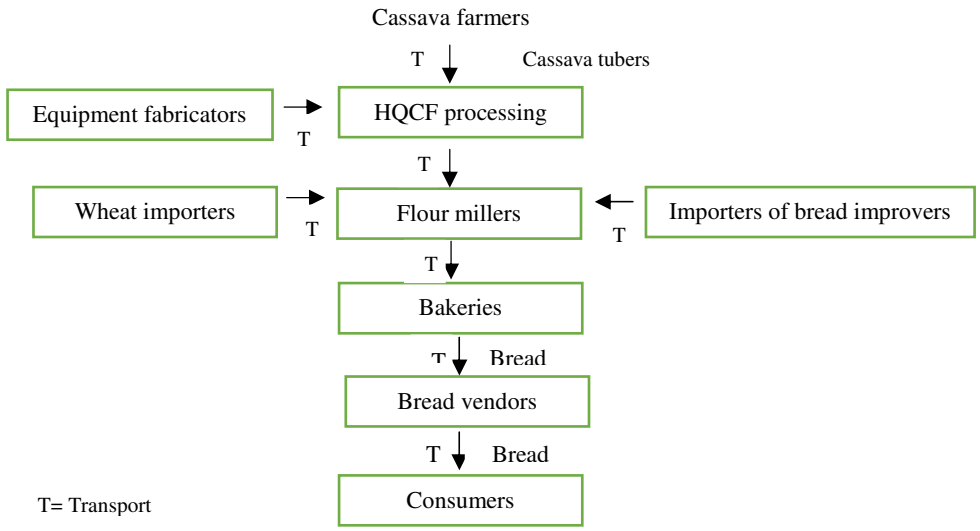

Figure 1: Cassava-wheat bread value chain

Conclusion

Increasing unemployment especially among youth appears to be fuelling crime all over the world. In Nigeria, militant youths are threatening oil exploration in south, while Islamic militants are threatening agriculture in the north. Meanwhile, bread consumption is increasing in Nigeria due to the combined effects of urbanization and changes in lifestyle. But the country is dependent on foreign nations especially United States for the supply of wheat to meet domestic consumption. Food importation has damaging effect on Nigeria's economy causing unemployment, loss of business and loss of foreign exchange. The current government of Nigeria is determined to reverse this trend by implementing agricultural policies that could favour the use of domestic crop particularly cassava, which could boost the local economy by creating employment opportunities. The employment effects of the cassava bread policy have not been quantified. Hence, the aim of this study is to estimate the employment effects of the 40% cassava bread policy. The study revealed that implementation of the policy could create a demand of 1.3 million tonnes of high quality cassava flour (HQCF), which could require about 5.2 million MT of cassava, which has potential employment including 260,000 persons in the cassava farming enterprise, 43,333 persons for cassava processing to HQCF, and 3,350 persons for equipment manufacturing. Applying the multiplier effect of 2, the implementation of 40% cassava bread policy could create direct employment of 613,366 persons excluding transportation and bread improver's value chains. Owing to the huge employment opportunities of the policy, it is suggested that the Nigerian legislature should pass the cassava bill into law.

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