

Trends in the Completeness of Birth Registration in Nigeria: 2002 – 2010

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ABSTRACT

Background:

Nigeria is a signatory to the charter which establishes the rights of a child of which birth registration is one. It is unclear how much progress has been made towards attaining universal birth registration in Nigeria over the years.

Methods

This manuscript reports findings from a secondary analysis of data from the 2007 and 2011 UNICEF Multiple Indicator Cluster Survey. Trends in birth registration completeness based on year of birth of children and age at survey were computed, tabulated, graphed and mapped. Simple and multiple logistic regressions were used to assess factors that affect the completeness of birth registration.

Results

Birth registration completeness was 31.5% and 41.5% in 2007 and 2011 respectively. Children were more likely to be registered in 2011 than in 2007 ($P < 0.001$). Likewise, urban residents were over three times more likely to be registered than rural dwellers ($P < 0.001$). Children of women with at least secondary education and those in the higher income class were more likely to be registered ($P < 0.001$). Also, children of those who received ANC at a health facility ($P < 0.001$) were more likely to be registered.

Conclusion

Birth registration improved in 2011 over 2007 across Nigeria except in the North East region. However, much still needs to be done to achieve universal birth registration. The data suggest that improving health facility utilization for ANC and deliveries and designing and implementing a strategic communication program to educate the population about the processes and benefits of birth registration may improve birth registration further.

INTRODUCTION

Birth registration is a fundamental right that affords children the opportunity to be documented and establish their nationality. Unfortunately, this right is denied to many children, especially in less developed countries [1,2]. Indeed, an estimated 230 million children worldwide have never had their births registered thereby exposing them to various rights abuses [3–7]. Like other global health challenges, Africa lags behind in the registration of births and is only better than Asia [4,7]. Fewer than 10 percent of African population live in countries with complete (above 90% coverage) birth registration[8]. There is evidence that the rate of birth registration stagnated between 1995 and 2004 [8,9].

The birth of a child is one of the important events routinely recorded in a Civil Registration System (CRS) [10,11]. The importance of CRS data in monitoring health outcomes cannot be understated and requires national and international action to ensure its availability and reliability in monitoring performance of interventions. Based on this importance, the Post-2015 global health agenda has made strengthening CRS one of its major targets [12]. Birth statistics is a significant data source in the measurement of health in populations providing the denominator data for calculating development indicators like Infant Mortality Rate and Child Mortality Rates, two important indicators in assessing the performance of the country towards the Millennium Development Goal 4. These are also indicators that are used to measure the quality of healthcare in a country and the level of access to healthcare in the population [13]. Poor data on these parameters can be misleading and drive wrong investments in the health system. Additionally, birth statistics is important for monitoring policies and programs on fertility in a country. It can be a significant yardstick for assessing the impact of interventions aimed at controlling population growth and for determining the need for an increased intensity of interventions. Furthermore, birth registration is a significant source of statistics for planning for social services like schools, housing and security.

Countries with functioning CRS have been observed to have better health outcomes than countries without such performing systems irrespective of income and other factors that are likely to affect the health status of the population [14]. Unregistered children are also vulnerable to trafficking and exploitation by human traffickers [15]. In addition, unregistered delinquent children could suffer significant legal consequences that could have allowed for lesser punishments should they be able to prove their real age [3].

Nigeria is a signatory to the charter which establishes the rights of a child of which universal birth registration is one. Despite being a signatory to the charter, Nigeria continues to experience a very low level of birth registration. The first formal attempt at institutionalizing civil registration in Nigeria was in 1863 with the promulgation of ordinance 21 with birth registration to start in Lagos. This was eventually expanded to cover the entire country by 1917 [16,17]. One and a half centuries later, the performance of the CRS is still suboptimal. By 1971, only 7.7% of births were estimated to have been registered in the old Western Region [18]. The Federal Government of Nigeria (FGN) established the National Population Commission (NPC) in 1988 with the responsibility to collect, analyze and disseminate population/ demographic data in the country. One of its core responsibilities is to carry out civil registration and censuses.

Since this agency was established, there has been conflicting reports on the level of completeness of birth registration in the country. A report on live births, deaths and stillbirths registration in Nigeria (1994 – 2007) commissioned by the NPC claims birth registration rate was at 0.01% in 1994 and improved to 23.93% in 2007 [17]. Estimates of completeness of birth registration by various authors have focused on specific communities in Nigeria. These authors have estimated that the completeness rate is above 65% in the studied communities, which were consistently above the aggregate rates reported by the NPC [19–21]. However, it should be noted that these communities were not

representative of the country. Another study evaluated the completeness of a non-conventional active CRS between 1964 and 1974 in Igbo-Ora, South-West Nigeria where completeness was found to be about 95% [22]. A nationwide survey by the National Bureau of Statistics (NBS) put the birth registration completeness in the country at 30.2% in 2003 [23], (conflicting with estimates by the NPC (9.04%) for the same year) which rose to 42% in 2011 [24]. The methodology utilized by the NPC in its analysis was based on data from the national CRS and an estimated number of live births projected from the 1991 census. With poor compliance to birth registration in the country, this method may not be the best in estimating completeness. The NPC in a bid to address registration efforts set a 2010 target of 60% completeness which is to reach a universal registration (100%) by 2015 [17]. To achieve their targets, the NPC and partners including UNICEF have put in various strategies aimed at meeting this target. Lately, the establishment of a RapidSMS channel for birth registration reportage by remote registrars has been hailed as a good means for improving birth registration [25]. However, this was only commenced in 2011 and was yet to cover the entire country.

Despite the attention made for improving CRS around the world in the Lancet “Who count?” series of 2007 [8,9,26,27], several challenges still exist in the Nigerian CRS and its use for birth registration completeness estimation. The importance of the CRS has been restated in the sustainable development goal agenda with a 10 year plan drawn to improve CRS from 2015-2024 [28]. Estimation of completeness is necessary to assess progress towards universal birth registration and to focus interventions on areas at most need. The main alternative to CRS in Nigeria, the Census is conducted at 10 year intervals and can be quite expensive. Additionally, this data source can be politically influenced besides having several other draw backs on its applicability for birth registration estimation. This was observed in the 1963 Nigerian census where the South-West population figures were estimated to be about 15% over enumerated [22]. Nationally representative surveys like the Multiple Indicator Cluster Survey (MICS) and

the Demographic and Health Surveys (DHS) with questions on birth registration may be a better alternative for estimating birth registration completeness while the CRS is strengthened [29].

This paper presents trends in completeness of birth registration from 2002 to 2010 in Nigeria, and assesses factors affecting birth registration and geographic differences in registration completeness using data from the UNICEF Multiple Indicator Cluster Survey (MICS) rounds 3 and 4.

METHODS

Data for the MICS were retrieved from the UNICEF website (www.childinfo.org) following a request and approval process for the use of the data for this study. MICS are nationally representative household surveys conducted in several countries around the world by UNICEF in order to fill gaps in monitoring the situation of women and children [30]. In Nigeria, MICS is conducted in collaboration with the National Bureau of Statistics (NBS). Only two rounds of MICS have been conducted in Nigeria, MICS 3 and 4 in 2007 and 2011 respectively.

Datasets on children below five years of age as well as their mothers were retrieved. These datasets were linked in order to assess birth registration completeness by socio-demographic characteristics of the mothers and households. 43 111 under-five children were in households surveyed in MICS 3 and 4. 1370 records were invalid and dropped from further analysis because information on age, date of birth of the child or the status of birth registration was not recorded. Thus, this analysis focused on 41 741 valid records. Data analysis was conducted using STATA (version 13) and was weighted appropriately to correct for the multistage sample design of the surveys.

The dependent variable assessed in this paper is the birth registration status of the children which was derived using two survey questions from the child questionnaire. The first question asks caregivers if the specific child has a birth certificate. The possible response options to this question are: Yes, seen; Yes,

not seen; No; and Don't know. If the response is either "No" or "Don't know", the caregiver is asked if the birth has ever been registered with civil authorities. The children for whom the response "Yes, seen" or "Yes, not seen" for the first question, or "Yes" for the second question are considered to have been registered. Since the study collected data on children under five years, it was possible to estimate the yearly level of completeness as far back as 2002. The children were categorized by their birth cohort and the proportion that had been registered was then computed for each year. This proportion serves as the level of completeness of the birth registration for that year. A trend analysis was then done using the proportion registered to establish the trend of birth registration completeness over the 9 years of review.

The effects of various child (age, gender) and mother (age, religion of the head of household, wealth quintile, geo-political^a zone of residence, and sector of residence i.e. urban or rural) socio-demographic parameters on birth registration were also investigated. Additionally, the relationship between the child's registration status and mother's attendance of ANC for her most recent pregnancy as well as her current use of a family planning method was also explored. Simple and multiple logistic regressions were conducted to assess the effect of these variables on birth registration.

In addition, a comparison of the registration status of children was done between the MICS 3 and 4 surveys controlling for confounders using the MICS 3 survey as a reference factor to establish if there has been any change in registration status between 2007 and 2011. Adjusted comparisons of the registration status of children were done between the MICS 3 and 4 surveys by the age and gender of the child, geopolitical zone and sector of residence. The unadjusted sub-national prevalence of birth registration for each geo-political zone and state were also computed, tabulated, graphed and mapped.

^a Geo-political zone: Nigeria has 36 states and the Federal Capital Territory (FCT) grouped into 6 geo-political zones.

RESULTS

Birth registration completeness rates by birth cohorts between 2002 and 2010 ranged from 30% to 41% (Figure 1). The South-West zone had the highest rates for all years, maintaining levels above 60% from 2007 to 2009. The South-East zone showed the most progress as it rose from 38% to 62% from 2002 to 2008. However, the North-West zone had the least rates overall, which only increased by approximately ten percentage points (12% to 22%) from 2002 to 2010. Also noteworthy is the fact that completeness rates in the North-East zone has steadily declined since 2005 from 36% to 20% in 2010. In fact, all the zones had a decline in completeness rates in 2009 and 4 of the 6 zones had a further decline in 2010.

The proportion of children registered at time of survey was 31.5% and 41.5% in 2007 and 2011 respectively. Children surveyed in 2011 were 1.65 times as likely to be registered as children surveyed in 2007 ($p < 0.001$). However, the 2011 completeness is still much below the accepted level (90%). The increase in registration rates noted in 2011 was seen across children of all ages and gender (Table 1). There was also an improvement in the registration status of children in 2011 across all geo-political zones except for the North East which regressed (35% to 21.9%). Figure 2 shows the registration completeness rate by state for the entire period reviewed.

Table 1: Comparison of registration status of under-five children between 2007 and 2011

Socio-demographic characteristics	2007 (% registered)	2011 (% registered)	Unadjusted OR (2007=RC)	Adjusted OR (2007=RC)
Overall	31.5	41.5	1.55***	1.65***
Child's age in years				
0	27.4	37.2	1.57***	1.68***
1	21.7	42.8	1.61**	1.72***
2	30.7	44.7	1.82***	2.18***
3	33.2	42.2	1.47***	1.61***
4	34.7	41.4	1.32***	1.72***
Child's gender				
Male	32.1	42.4	1.56***	1.73***
Female	30.8	40.6	1.54***	1.81***
Geopolitical zone				
North Central	27.3	40.7	1.82***	1.84***

North East	35.0	21.9	0.52***	0.77
North West	14.7	26.3	2.07***	2.99***
South East	37.0	62.2	2.80***	3.08***
South South	30.5	51.2	2.39***	2.18***
South West	51.6	64.8	1.73***	1.81***

Statistical significance: † p<0.1 * p<0.05 **p<0.01 ***p<0.001.

RC = Reference Category

Only six out of 36 states and the Federal Capital Territory had completeness rates above 60% (Anambra (68%), Edo (65%), Ekiti (72%), Imo (66%), Lagos (68%) and Osun (68%)) for the 2010 birth cohort. Zamfara state however lagged noticeably behind with a completeness rate of 9%. Urban-rural variations in registration rates are presented in figure 3. This shows that urban registration rates by year of birth were constantly about two times higher than the rural completion rates for all years from 2002 to 2010.

Unadjusted logistic regression revealed predictors of birth registration. Child- level predictors of registration include age and gender as female children were less likely to be registered than their male counterparts and children over a year old were more likely to be registered than those under one year (Table 2). The location of a child was another significant predictor of birth registration as urban children had over three times the odds of being registered compared with rural children. Also, children from the other parts of the country had higher odds of birth registration than those in the North-West region. These odds were much higher in the South compared to other parts of the North (Table 2). Other predictors of registration include: maternal age and education; religion of the mother and household wealth as well as mother's engagement in other health seeking behavior. Birth registration odds were highest for children of mothers who were: 30-39 years of age; educated to secondary level or above and from the highest income households. However, registration was lower in Muslim households and those of other religions compared with Christian households. Birth registration was also noted to be higher in children of mothers who received ante-natal (ANC) care previously at a health facility.

Findings from the multivariate logistic regression showed lower odds of birth registration among females and higher odds in children aged one and above. Location still proved to be an important predictor though the relationship was attenuated. Urban children had 29% more odds of registration than rural children and all other geopolitical zones except South-South showed higher odds of registration when compared with the North West zone. Age of the mother was also a significant factor in the registration of a child: the older the mother, the more likely that the child was registered. Household wealth demonstrated a dose response relationship with registration: as level of wealth increased, the odds of being registered increased.

DISCUSSION

National birth registration completeness by birth cohort was below 50% consistently throughout the reviewed period. Despite the target of 60% completeness set by the NPC to be achieved by 2010 [17], there still remain major milestones to be crossed. The target is still a distance as the birth registration completeness for the 2010 cohort was just above half the target (35%). This observation is almost convincing that the 2015 target of 100% completeness will not likely be achieved.

Table 2: Effect of socio-demographic factors on birth registration status

	% registered	Unadjusted OR	Adjusted OR
Child's gender			
Male (RC)	38.3	1.00	1.00
Female	36.7	0.94*	0.91**
Child's age in years			
0 (RC)	33.4	1.00	1.00
1	38.4	1.24***	1.35***
2	38.8	1.26***	1.56***
3	38.4	1.24***	1.61***
4	38.8	1.26***	1.53***
Sector			
Rural (RC)	28.6	1.00	1.00
Urban	58.0	3.46***	1.29***
Geopolitical zone of residence			
North West (RC)	21.9	1.00	1.00
North East	27.4	1.34*	1.71***
North Central	35.6	1.97***	1.27**
South South	43.1	2.70***	0.96
South East	53.8	4.16***	1.42**
South West	59.0	5.15***	1.53***
Mother's age			
≤29 (RC)	34.0	1.00	1.00
30 – 39	42.8	1.45***	1.26***
>39	34.8	1.03	1.32***
Mother's education level			
None (RC)	20.6	1.00	1.00
Primary	36.7	2.24***	1.32***
Secondary or higher	61.2	6.10***	2.37***
Household Religion			
Christianity (RC)	48.4	1.00	1.00
Islam	28.9	0.43***	0.92
Others	22.6	0.31***	0.69*
Household wealth			
Very Poor/ Poor (RC)	17.5	1.00	1.00
Medium	35.0	2.53***	1.97***
Rich/ Very Rich	60.6	7.23***	3.63***
Mother received ANC			
No (RC)	29.9	1.00	1.00
Yes	49.1	2.26***	1.36***
Mother currently uses a Family Planning method			
No (RC)	34.0	1.00	1.00
Yes	55.3	2.41***	1.18*

Statistical significance: † p<0.1 * p<0.05 **p<0.01 ***p<0.001.

RC = Reference Category

Adjustments were done by the gender and age of the child, sector of residence, mother's age and education; household religion and wealth, mother's use of ANC or family planning geopolitical zone and year of survey.

We observed that the completeness rate in the South-West was above 60% for the 3 years preceding 2010. The trend in the South-East zone is also commendable. It would be good to learn of the kind of interventions that went into improving the compliance in this zone for others to emulate. The decline in completeness rates experienced across the zones in 2009 and 2010 is a significant observation which may be a result of the short opportunity for registration when compared with the older children.

Improving hospital utilization for delivery can be a contributor to raising birth registration completeness as mothers who attended ANC or were using modern family planning techniques were more likely to have registered children. In the United States 1940 evaluation of the CRS, it was found that birth registration was poorer among children who were born out of hospitals [31]. This finding may similarly pose a challenge in Nigeria where births attended by a skilled health personnel stands at 34% suggesting most births take place outside a health facility [32]. Increasing the utilization of health facilities for deliveries was a significant factor in improving the completeness of registration in the US from 92.5% to 97.8% following improvements from about half of deliveries in hospitals in 1940 to seven-eighths in 1950 [33]. Another study in the Dominican Republic also revealed increased chances of registration with increasing hospital utilization for delivery.[5] A study conducted in South Africa in 1993 found that involving health workers in birth registration could improve the proportion of births registered from 19% to 60% [34].

The poor progress towards achieving universal birth registration in Nigeria is multifactorial. Responsibility for the management of the Nigerian health information system (HIS) structure traverses several government institutions which have individual bureaucratic bottlenecks. This has not helped

improve efficiency of the HIS. The NPC which is responsible for the registration of births, deaths and marriages has no direct relationship with the Ministry of Health which oversees all the hospitals where a significant proportion of the births take place. To our knowledge, there is no policy document that details how these institutions should interact. This is a major barrier which has recently caught the attention of policy makers. Some countries like Maldives have taken control of this problem by making the Ministry of Health (MOH) solely responsible for handling the registration of births and deaths [35]. However, drawbacks have been observed to delegating this responsibility solely to the MOH as they usually focus mainly on service statistics and may neglect the CRS causing it to crumble further.

Human resource shortage and budget limitations in the NPC may be alleviated by travelling registrars^b that have been utilized and found effective in countries like Argentina, Ecuador, Zimbabwe and Mozambique among others [3]. Ayeni and Olayinka also described an active CRS that utilized family visitors to collect routine statistics on births and deaths biweekly in the 60's and 70's in Igbo-Ora, Nigeria which led to completeness rates of over 95% [22]. Like in Igbo-Ora, the utilization of volunteers in a rural community in Kaduna State doubled the level of registration in the community in a 3 year period [36]. As such, raising awareness and providing a more acceptable opportunity and approach for registration can significantly improve birth registration in our environment. Such strategies can be deployed to help improve the birth registration rates in states with the poorest statistics. Akande and Sekoni recorded a high level of public awareness to birth registrations in a community in North-Central Nigeria in 2003 [19]. However, this awareness did not directly translate into positive practice as fewer people than those who identified the importance of birth registration actually went ahead to register their children.

In this study, higher educational level and household wealth were significant predictors of registration. As such, conditional cash transfers which have been used as an incentive and shown to improve the

^b Travelling registrars visit communities intermittently to register all the births that have taken place since their last visit to the community.

adoption of civil registration in India can be explored to improve compliance in the lower socio-economic cadre in Nigeria [37]. Birth registration should be free whether for regular or late registration [7,38]. The NPC obtains a fee for late registration which may further deter indigent parents who for one reason or the other, could not register their child within the accepted 60 day window. This can also lead to falsification of date of births if people know they will be charged when their children are being registered after 60 days of birth.

Birth registration in Nigeria improved in 2011 over 2007. However, the completeness rate is still a far distance from the acceptable completeness rate. Improving the completeness of civil registration requires a long term plan with continuous and sustained implementation of the plan. This must include improving access and awareness on birth registration and legislation to remove financial barriers that further deter poor and rural families from registering. Improving health facility deliveries and economic empowerment of households should also be used to drive an upward completeness in birth registration.

CONTRIBUTIONS

OAM and SB conceptualized this study and developed the first draft of the manuscript. OAM and BA analyzed the data. OAM, BA, OO and SB edited significantly subsequent versions of the manuscript. All authors agree to the final draft of the manuscript.

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COMPETING INTERESTS

None

FINDING

None

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FIGURES

Figure 1

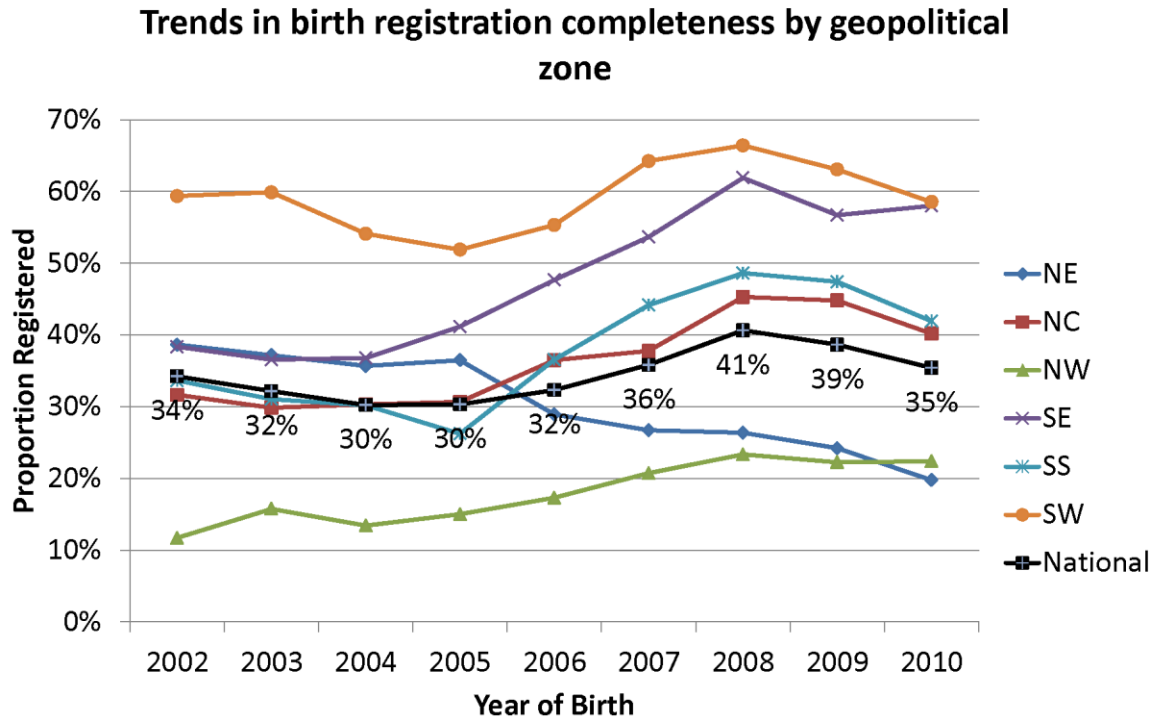


Figure 2

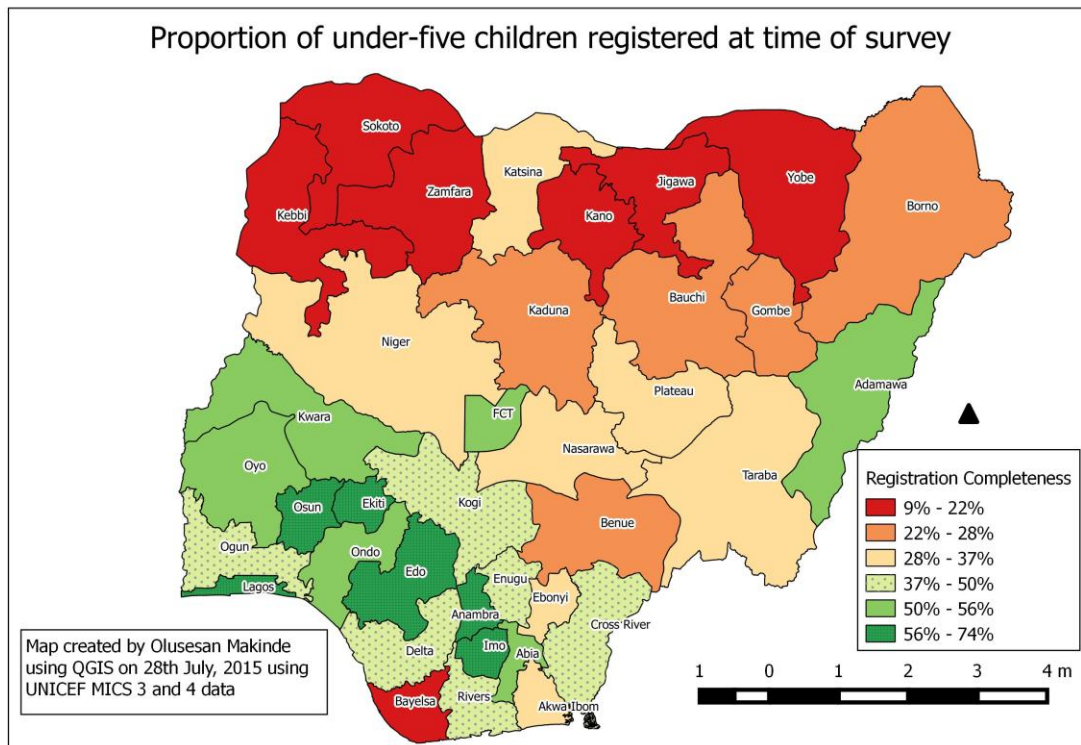


Figure 3

Urban-Rural trends in birth registration completeness

