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# IMPACT OF NON-FARM ENTERPRISES ON INCOME AND INEQUALITY STATUS OF RURAL HOUSEHOLDS IN NIGERIA

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**Abstract**
*This study assessed the impact of non-farm enterprises on households' income and inequality of rural entrepreneurs. The fact that efforts made by the Nigerian government to achieve the Millennium Development Goal (MDG) of reducing inequality by 2015 was not achieved, necessitates the need to join the rest of the world in pursuing the Sustainable Development Goal (SDG) of reducing inequality and achieve gender equality by 2030. Hence, the need to examine the potentials of non-farm enterprises in meeting the SDG of reducing income inequality within the country by 2030.The data for this study were obtained from General Household Survey fielded by National Bureau of Statistics in 2015/2016, containing 5,000 households; however, only 2,281 matched observations were used for analyses using Propensity Score Matching and Gini Coefficient. The result shows that the average treatment on the treated nationwide was ₦34, 567.10 per month, while mean income (₦63,461.88) of female participants was higher than that of their male counterparts (₦30,705.64). In all the six geopolitical zones, the impact of non-farm enterprises was significantly felt on household income with South-east having the highest impact of 284.42% while Entrepreneurs in North-east had the lowest impact of 94.07%. However, non-farm enterprises would have contributed 71.52% to household income of non-participants if they had participated in which South-east would have experienced the highest impact of 185.57%. The impact of non-farm enterprises reduced inequality by 19.29% nationwide with higher reduction among the males (23.91%). Also, in all the zones, income inequality reduced with South-west having the highest reduction (18.39%). Therefore, there is need for governments to encourage more females to participate in non-farm enterprises by organising more empowerment programmes.*

**Keywords:** *Non-farmenterprises, Income inequality, Impact assessment, Rural Entrepreneurs, Nigeria*

## Introduction

Inequality in Africa is among the highest in the world, although sub-Saharan Africa achieved an average reduction in its un-weighted Gini coefficient from about 0.47 to 0.43 between 1991 and 2011 (United Nations Development Programme (UNDP), 2017). A defining feature of inequality in Africa has always been the huge rural-urban gap (International Fund for Agricultural Development (IFAD), 2011). It is only by addressing the challenges of income inequality that African countries can achieve progress towards poverty reduction and Sustainable Development Goals (SDGs) since income inequality is a manifestation as well as a strong cause of poverty (UNU/WIDER, 2000; UNDP, 2017).

Income inequality is still on the increase in Nigeria (Oyekale, Adeoti & Oyekale, 2006; NBS, 2010). World Bank data revealed that Gini coefficient was 0.439 in 2010 and later increased to 0.481 in 2017. It was also established that Gini index is higher in the rural areas than urban areas. In 2004 the Gini index of rural areas was 0.5808 while in the urban areas it was 0.5278 but the Gini coefficient converged in 2016 due to stagnation in inequality in the cities and expanding inequality in the rural areas. Inequality is growing at the zonal level as well with the North central region having the highest Gini coefficient of 0.40 (Oyekale et.al, 2006; World Bank, 2016).

The problem of income inequality hasmade the Nigerian government todesign and implement several policies and programmes in order to achieve the Millennium Development Goal (MDG) of reducing inequality by 2015. However, the fact that this was not achieved necessitates the need for Nigerian Government to join the rest of the world in pursuing the Sustainable Development Goal (SDG) of reducing inequality and achieve gender equality by 2030 through targeting of those living in vulnerable situations, increasing access to basic resources and services and supporting communities affected by conflict and climate-related disaster (UNDP, Undated).

Moreover, a number of studies have shown that rural households in sub-Sahara Africa and Nigeria in particular derive their income from a variety of sources, with non-farm activities accounting for a substantial share of total income. A significant number of rural households in Nigeria do not limit labour allocation to agriculture, but also operate and work in non-farm enterprises owing to the seasonality of Agriculture (Reardon, Berdegue, Barrett &Stamoulis2006; Nagler & Naude, 2014). Non-farm income is a source of funds for expansion of investment in agriculture and other households' capital investment. Non-farm activities contain all economic activities in rural areas except crop cultivation, livestock, fishing and hunting. These activities have implications on income and income inequality.

A few studies (Awoyemi, 2011;Sanadza, 2011;Abbott, Murenzi and Musana, 2012;NaglerandNaude, 2014;ScharfandRahut, 2014; Adjognon, Liverpool-Tasie, De La Fuente, Benfica, 2017; Kinuthia, Maende, Baraza, and Mariera, 2018) have been carried out on non-farm enterprises as natoional livelihood strategy but none assessed their effects on the rural farming households in Nigeria using a counterfactual framework. Therefore, this study evaluated the impact of households' participation in non-farm enterprises on income, inequality and examined what would have been the impact of non-farm enterprises on non-participating rural farming household income. These will help to examine the potentials of non-farm enterprises in meeting the SDG of reducing income inequality within the country by 2030.

## Material and Methods

**Area of Study:** Nigeria is a country in West Africa that has a population of about 195.88 million with an average population growth rate of about 2.7%. It occupies a land area of 923,768 square kilometres situated between Longitude 3° and 15° east, and Latitude 4° and 14° north. The country is bounded on the West by the Republic of Benin; on the East by the Cameroon Republic; on the North by Niger and Chad Republics and on the South by a vast coastline of the Atlantic Ocean. The 1999 Federal constitution decentralized and distributed power among the federal, 36 states and 774 local governments. Rural living and agriculture-dependent livelihoods are strongly associated with poverty in Nigeria. While oil dominates the Nigerian economy (generating 70% of fiscal revenues and earnings 90% of its foreign exchange), the agriculture sector employs the vast majority (over 70%) of the Nigerian workforce. Farms are the main livelihood asset.

**Sources of Data:** Secondary data was used in this study.General Household Survey (GHS-Panel) fielded by the National Bureau of Statistics in 2015/2016. The panel component (GHS-Panel) applies to 5,000 households of the GHS collecting additional data on multiple agricultural activities, community and household consumption. The survey covered all the 36 states and the Federal Capital Territory (FCT), Abuja. Both urban and rural enumeration areas (EAs) were covered. However, in this study, only 2, 281 matched observations for rural farming households (Rural Entrepreneurs) were used.

**Analytical Techniques**

The analytical techniques used in this study include: Descriptive statistics, Propensity Score Matching (PSM) and Gini Coefficient.

**Estimating the Impact:** The data were matched using Propensity Score Matching (PSM). The aim of PSM is to find the comparison group from a sample of non-participants that is closest to the sample of participants so as to get the impact of non-farm enterprises on the participants.

The propensity scores were computed using binary probit regression model given as:

$$P(X) \equiv Pr\{D=1/X\} = E\{D/X\} \quad \text{.......................} (1)$$

where, D= {0, 1} is the indicator of exposure to treatment characteristics (dependent variable) That is, D=1, if participating in non-farm enterprises and D=0 if not participating in non-farm enterprises X is the multidimensional vector of explanatory variables which are expected to jointly determine the probability to participate in non-farm enterprises and the outcome. These variables include: zone, state, gender, household size, age, marital status and farm income.

Since the match has been tested for good quality, the study used the matched sample to compute the Average Treatment Effect for the Treated (ATT). This it is estimated as follows:

$$E\left(Y^1 - Y^0 / D=1\right) = E\left(Y^1 / D=1\right) - E\left(Y^0 / D=1\right) \quad \text{------------} (2)$$

where, $E(Y^1 / D = 1)$ is the observed outcome of the participant, that is, the expected income earned if participating in non-farm enterprises and $E\left(Y^0 / D=1\right)$ is the counterfactual outcome - the expected income they would have received if they had not participated in non-farm activities. The counterfactual outcome here represents outcome of the participants since they have similar characteristics with non-participants. Standard errors was computed using bootstrapping method suggested by Lechner (2002) to generate robust standard errors in light of the fact that the matching procedure matches control households to treatment households 'with replacement'.

The impact of non-farm enterprises on household income of participants was analysed using ATT described in equation (2). Also Average Treatment Effect for the Untreated (ATU) was also computed using PSM to examine what would have been the impact of non-farm enterprises on non-participants' income if they had participated.

**Measurement of Income Inequality:** This was determined using Gini Coefficient.

To calculate Gini –coefficient, Morduch and Sicular (2002) noted that where incomes are considered so that particular derive their income from a variety of sources, with non-farm activities accounting for a substantial share of total income. A significant number of rural households in Nigeria do not limit labour allocation to agriculture, but also operate and work in non-farm enterprises owing to the seasonality of Agriculture (Reardon, Berdegue, Barrett &Stamoulis2006; Nagler & Naude, 2014). Non-farm income is a source of funds for expansion of investment in agriculture and other households' capital investment. Non-farm activities contain all economic activities in rural areas except crop cultivation, livestock, fishing and hunting. These activities have implications on income and income inequality.

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**Material and Methods**

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**Table 1: Distribution of Respondents by Socio-economic Characteristics**

| **Variable** | Participants | | Non participants | |
|---|---|---|---|---|
| **Gender** | Frequency | Percentage | Frequency | Percentage |
| **Male** | 1,197 | 88.01 | 753 | 81.67 |
| **Female** | 163 | 11.99 | 169 | 18.33 |
| **Total** | 1360 | 100 | 922 | 100 |
| **Age** | | | | |
| **≤39** | 286 | 19.7 | 145 | 15.7 |
| **40-59** | 660 | 48.5 | 432 | 46.9 |
| **≥ 60** | 414 | 30.4 | 345 | 37.4 |
| **Mean** | 51.85 | | 54.30 | |
| **Standard Deviation** | 14.17 | | 14.77 | |
| Enterprise Activities | Frequency | Percentage | | |
| Mining of Coal, Lignite,Metal Ore and Others | 10 | 0.74 | | |
| Manufacture of Food Products And Beverage | 234 | 17.21 | | |
| Manufacture of Textiles, Wearing Apparel, Leather And Related | 59 | 4.34 | | |
| Manufacture of Wood Products And Furniture | 19 | 1.40 | | |
| Manufacture of Basic Metals, Fabricated Metal And Other | 50 | 3.68 | | |
| Repair And Installation Of Machiner, Electricity And Others | 13 | 0.96 | | |
| Construction of Buildings And Specialised Activities | 28 | 2.06 | | |
| Trading | 712 | 52.35 | | |
| Transportation | 104 | 7.64 | | |
| others | 13 | 0.96 | | |

**Impact of Non-Farm Enterprises on Household Income of Rural Entrepreneurs in Nigeria**

The result reveals that the Average Treatment on the Treated (ATT) nationwide is ₦34, 567.10 per month while mean income (₦63,461.88) of female participants was higher than that of their male counterparts (₦30,705.64) and significant at 1%. In addition, the percentage impact of non-farm enterprises on household income was higher among female-headed households (345.48%) when compared to that of their male counterparts of about 181.88% at 1 percent significant level. Implicit in this finding is that the average impact on the income of the females was higher than that of the national average, which is an indication that non-farm enterprise has tendency of growing income of the vulnerable in the country and can help to meet SDG goal of reducing inequality within the country (Table 2). These findings corroborate that of Adjognonet.al. (2017) that non-farm self-employment are welfare improving.

**Table 2: Impact of non-farm enterprises on household income of participants by gender**

| Gender | Statistics | ATT (₦) | Income of Nonparticipants | %contribution to income |
|---|---|---|---|---|
| **Participants** | Mean | 34567.1 *** | 17155.01 | 201.49 |
| | SD | (3973.435) | 52932.4 | |
| **Female** | Mean | 63461.88*** | 18369.13 | 345.48 |
| | SD | (17974.63) | 37323.67 | |
| **Male** | Mean | 30705.64*** | 16882.16 | 181.88 |
| | SD | (3211.47) | 55859.74 | |

*, **, *** are significant levels at 10%, 5% and 1% respectively. T he values in parenthesis are standard errors

The impact of non-farm enterpriseson household income by zone shows that in all the six geopolitical zones the impact ofnon-farm enterprises onhouseholds' income was significantly felt at 1 percent except in South-west that the impact was significant at 5 percent. The impact (ATT) of non-farm enterprise on household income of South-south zone was the highest (₦65,165.37) followed by that of South-east(₦49,699.92) and households in North-east had the lowest impact of ₦12,187.57 (Table 3). The percentage impact of non-farm enterprise on household income of South-east zone was the highest (284.42%) followed by that of South-south (257.47%)and households in North east had the lowest (94.07%).Also implicit in these findings is that the impact of non-farm income on household income was high in only two zones in the northern part of the country while North east zone had low impact. This could have been attributed to the fact that North-east zone is a fragile zone due to Boko haram and Herdsmen strikes and killings. Also in the southern part of the country south-west had the lowest percentage impact when compared to the remaining zones in the region.

**Table 3: Impact of Non-farm Enterprises on Household Income of Participants by Zone**

| Zone | Statistics | ATT(₦) | Income of NP | % Contribution |
|---|---|---|---|---|
| **NC** | Mean | 39018.89*** | 20750.45 | 188.04 |
| | SD | (3885.968) | 69420.15 | |
| **NE** | Mean | 12187.57*** | 12956.42 | 94.07 |
| | SD | (4096.568) | 37989.31 | |
| **NW** | Mean | 31988.36*** | 23112.88 | 138.40 |
| | SD | (5525.906) | 42611.2 | |
| **SE** | Mean | 49699.92*** | 17474.35 | 284.42 |
| | SD | (8475.581) | 26123.82 | |
| **SS** | Mean | 65165.37*** | 25309.47 | 257.47 |
| | SD | (22086.03) | 53170 | |
| **SW** | Mean | 47874.18** | 32996.65 | 145.09 |
| | SD | (21137.56) | 153907.5 | |

*, **, *** are significant levels at 10%, 5% and 1% respectively. T he values in parenthesis are standard errors

Table 4 presents the impact of non-farm enterpriseson non-participating households' income by gender. The result shows that non-farm enterprises would have contributed 71.52% to household income of non-participants if they had participated. The female headed non-participating households would have contributed 180.88% to household income, which is considered very high, when compared with their male counterparts who their percentage contribution would have been 47.81%. This implies that non-farm enterpriseshad great potential to improve income of the rural households in the country especially that of the females, which invariably will enhance their welfare.

**Table 4: Impact of Non-farm Enterprises on Household income of Non-participants by Gender**

| Gender | Statistics | Income (₦) | ATU(₦) | % Contribution |
|---|---|---|---|---|
| **Non Participants** | Mean | 17155.01 | 29424.64 | 71.52 |
| | SD | 52932.4 | | |
| **Female** | Mean | 18369.13 | 51594.47 | 180.88 |
| | SD | 37323.67 | | |
| **Male** | Mean | 16882.16 | 24953.45 | 47.81 |
| | SD | 55859.74 | | |

Table 5 shows the impact of non-farm enterpriseson household income of non-participating households by zones. The result reveals that in all the six geopolitical zones, non-farm enterpriseswould have contributed positively to household income if they had participated. In all the zones, the non-participating households in North-west zone would have experienced the highest percentage impact of non-farm enterprises(344.29%) on household income if they had participated. Also North-east zone would have experienced the least percentage impact of non-farm enterprises(5.65%) on household income if they had participated. This implies that non-farm enterprises have tendency to increase income in the Northern part of the country. In the southern part of the country, South-west zone would have the least contribution of 7.34% to their household income if they had participated in any enterprise. Similarly, if non-participating households in northern part of the country had participated in any enterprise, they would have positively impacted household income but the percentage contributions of all these zones were lower when compared to zones in the southern part of the country except that of the North-west zone with highest impact. Also implicit in these findings is that non-farm enterpriseswould have great impact on household income in all the zones even including the fragile zones (North-east and North-central). These findings corroborate that of Janvry, Sadoulet&Zhu (2005) that the average income of households that participated in non-farm activities was higher than that of households that only participated in farm activities.

**Table 5: Impact of Enterprise on Household Income of Non-participants by Zone**

| Zone | Statistics | Income(₦) | ATU | % Contribution |
|---|---|---|---|---|
| **NC** | Mean | 20750.45 | 27507.17 | 32.56 |
| | SD | 69420.15 | | |
| **NE** | Mean | 12956.42 | 13688.87 | 5.65 |
| | SD | 37989.31 | | |
| **NW** | Mean | 23112.87 | 40275.98 | 74.25 |
| | SD | 42611.2 | | |
| **SE** | Mean | 17474.35 | 49901.64 | 185.57 |
| | SD | 26123.82 | | |
| **SS** | Mean | 25309.47 | 54721.56 | 116.21 |
| | SD | 53170 | | |
| **SW** | Mean | 32996.65 | 35417.55 | 7.34 |
| | SD | 153907.5 | | |

**Impact of non-farm enterprises on Income Inequality status of Rural Entrepreneurs in Nigeria**

Table 6 presents income inequality of respondents by gender and zone. The result shows that income inequality of non-participants (0.8227) was higher than that of the participants (0.6847). Also, participants in North-west zone had highest inequality (0.7799) followed by South-west zone (0.7756)while South-east had the lowest inequality (0.6122). Also female participants contributed to the highest inequality (0.8515) in North-west zone when compared with their male counterparts (0.6681) in the same zone. These female then had the highest inequality among female participants. This finding corroborates the result of Usman, Ritter and Vinogradov (2016) that income inequality was highest in the North- west zone.

The impact of non-farm enterprises on inequality was felt in the rural households nationwide with 16.77% reduction. Income inequality of male and female participants decreased but that of male (19.29%) decreased much more than that of female (6.44%). However, the impact of non-farm enterprises on inequality was felt in all the zones with South-west having the highest percentage reduction followed by that of North-east zone (15.75%). In the same vein, in all the zones, male income inequality decreased more than that of their female counterparts except in the South-south zone where reduction was higher among females. The implication of this finding is that income inequality is still high among the rural female although reduced due to their participation in non- farm activities.

**Table 6:Income Inequality Status of Respondents by Gender and Zone**

| Variables | Participants | | | Non participants | | | Contribution to total inequality (%) | | |
|---|---|---|---|---|---|---|---|---|---|
| | Male | Female | All | Male | Female | All | Male | Female | All |
| Nationwide | 0.6776 | 0.6904 | 0.6847 | 0.8396 | 0.7379 | 0.8227 | -19.29 | -6.44 | -16.77 |
| North Central | 0.5377 | 0.6856 | 0.6829 | 0.8011 | 0.7785 | 0.7998 | -32.88 | -11.93 | -14.62 |
| North East | 0.6022 | 0.5693 | 0.7112 | 0.8503 | 0.7403 | 0.8442 | -29.18 | -23.09 | -15.75 |
| North West | 0.6681 | 0.8515 | 0.7799 | 0.8049 | 0.4419 | 0.7980 | -16.99 | 92.69 | -2.27 |
| South East | 0.6413 | 0.6122 | 0.6828 | 0.6096 | 0.6181 | 0.6159 | 5.20 | -0.95 | 10.86 |
| South-south | 0.6932 | 0.5231 | 0.7317 | 0.7569 | 0.8035 | 0.7749 | -8.42 | -34.89 | -5.57 |
| South West | 0.6587 | 0.6694 | 0.7756 | 0.9475 | - | 0.9504 | -30.48 | - | -18.39 |

**Conclusion**

This study assessed the impact of non-farm enterprises on income and income inequality of rural entrepreneurs in Nigeria. Based on the empirical evidence emanating from this study, non-farm enterprises contribute significantly to income and income inequality of the participants nationwide and across the six geopolitical zones with fragile zone (North east) having the least impact on income. Non-farm enterprises also contribute to income of both female and male with female having the highest percentage. In the same vein, female non-participating households would have contributed about 181% to household income which is greater than that of their male counterparts (47.81%) if they had participated in any non-farm enterprise. This is an indication that enterprises had great potential to grow income and reduced inequality in Nigeria.

The result also showed that income inequality of male and female participants decreased but that of male (19.29%) decreased much more than that of female (6.44%). This is an indication that rural farming households who will engage in any enterprise have opportunity of growing their income and reduce inequality. In conclusion, non-farm enterprises are income increasing and income inequality decreasing.

Based on the findings of this study and conclusion drawn, the following are recommended: Since female participating households were able to contribute higher rate to household income when compared with female non-participating households if they had participated. Also, income inequality was reduced among women due to participation but that of men was higher. Therefore, there is need for governments to encourage females' participation in non-farm enterprises by organising more empowerment programmes in order to meet the sustainable development goal of reducing income inequality within Nigeria.

The impact of non-farm enterprises on household income and income inequality of zones in southern region are greater than that of the northern part especially the fragile zones (North-east and North-central). This necessitates governments to intensify efforts on the security of northern region so as to encourage more participants.

**References**

Abbott, P. Murenzi, I. &Musana, S. (2012).The Role of Non-farm Household Enterprises in Poverty Reduction, Employment Creation and Economic Growth in Rwanda. *Rwanda Journal Series B: Social Sciences 26: 68-92* ISSN 1014-4874. DOI :http:// dx.doi. org/10.4314/rj.v26i1.4

Adjognon, G. S., Liverpool-Tasie, S. L., De La Fuente, A., &Benfica, R.(2017). Rural Non- Farm Employment and household welfare: Evidence fom Malawi. Policy Research working paper, No. WPS8096. Washington, D. C., World Bank Group.

Aighokhan, B. E. (1999). The Impact of Adjustment Policies and income distribution in Nigeria: An Empirical Study. Research Report, No.5, Development Policy Center (DPC), Ibadan, Nigeria.

Awoyemi, T. T. (2011). Rural Non-farm incomes and Poverty reduction in Nigeria. AERC Research Paper224. African Economic Research Consortium, Nairobi.

International Fund for Agricultural Development [IFAD] (2011). Rural Poverty Report: Enabling Poor Rural People to Overcome Poverty. www.ifad.org/rural/index.htm

Kinuthia, B. K., Maende, S. Baraza, l. &Mariera, F (2018). Off-farm participation, agricultural production and farmer's welfare in East Africa. University of Nairobi, School of Economics. Conference paper

Lechner, M. &Smith, J. (2002) 'Some Exogenous Information Should Not Be Used in Evaluations', mimeo

Morduch, J.,& T. Sicular (2002). 'Rethinking Inequality Decomposition, with Evidence from Rural China. The *Economic Journal* 112:93-106.

Nagler, P. &Naude, W. (2014). Patterns and determinants of Non- Farm Entrepreneurship in Rural Africa: New Empirical Evidence. Paper presented for the Annual Bank Conference on Africa "Harnessing Africa's Growth for Faster Poverty Reduction" Paris, France.

Oyekale, A., Adeoti A.I. & Oyekale, T. O. (2006) Measurement and Sources of Income Inequality Among Rural and Urban Households in Nigeria University of Ibadan. *PMMA Working Paper No. 2006-20.*

Reardon, T., Berdegue, J., Barrett, C., & Stamoulis, K. (2006).*Household Income Diversification into Rural Non-Farm Activities.* Baltimore: Johns Hopkins University Press.

Sanadza, B. (2011) Does Non-farm Income Improve or Worsen Income Inequality? Evidence from Rural Ghana. *African Review of Economics and Finance*, 2 ( 2), 104-121

Scharf, M. M., & Rahut, D. B. (2014). Nonfarm employment and rural welfare: evidence from the Himalayas. *American Journal of Agricultural Economics, 96*(4), 1183-1197

United Nations development Programme (UNDP), (Undated). Sustainable Development Goals.

http://www.africa.undp.org United Nations development Programme (UNDP), (2017). Income inequality trends in sub-Saharan Africa divergence, determinants and consequences htt.p://www.africa.undp.org/content/rba/en/home/library/report/inc

United Nations University/WIDER (UNU/Wider), (2000). World Income Inequality Database.

United Nations, (2018).Sustainable development goals.17 goals to transform our world. Available at www.un.org

Usman, Z. A., Ritter, K.,&Vinogradov, S. A.(2016). The dynamics of income inequality in rural Nigeria. Asian Journal of Agricultural Extension, Economics & Sociology, 11(4), 1-3

World Bank (2016).A short update on Poverty and Shared Prosperity, prepared by World Bank's Nigeria poverty and Equity Team.