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Effect of the Ghana Poverty Reduction Strategy on Employment

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Abstract

Ghana's poverty reduction strategy was fully implemented after the Highly Indebted Poor Country's ascension in 2005. Although the policy had no clearer framework, the aim was to improve people's living standards and then to eliminate poverty. In this thesis, I investigate the impacts of the Ghana Poverty Reduction Strategy across 9 regions on employment. I use a panel dataset of the World Bank's Survey based harmonized indicators data from 1992 to 2013. Using a difference-in-differences regression method, the effects on employment are estimated for each year. Positive effects were observed before and after the program and were significant.

Keywords: employment, poverty, policy, region, government, poverty reduction strategy and Ghana.

1. Introduction

Ghana, since its independence in 1957, has implemented various development policies to combat poverty. Despite being situated between Burkina Faso, Cote d'Ivoire, Togo, and the Atlantic Ocean, there is limited discussion on the political impact on citizens. As of 2021, Ghana's population is 30.8 million, reflecting a decline from 31.07 million in 2020 (World Bank, 2020). The country's economic performance, representing 10.3% of sub-Saharan Africa's GDP, has been commendable, with a GDP of $40.7 billion in 2012 and a GNI per capita of $1,550 (Leechor, 1994).

The stabilization and adjustment program, initiated in 1983, aimed to stabilize employment, especially in the agriculture-dominated labor market, constituting 50% of the workforce. However, macro instability and high inflation in the 1990s prompted reforms with limited effectiveness (Sowa, 1993). In 1999, the government introduced the poverty reduction strategy paper integrated into the economic recovery program, focusing on eradicating poverty nationwide (Imbert & Papp, 2013).

Pramod and Harpalsinh (2020) emphasized the complementary nature of poverty alleviation policies through employment, advocating for simultaneous implementation. Ghana's unique labor market, characterized by high labor participation and low unemployment (World Bank, 2012), serves as the backdrop for the study using the SHIP Harmonized Dataset from 1992 to 2013.

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Employing a difference-in-difference model, the research assesses the impact of Ghana's poverty reduction strategy on employment. Results indicate a positive and significant coefficient, suggesting that the program implementation across nine regions made a slight difference compared to the control region. The study underscores biases in regional-level reforms, aligning with findings by Johnson and Start (2001).

- The study identifies a significant increase in employment from 2005 to 2013 following the implementation of Ghana's Poverty Reduction Strategy (GPRS).
- Despite the observed post-GPRS employment rise, the overall shift in average employment levels before and after the program remains minimal.
- The slight increase in post-GPRS employment is linked to the redistribution of political elites and the diversion of state resources.
- Concerns are raised about biases in policy implementation, with regional-level reforms favoring well-developed or politically influential areas.
- The thesis stands out as a pioneer in assessing the impact of GPRS on employment across all regions, addressing a crucial gap in existing research.

The thesis structure includes a literature review on the effects of Ghana's poverty reduction strategies on the labor market, poverty, economic growth, and evaluation methods. The data description justifies the chosen methodology, and the results confirm regional biases in policy implementation. The concluding section highlights key findings and study limitations. This research is crucial for informing government, policymakers, and stakeholders in shaping effective social development programs, especially given Ghana's economic conditions and potential engagement with the International Monetary Fund.

2. Literature review

The literature discusses various studies on poverty reduction policies and programs in developing countries, emphasizing the importance of targeted interventions. The Millennium Development Goals (MDGs) set by donors have driven many developing countries to implement specific policies aimed at reducing poverty (Emmanuelle et al., 2010).

One notable contribution to poverty reduction literature focuses on Ghana's Livelihood Empowerment Adaptation Program (LEAP), employing a phenomenological approach for qualitative analysis (Nyarkoh et al., 2021). The study finds that LEAP positively impacts beneficiaries' social well-being but notes political interference in the selection of implementation communities.

Examining Ethiopia's Food-for-Work (FFW) program, Barret and Clay (2003) reveal that participation is influenced by household wage levels, challenging the assumption that high-asset households benefit more. Pramod and Harpalsinh (2020) evaluate poverty alleviation policies in India, emphasizing the complementary nature of employment-related policies and the effectiveness of community-based micro-finances with good governance.

Imbert and Papp (2013) analyze the labor market effects of social programs in India, highlighting the crowding out of public sector employment to the private sector. Loayza and Raddatz (2006) assert that unskilled intensive growth sectors contribute positively to poverty reduction, with agriculture playing a crucial role compared to manufacturing in India.

Catalina et al. (2007) use the Shapley decomposition approach to explore the relationship between employment generation and poverty reduction, concluding that the sectoral pattern of employment growth is significant. Lingchao et al. (2021) investigate social intervention

programs in China, emphasizing the importance of off-farm opportunities for rural household income improvement.

Bassanini and Danielle (2007) find that unemployment benefits are not statistically significant on labor productivity. Gender disparities are highlighted by Pitt and Khandker (1998), who show that credit programs in Bangladesh have a greater impact when more women participate.

Not all interventions yield positive results; Rosholm and Skipper (2013) reveal that labor market training for the unemployed in Denmark increased the unemployment rate due to efficient market conditions. Bonnal et al. (1997) evaluate French employment policies, noting that on-job training benefits the young and less educated.

Infrastructure investment is explored by Han et al. (2021) in China, with the conclusion that major infrastructural projects, such as expanding irrigation facilities and rural electrification, improve the income levels of pro-poor households.

Lastly, Omiti et al. (2002) investigate institutional capacities affecting poverty reduction programs in Kenya, revealing spillovers and ineffective interactions among organizations involved in poverty reduction

3. Economic overview and growth trends

In 2012, Ghana's robust economy was the second-best in sub-Saharan Africa, boasting a GDP of $40.7 billion and a per capita GNI of $1,550 (World Bank, 2013). Leechor (1994) hailed Ghana as a policy forerunner after the successful structural adjustment program, leading to annual growth of 5.2% from 1984 to 2010. Despite inflation predictions due to COVID-19, Ghana experienced a sharp decrease to 9.89% in 2020 (Ghana Economic Outlook, 2020). The cedi depreciated by 3.1% in 2020, linked to the pandemic and poor balance of payment management. Ghana's debt to GDP increased to 71% in 2020, raising concerns (Ghana Economic Outlook, 2020).

3.1 *Growth trends*

Ghana's economy showed steady growth until the 2009 global crisis, hitting a low of 4%. The discovery of oil propelled a rebound to 7.6% in 2013. Since 2007, Ghana consistently outpaced other Sub-Saharan African nations, with an annual average growth of 5.8% from 1991 to 2013 compared to SSA's 3.7%. Macroeconomic indicators, including GDP and per capita GDP, surged, leading Ghana to achieve lower-middle-income status (Aryeetey & Boateng, 2016).

3.2 *Labor market and trends in employment*

Over the past three decades, Ghana's labor market has undergone significant transformations influenced by globalization and ineffective government policies. The 1983 Stabilization and Adjustment Program, initially aimed at stabilizing public sector employment, paradoxically led to its decline due to economic imbalances and high inflation. The dominant agriculture sector, constituting nearly 50% of the workforce, faced challenges like job losses and increased informal sector employment. Rigid wage structures, inadequate labor market data, and limited training opportunities hindered job mobility (Boateng, 2004). Despite the private sector offering higher wages, job security was greater in the public sector. Gender disparities persisted, with men dominating the labor force and earning higher wages than women (World Bank, 1995). From 1991 to 2005, job creation averaged 3.2% annually, rising to 4% from 2005 to 2012, driven

by the financial sector, storage, and communication services (Ghana Statistical Service). These complexities underscore the challenges and dynamics in Ghana's evolving labor markets.

3.3 *Poverty Reduction and Growth Facility (PRGF)*

The IMF, in assessing the Highly Indebted Poor Countries (HIPC) program, shifted from the Enhanced Structural Adjustment Facility (ESAF) to the Poverty Reduction and Growth Facility in 1999. This change aimed to formulate more transparent policies focusing on poverty reduction, integrating all macroeconomic aspects for national ownership. The Poverty Reduction and Growth Facility serves as the primary indicator for fund disbursement to HIPC-participating nations, emphasizing targeted disbursement in institutional core sectors for poverty reduction and ensuring total country ownership (IMF).

3.4 *Poverty Reduction Strategy Paper (PRSP)*

Introduced in 1999, the Growth and Poverty Reduction Strategy (GPRS) aimed to connect debt relief with poverty alleviation. Facilitated by the World Bank, IMF, and domestic stakeholders, it focused on macroeconomic indicators and multi-year plans for growth and improved living standards. The GPRS prioritized employment to normalize the economy, officially integrating into the government's economic recovery program in 2002, emphasizing sectors like agriculture, mechanization, and manufacturing (Noel, 2002).

Other key areas were:

i. Prioritizing micro and small-scale enterprises;

ii. Ensuring a high rate of women's absorption in the labor market;

iii. Prioritizing entrepreneurship among the youth.

3.5 *Regional implementation of GPRS*

In pursuit of growth targets, the government allocated relief funds to various regions, prioritizing the poorest ones. While Greater Accra was initially excluded due to perceived resilience, 4% of the funds were allocated to it. The remaining 96% supported infrastructure, capital development, and SME loans in other regions. Despite criticism, some stakeholders questioned the GPRS program's inclusion in the economic recovery plan, arguing its lack of clear job creation modalities.

4. Research methodology

4.1 *Data and model*

The main source of data in the analysis is from Ghana's living standard survey but for the purposes of this research, I used the World Bank SHIP Harmonized Dataset.

The harmonized datasets are compiled with three sub-data files to form harmonized variables with the same variable names. Data files include; basic information of individual's such as education, sex, and age, termed as individual file levels. The second sub-file data contains the labor force indicators such as employment, unemployment, sectors of employment, etc., and lastly, household-level characteristics including marital status and spouse, etc.

Regional individual levels are the unique identifier. Regions are group of districts joined together located in a certain geographical area within the country. Some regions entail a lot of districts, thus more populated than others.

There are 10 regions in Ghana. GPRP program is applicable only to individuals living in treated regions namely; Western, Central, Volta, Eastern, Ashanti, Brong Ahafo, Northern, Upper West, and Upper East. The Greater Accra region is excluded for the purposes of this research. One major challenge was the lack of wages data across the various regions. This could be due to the reserve nature of individuals, feeling reluctant in declaring personal salary income.

Moreover, a lot of the countries located in the Sub-Saharan lack sufficient employment data. Wages data collections are insufficient hence making it difficult in assessing employment effects on poverty. This is due to less clarity on cause and effects alongside supply and demand data collections (Arjan & Laiera, 1997).

I used the difference in difference strategy as a replica of Imbert and Papp (2013), to compare changes in regions that GPRS was implemented to changes in regions that later received the program. The program's objective was to improve the living conditions of people through social infrastructure and employment. This paper considered the implementation of the GPRS in 9 regions, with the exception of the country's capital, which was more resilient in economic growth and poverty survey lines. From the sample of 10 regions, I compared 9 regions that received and benefited immensely from the GPRS implemented in 2005 to a region that did not benefit on the paper phase.

The pre-period before the program is 1991-1992, 1998-1999 and the post-period after the program is 2004-2005, 2012-2013. The pre-period contains two panel years, as well as the post-period. This does not mean our results on employment and wages were driven by seasonal fluctuations but by a lack of additional variable before and after policy implementation. Unfortunately, data on wages were not found across the years and this affirms the assertion that wages data collections are insufficient in most Sub-Saharan countries hence making it difficult in assessing employment effects on poverty (Arjan & Laiera, 1997).

The major difference between Card and Krueger (1994, 2000) and this paper is the absence of wages variable from my data moreover, Krueger and Card collected the data on a specific classified industry thus Food industry and further chose fast food joints whereas my paper uses secondary data survey across all ten regions in Ghana.

Card and Krueger (1994), were the early authors who used DID model to estimate the employment effects on minimum wages. I begin with the model framework including some notations, model estimator, and assumptions. The difference in difference model takes into effects the mean probability outcome of before and after treatment minus the difference in the probability mean outcome of before control group and after treatment (Raul, 2020).

$$Y_{ist} = A_s + B_t + \beta D_{st} + \varepsilon_{ist}$$

Y_{ist} = Outcome of interest for individual (i) living in a region (S) at time t;

A_s and B_t are fixed effects for regions and years respectively;

ε_{ist} is the error term;

D_{st} is a dummy taking the value of 1 for regions affected by the GPRS program, after the reform and 0 otherwise.

The goal of this evaluation is to find out the effects of GPRS treatment, D, on the outcome y.

Consider, y_{1i} as the individual outcome with treatment, and y_{oi} is the outcome with no treatment. Thus, reform's impact on individual outcomes is $\Delta_i = y_{1i} - y_{oi}$. Since individual effects

cannot be observed in both outcomes, y_{1i} & $y_{0}i$, it's difficult to simplify terms hence the use of means.

$$\mu DD = \bar{Y}^{T}_{1} - \bar{Y}^{T}_{0} - (\bar{Y}^{C}_{1} - \bar{Y}^{C}_{0})$$

Where $\bar{Y}^{T}_{0}$ = pre Treatment

$\bar{Y}^{T}_{1}$ = post- treatment

First difference is Post – Pre treatment $\bar{Y}^{T}_{1} - \bar{Y}^{T}_{0}$

Also, $\bar{Y}^{C}_{0}$ = pre control

$\bar{Y}^{C}_{1}$ = post control

Second difference is Post – Pre control $\bar{Y}^{C}_{1} - \bar{Y}^{C}_{0.}$

5. Results

For the sample, approximately 155,324 people were captured by this paper. Table 2, shows that 49% constitute the adult population ranging from 18 years and above according to the constitution of Ghana. With 48.3% of respondents being males and a mean age of 24yrs. In addition, 74% were noted as educated, thus, all respondents who have ever sat in a primary class or junior high school but did not complete or graduate were coded as literate. Also, 75.8% were captured as either married before or currently married. The table also show that 82% of the respondents were in the labor force.

From the distribution bar graph Figure 1, the Ashanti region recorded the highest gender percentage, with 8.2% males and 8.9% females. However, Greater Accra which serves as the nation capital was second with 5.5% being males and 6% females. This was followed by the eastern region,5.2% males and 5.5% females. The region with the lowest gender percentage according to the data used was the Upper east region. Geographically the region is the smallest among the regions, making this result indifferent. Male percentage was 2.7% as equal to female percentage 2.7%. The Northern and the Upper east regions recorded a balanced gender percentage 5.0% and 2.7% respectively. Whilst the Central region shown higher ratio of gender.

Figure 2 shows that, before the implementation of the Ghana poverty reduction program, the upper east (smallest region) and West region had gender-balanced populations of 1.4% and 2.6% respectively constituting both males and females. The Ashanti region, the highest population according to the data and the second commercial business city after the capital, had 91% of respondents being females and 81% males signifying 10% gender differences. The Greater Accra region, (capital) constituted 62% of female respondents and 55% of males.

In contrast, between 2005 to 2014 after the full implementation of the program, none of the 10 regions attained a gender-balanced. The central region had the lowest number of respondents of which 35% are males and 32% are females. The number of respondents decreased compared to previous years in Figure 2. The Ashanti region maintained the highest respondents score however with a slight decrease in respondents, thus 87% females and 83% males. The capital region, Accra also had a decrease in respondents,59% being females and 56% males.

The reason for the differences in the number of respondents across each study year may not necessarily be a general population reduction between the years nor could it be because of the implementation of the program. These differences may be due to the discretion and data strategy of the primary investigators that is, Ghana statistical service and producers (World Bank) during the data collection.

5.1 *Educational attainment distribution*

Figure 4 shows that, among respondents in the regions, Greater Accra region had the highest respondents of 2.5% who had attained higher education such as the universities, vocational/technical institutes or even Secondary school. The region thus, scored 3% being the lowest percentage of no education. This result is due to the cosmopolitan nature of the capital region with a lot of social amenities and infrastructures, business opportunities and jobs wildly opened to higher educators. Moreover, other people migrate from different regions to Greater Accra in search of greener pastures.

The Ashanti region which is the second largest business region had 2.1% of higher education attainment. However, the region recorded the highest respondents with low education. This means that, 9% of the respondents in the region were either drop out from primary, junior high school or had only completed lower secondary, primary or formal adult education. The three Northern regions namely: North, Upper east and West recorded the lowest high education attainment with 0.3%, 0.2% and 0.2% respectively. Also, the Northern region had 7% of respondents who never got formal education thereby being the highest among the regions.

Education is inevitable in every facet of development. Thus, any region with higher or lower education has direct and indirect effects on social development. From the period 1992 to 1998 as shown in Figure 5, the greater Accra region recorded the highest educated respondents at 19 percent.

Low educators, respondents who have their maximum education ladder to junior high school recorded 62 percent and 35 percent had no education. The Northern regions namely, Northern, upper East, and West recorded the lowest respondents with high education; 2%, 1%, and 1% respectively.

The Ashanti region recorded the highest number of respondents with an education up to junior high school. Figure 6 shows that from 2005 to 2013 the Greater Accra region had an increase in high education rate from 19% to 32%. The Northern regions though recorded the least high education however, the rate increased to 4%, 3%, and 3% compared to the periods from 1992-1998. The Northern region had the highest number of respondents with no education.

5.2 *Industry classification*

From Table 3 and Figure 7, the sample shows that 64.5% of respondents were engaged in Agriculture and fishing sector. This confirms that agriculture is the mainstream job in Ghana and most African countries. Secondly, the commerce sector which includes, retailing, small and medium scale enterprises, etc. constituted 15% of respondents whereas 7.4% classified under the manufacturing sector. The remaining 13.1% forms other primary jobs of respondents such as, Mining, Electricity, and Utilities, Construction, Transportation, storage & communication, Finance, insurance &real estate, service; Public administration etc.

5.3 *Share of employment and unemployment*

I constructed a proportionate test to ascertain the share of the outcome variable employment in the treated and control group. The proportion of Employment subjects coded as '1' in the treated regions and unemployed '0' in the control region.

Ho: There is no difference in proportion or share group

Ho: diff = 0

Ha: There is difference in proportion group for employment

Ha: diff < 0	Ha: diff! = 0	Ha: diff > 0
Pr(Z < z) = 0.0000	Pr(|Z| > |z|) = 0.0000	Pr(Z > z) = 1.00

The p value is significant from the test. Thus, 59.5% share of the treatment group were employed whiles 51.7% are unemployed in the control group. This depicts the change in employment and unemployment after the introduction of GPRS program as shown in table 4. Also from Figure 8, before the implementation of the poverty reforms, the mean employed from 1992 and 1998 in the nine regions was higher than the control region. However, the difference in mean employed between the treatment and control region is not much. After the reforms, 2005 to 2015, the graph shows a slight mean difference between Greater Accra (Control) and the rest of the regions.

6. Discussions

From Table 5, the results show that prior to the implementation of the GPRS, employment in the treated regions namely, Western, Central, Ashanti, Volta, Brong Ahafo Northern, Upper West and Upper east is 0.583 higher than in the control region of Greater Accra, which is 0.523.

The difference of 0.060 on average between the treated and the untreated regions is statically significant, but still closed to the control region. This can be due to centralization located in most developing countries where biggest firms are strategically located in the capitals. In most cases, growing businesses will establish their headquarters in the cities compare to less – productive companies who prefers smaller cities for cost of production (Lewis, 2013). Also, employees located in the capital cities may receive higher wages than in other cities because of the high productivity of the former due to proximity or access to services, as well as higher education rate. The results from the data could also be attributed to most people living in less developed areas in the early 90s.

The World Bank (2016) reported that in 1991 about 70% of Ghanaians lived in rural areas. The rural area in this context is defined as an undeveloped demographic space lacking basic necessities such as electricity good roads, health care and school. Another factor for the slight differences between the regions treated and the control region may be due to regional inequality in the distribution of resources motivated by political machinations.

After the implementation of the GPRS policy, the Employment average increased from 0.583 to 0.586 in the nine regions treated, while employment fell from 0.523 to 0.512 in the control region. The post-implementation employment difference between the treated and control regions increased slightly from 0.060 to 0.074. The result is also statistically significant.

After estimating the difference-in-difference using a regression model in differences as shown in Table 6, the coefficient beta$_0$" as constant is statistically significant which means that untreated region known as control group mean is statistically different from zero. Also, the coefficient of beta (1) $\beta 1$ which is the treatment group is significant signifying that the mean employment in treatment group is 5.9% more than in control group.

Moreover, the coefficient of beta (2) $\beta 2 = -0.01$ is not different from zero. This suggest that; there is a decrease in employment in the control group from the first and second periods hence, there is no significant change in the control group. The difference-in-difference estimator $\beta 3$ is equal to 1.4, which means that after the treatment, employment for all the nine regions known as our treatment group shown a rise in employment with an average of 0.014 which is also significant.

I check over time correlation within the regions where GPRS is implemented, show all estimates with robust standard error remodeling for clustering in the regions. Standard errors increase by cluster region estimate as shown in Table 8 and 9. Also, I added two similar regions in terms of gender namely the Volta (coded 4) and the Eastern Region (coded 5) to the Greater Accra region as control group. When individual characteristics are gender-based, policymakers can allocate resources efficiently (WHO, 2019). The intuition is that perhaps Greater Accra was probably excluded from the GPRS due to gender differences thus the introduction of additional regional dummies as controls will prove. The difference in average employment of control and pre-program regions is insignificant compared to the results in Table 5, but the post-treatment outcome was significant.

More so, the inclusion of two similar regions to the control group caused a rise in coefficients and attenuates standard error. Thus, the coefficient makes insignificant, Unlike Kurt and Card (1994), which, in addition to the region dummies, had reduced coefficients and increasing standard errors. This implies that, the addition of the similar regions as a control group, namely Greater Accra, Volta and Eastern proves and confirms that, the exclusion of Greater Accra from the program was not due to gender balance in the region as shown in Table 10 and 11.

6.1 *Robustness check*

Specification test (Placebo)

I performed robustness checks on the previous estimates: a "placebo treatment group." The purpose of the test is to provide evidence that the marginal positive effect in the previous estimation is as a result of the implementation of the GPRS program. and not any unaccounted exogenous shocks in the country's economy before the implementation of the program. The placebo treatment test is an additional difference-in-difference estimation where we estimate a false or fake group that was not affected by the GPRS program (Gertler et al., 2016).

The methodology of the robustness check is that; I limit the treatment period from 2005 to 1998 with the assumption that, after estimation of the comparison group, estimates of the impact should be similar to the original regression results hence, satisfying the equal trend assumption. From the Table 12, the results show a similar trend in employment before and after the program.

First treatment before reform showed a difference of 0.068 between the treated and control group. The second treatment also showed a similar trend in group difference which is 0.072 employment resulting in 0.004 employment difference which is close to zero, validating my assumptions.

The results from the linear regression in the table 13 further show a similar employment trend. The constant and beta 1 coefficients are significant, whereas the beta2 coefficient is negative, explaining a decrease in employment in the control group. Also, the significant estimator of beta 3 (Diff-in-diff) confirmed the result.

7. Conclusion

In this thesis, I investigate the effects of the implementation of Ghana's Poverty Reduction Strategy implementation on employment distribution in selected 9 regions. I used the World Bank SHIP Harmonized Data set of Ghana with panel data of 1992 to 2013 because of its simplicity and structure. The objective of this paper is to assess an impact of a policy; thus, I used difference in difference model in my analysis.

The GPRS program treated in nine regions is compared to one region as untreated. Prior to the implementation of the GPRS the estimates show a significant and positive coefficient. Moreover, I find it positive and statistically significant from 2005 to 2013. The result implies that after the implementation of the program, the average employment increased slightly compared to years before the program. But the results further proved that the average employment before and after GPRS program was in negligible.

This result of slight increment of average employment could be attributed to the redistribution of political elites and the diversion of State resources (Abdul, 2012). Also, regional level reforms and policy implementation are often associated with biases towards well-developed or politically influence areas (Johnson & Start, 2001; Pramod & Harpalsinh, 2020). The estimates were passed through various robustness checks and proved that my methodology was not affected by selection bias. The main contribution of this thesis to the literature is the assessment of the impact of the implementation of the Poverty Reduction Strategy in Ghana on employment in all regions.

Few papers have discussed the impact of the program on Poverty thus, this thesis will be one of the first papers to be conducted on employment across the regions.

The limitation of this research is the lack of data on wages to complement employment. The initial proposal was to find the reforms impact on both employment and wages as similar to Krueger and Card (1994) paper but lack of data restricted my research. I used placebo as a robustness test, which is explained by Gertler et al. (2016).

I argue that my results are also robust, as estimates and effects change slightly after the treatment year has been changed to an earlier year. This paper has shown that the implementation of GPRS across the nine regions was significant, albeit less differences in average employment.

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Figures and Tables

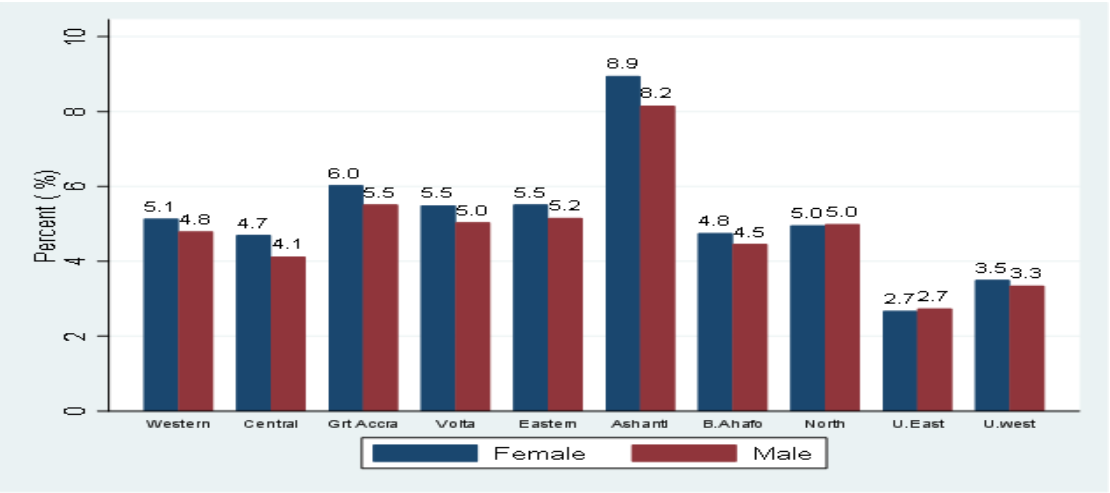

Figure 1. Gender Distribution across Regions from 1992 to 2013; SOURCE: WBH Data (GLSS 1992-2013)

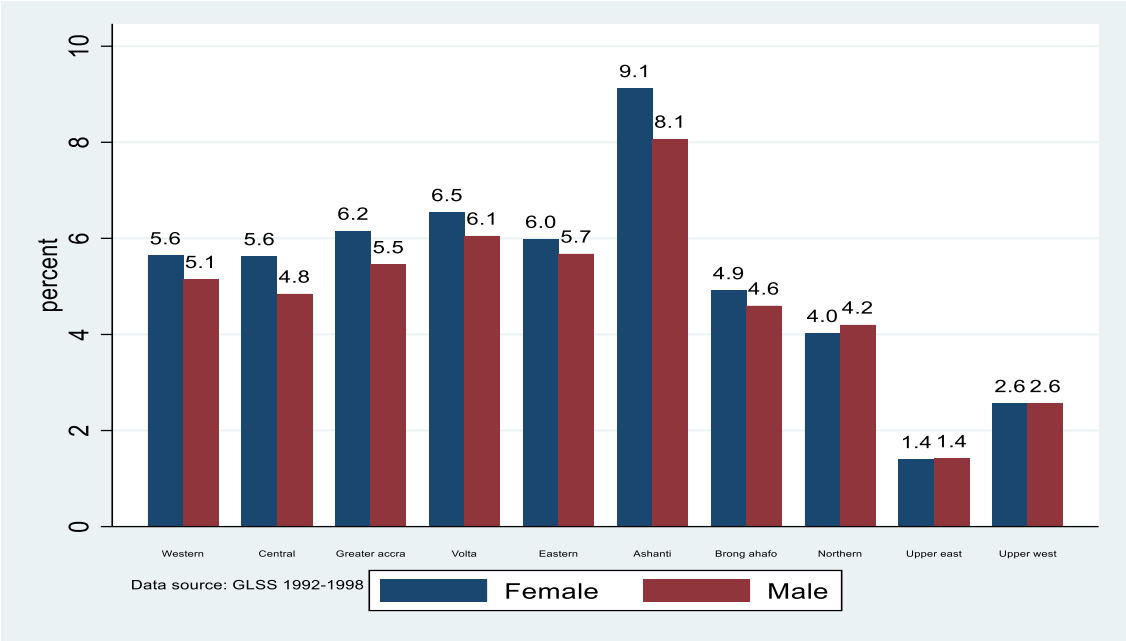

Figure 2: Gender regional distribution from 1992-1998

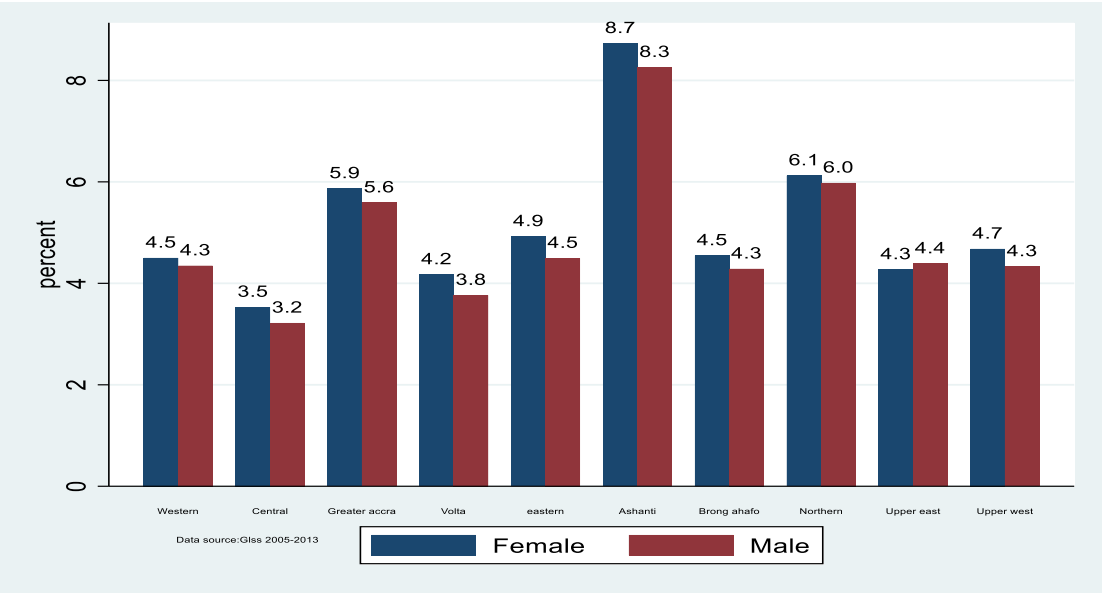

Figure 3: Gender regional Distribution from 2005-2013; SOURCE: WBH Data (GLSS 1992-2013)

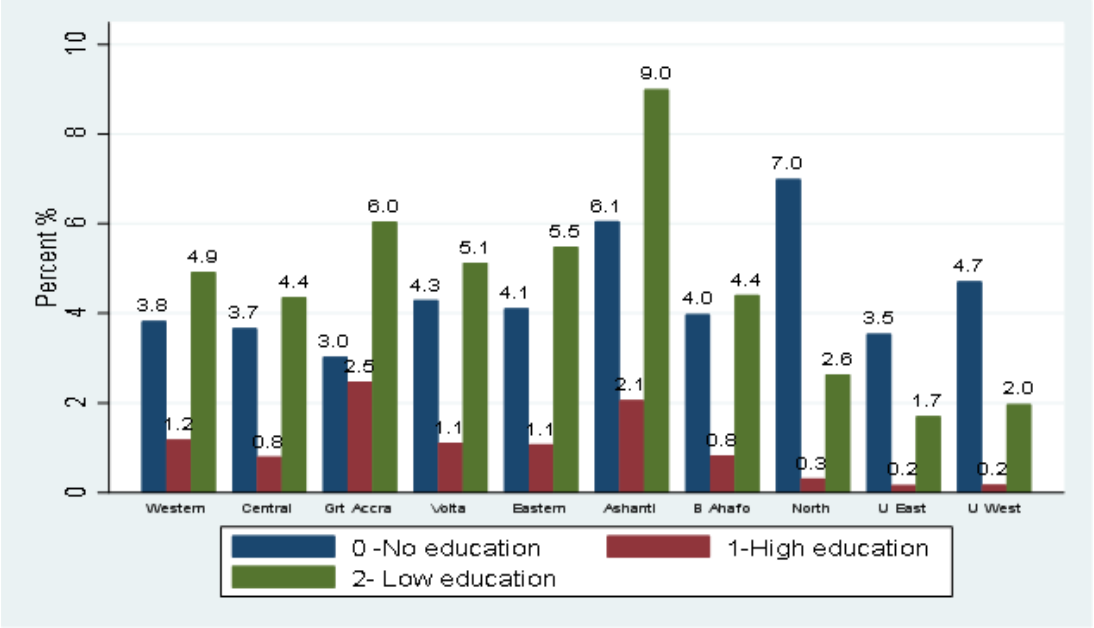

Figure 4: Educational Distribution from 1992 to 2013

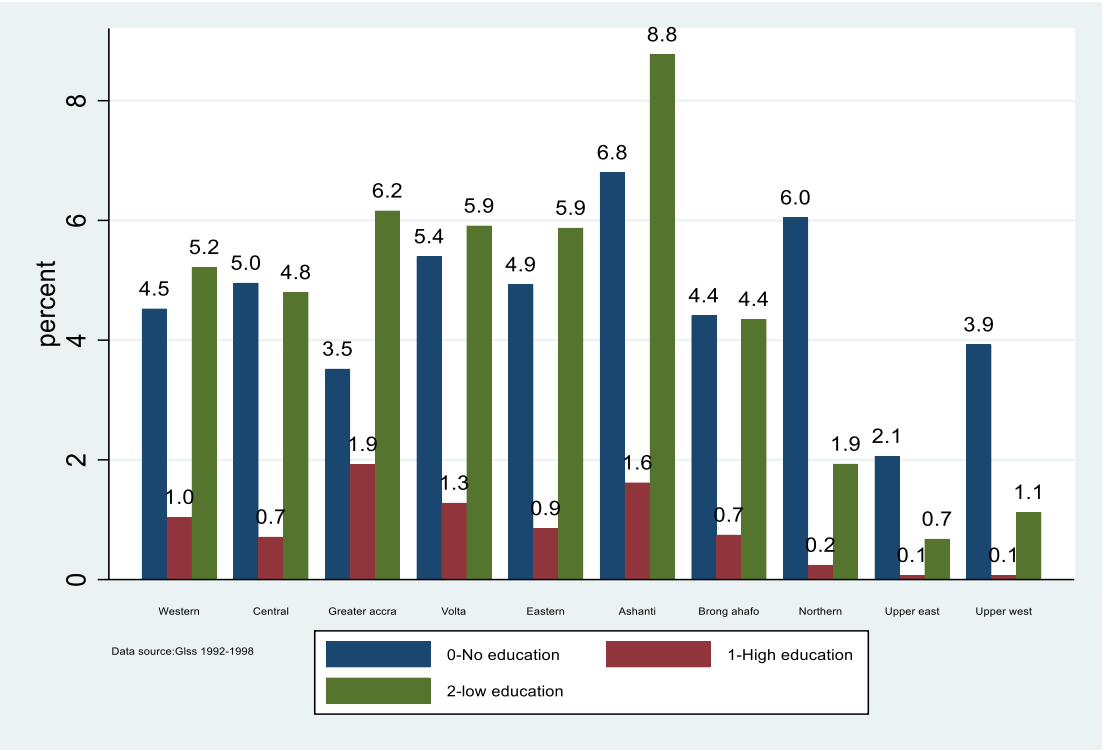

Figure 5: Education attainment from 1992-1998

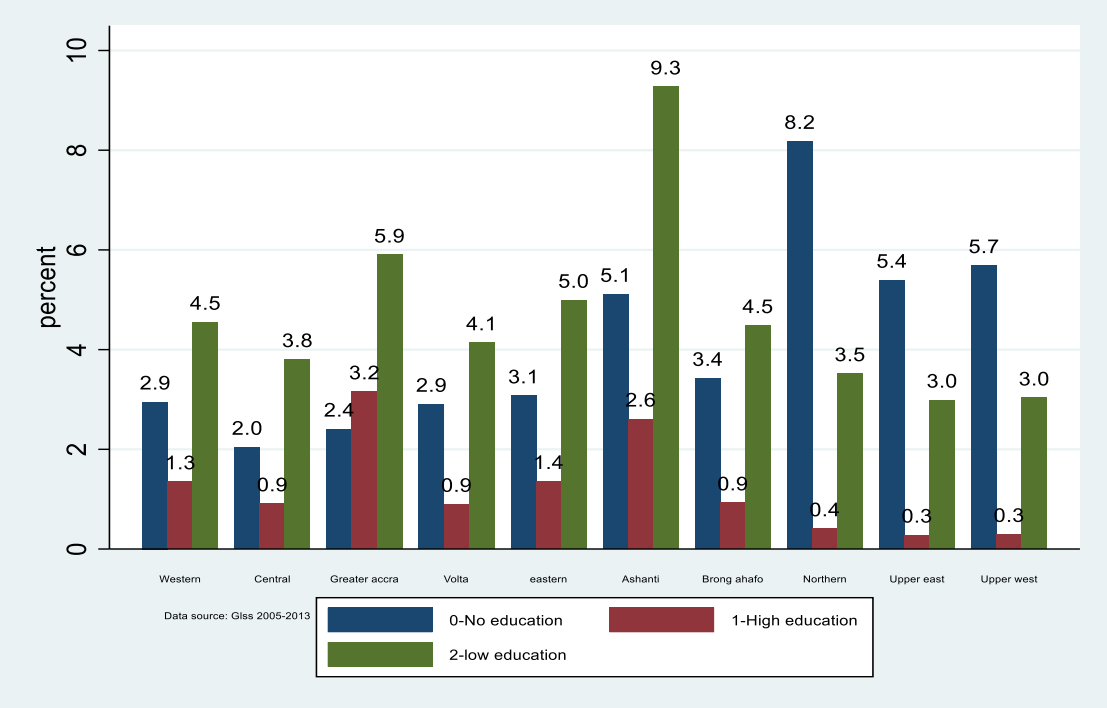

Figure 6: Education attainment from 2005-2013

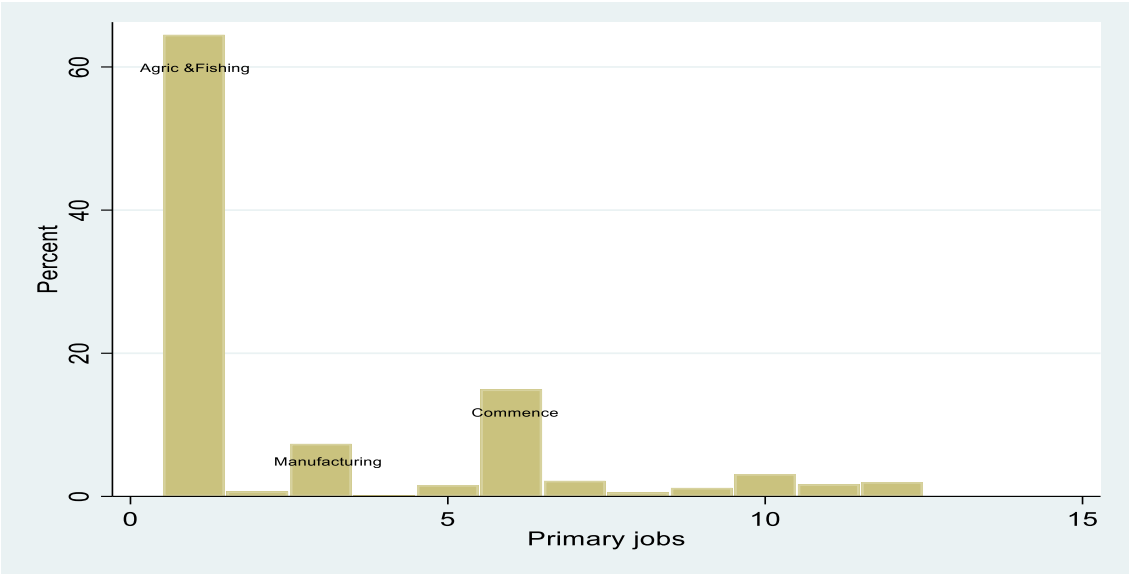

Figure 7: Industry distribution from 1992 to 2013

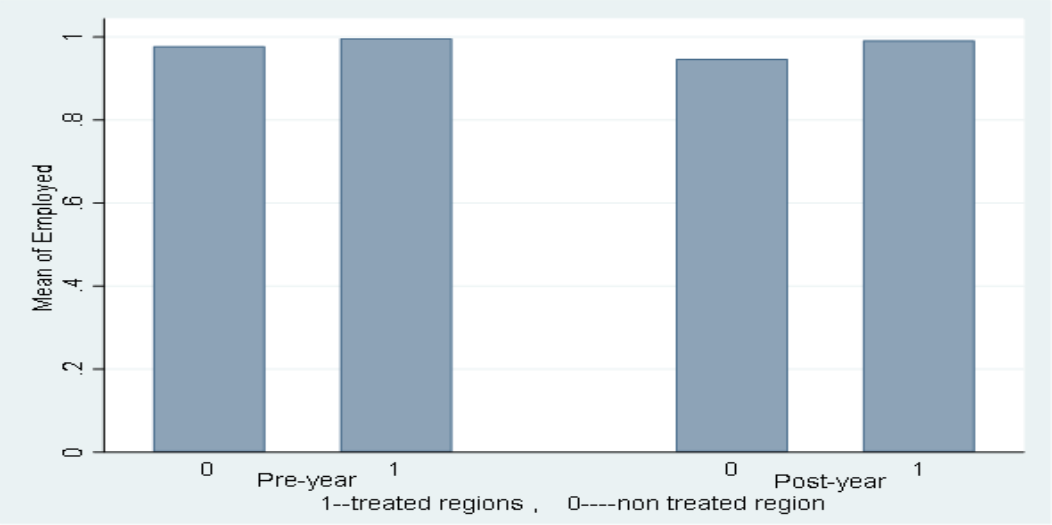

Figure 8: Mean employed Graph

Table 1: Economic Active Sectors (%)

Agriculture	Industry	Service	Year
61.1	12.8	26.1	1984
62.2	10.0	27.8	1992
55.0	14.0	31.0	1998
51.0	16.3	33.0	2000

Source: *GLSS 3&4 and 2000 Population Census; GSS*

Table 2: *Demographic characteristics*

Variable	Obs	Mean	Std.dev	Min	Max
Age	155,323	23.9	19.67	0	98
Adult_age	155,323	.49	.49	0	1
Male	155,323	.48	.49	0	1
EverMar	155,323	.75	.43	0	1
Edu	155,323	.74	.44	0	1
Lab force	155,323	.82	.38	0	1

Source : WBHD,GLSS 1992 -2013

Table 3: Industry Classification

Primary Job	Frequency	Percent	Cum.
Agriculture and Fishing	54,989	64.51	64.51
Mining	594	0.70	65.20
Manufacturing	6,265	7.35	72.55
Electricity and Utilities	134	0.16	72.71
Construction	1,349	1.58	74.29
Commerce	12,750	14.96	89.25
Transportation, storage & comm.	1,861	2.18	91.43
Financial, Insurance & real estate	471	0.55	91.98
Services, Public Administration	1,019	1.20	93.18
Other services	2,662	3.12	96.30
Unspecified	1,449	1.70	98.00
12	1,704	2.00	100.00
Total	85,247	100.00	

Source: WBHD, GLSS 1992-2013

Table 4: Share of Employment for treated and control group

Two-sample test of proportions 0: Number of obs= 16282

1: Number of obs =139041

Group	Mean	Std.err.	z	p>[z]	[95% conf- interval
0	.5155386	.0039166			.5078623 .523215
1	.5852878	.0013213			.5826982 .5878774
Diff	-.0697492	.0041334			-.0778505 -.0616178
	Under Ho:	.0040909	-17.05	0.000	

Source: WBHD,GLSS 1992-2013

Table 5: Difference in difference estimation

Number of observations in the DIFF-IN-DIFF: 155323

	Before	After	
Control:	5419	10863	16282
Treated:	41253	97788	139041
	46672	108651	

Outcome Variable	**Employment**	**S.Err**	**[t]**	**p>[t]**
Before				
Control	0.523			
Treated	0.583			
Diff (T –C)	0.060	0.007	8.33	0.000***
After				
Control	0.512			
Treated	0.586			
Diff (T-C)	0.074	0.005	14.75	0.000***
Diff-in-Diff	0.014	0.009	1.64	0.100

*Means and standard Errors are estimated by linear regression *Robust Std Errors

*Inference:***p<0.01;**p<0.05;*p<0.1

Table 6: Estimation of difference-in-difference using a regression model in differences

Number of Obs = 155,323
F (3,155319) = 98.09
Prob>F = 0.0000
R-squared = 0.0019
Adj R-squared = 0.0019
Root MSE = .49342

Employment	Coefficient	Std. err.	t	p>[t]	[95% conf. interval]
DiD	.014451	.0087024	1.66	0.097	-.0026055 0.315075
Group	.0599983	.0071295	8.42	0.000	.0460247 .073972
Time	-.0114222	.0082061	-1.39	0.164	-.027506 .0046616
-cons	.5231593	.0067028	78.05	0.000	.5100218 .5362967

Table 7: Estimation of difference-in-difference using a regression model in differences Robust

Linear Regression

Number of Obs = 155,323
F (3,155319) = 95.91
Prob>F = 0.0000
R-squared = 0.0019
Root MSE = .49342

Employment	Coefficient	Robust Std. err.	t	p>[t]	[95% conf. interval]
DiD	.014451	.0087984	1.64	0.100	-.0027936 0.316956
Group	.0599983	.0072062	8.33	0.000	.0458744 .0741223
Time	-.0114222	.0083089	-1.37	0.169	-.0277075 .0048631
-cons	.5231593	.006785	77.11	0.000	.5098608 .5364577

Table 8: Estimating the model in levels, with the left-hand-side variable in levels

Linear Regression

Number of Obs = 155,323
F (3,155319) = 142.51
Prob>F = 0.0000
R-squared = 0.0019
Root MSE = .49342

Employment	**Coefficient**	**Robust Std. err.**	**t**	**p>[t]**	**[95% conf. interval]**	
Group	.0599983	.0072062	8.33	0.000	.0458744	.0741223
Time	-.0114222	.0083089	-1.37	0.169	-.0277075	.0048631
-cons	.5231593	.006785	77.11	0.000	.5098608	.5364577


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