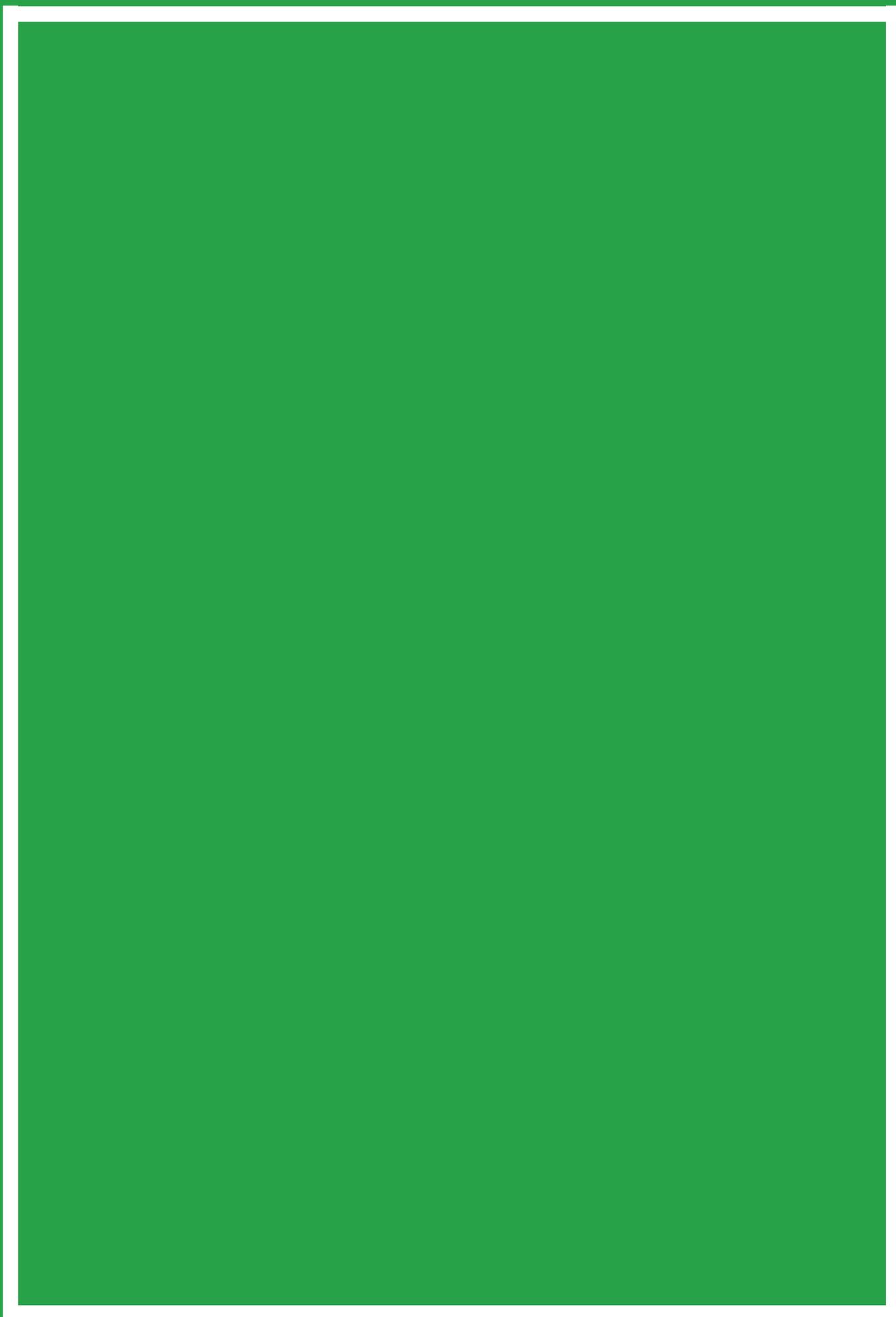




The State of Statistical Data in Zambia

Thulani Banda and Joseph Simumba
“**More and Better Jobs**” Discussion Paper No. 3

JUNE 2016



LIST OF ACRONYMS

CFS	Crop Forecast Survey
CPI	Consumer Price Index
CSO	Central Statistical Office
FAO	Food and Agriculture Organization
GDP	Gross Domestic Product
HBS	Household Budget Survey
IT	Information Technology
LCMS	Living Conditions Monitoring Survey
LFS	Labour Force Survey
M&E	Monitoring and Evaluation
NADA	National Data Archive
NSDS	National Strategy for Development of Statistics
NSS	National Statistical System
OECD	Organization for Economic Co-operation and Development
PARIS21	Partnerships in Statistics for Development in the 21st Century
PHS	Post-harvest Survey
PPI	Producer Price Index
SSDS	Sectoral Strategy for the Development of Statistics
ZDHS	Zambia Health Demographic Survey
ZSBS	Zambia Sexual Behaviour Survey

Contents

	List of Acronyms	01
	Background	03
	Executive Summary	03
1.	Introduction and Motivation	05
2.	Organizational and legal structure of the national statistical system	07
(i)	Poor information technology infrastructure	09
(ii)	Low levels of funding	09
3.	The Limitations of Statistical Data in Zambia	10
(i)	Lack of high frequency data	10
(ii)	Limited capture of administrative data	11
(iii)	Lack of panel data	11
(iv)	Insufficient number of indicators, outdated weights, intermittent release	12
(v)	Missing Import and Export Prices Data	13
4.	Recommendations	14
5.	Conclusion	15
	References	16

BACKGROUND

This report is part of ZIPAR's Flagship project on "More and Better Jobs". The Flagship project was launched on 25th June 2015 and is running for around 18 months. It will develop an understanding of Zambia's jobs challenge and policy options for how to respond. It is addressing both the underlying long-term challenge of how to create more and better jobs and also the short-term challenge of protecting jobs during the current economic slowdown. The project is being informed by an Advisory Group, which includes representatives of the private sector, government, civil society, academia and international organisations. This paper, however, represents the views of ZIPAR alone. For further information on the flagship project see <http://tinyurl.com/p2nnhmk>.

EXECUTIVE SUMMARY

Employment creation is at the top of Zambia's economic development agenda. It has been a key priority for some time now. Jobs are seen as a critical avenue for improving incomes, livelihoods and wellbeing, and for reducing poverty as stipulated in policy documents such as the Vision 2030, the Revised Sixth National Development Plan (r-SNDP) and a number of specific policies, strategies and plans, notably the Strategic Paper on Industrialization and Job Creation through Foreign and Local Investment (2013), the 2015 National Youth Policy, National Plan of Action for the 2015 Youth Policy and the Action Plan for Youth Empowerment and Employment (2015).

In spite of the explicitly pronounced employment targets, to date Zambia does not have a framework for monitoring or tracking the performance of (private and public) enterprises and other economic entities like households in creating and securing (formal and informal) jobs. As such, the country is only able to glean periodic and sometimes significantly lagged insights into job creation performance.

The challenge posed by the current state of statistical data in Zambia is twofold. On the one hand, while Zambia's current regiment of statistics offer important insights, they are grossly inadequate for short-term (e.g., annual) policy-making and planning in line with the National Budget or monitoring short-run response to changing economic conditions (such as an economic slowdown). On the other hand, the demand for evidence for practical applications especially in supporting policy formulation, implementation and evaluation has grown. Consequently, there has been a dramatic increase in the required number of statistical indicators to support the formulation, implementation and evaluation of policies with wider scope and quality.

By definition, statistical information includes primary data from all types of sources, administrative data from State and local authorities, secondary data such as banking and financial statistics, statistical information from international organisations, and estimates and calculations based on all sources of data whether official or not. Official statistics are defined as statistics disseminated by the national statistical system (NSS), excepting those that are explicitly stated not to be official. A national statistics system is a system that has a coherent body of data. It consists of users, producers and suppliers of data and information. It aims to ensure continuous co-ordination and co-operation among producers and users of official statistics in order to advance standardisation, quality, consistency, comparability and use of evidence as the basis for policy choices and decision making, and avoid unnecessary and costly duplication.

Limitations of statistical data in Zambia fall into two broad categories, namely: (i) those that relate to the way the national system of statistics (NSS) is organised and (ii) inherent limitations of the actual statistics available.

Institutionally, funding of statistical production has the main challenge as it has not been sufficient to meet increasing demand. Furthermore, information technology has been poor. Thirdly, there has been poor co-ordination between producers of data and over-reliance on primary surveys with limited utilisation of administrative data. In addition, the Census and Statistics Act has not undergone amendment to keep up with changing needs of the NSS. For example, the Act does not provide for the institutional establishment of the NSS nor establishment of the Central Statistical Office as an independent bureau.

With respect to the statistics themselves, the following limitations are observed:

- *Lack of high frequency data*

Most statistics are released at intervals longer than one year and are not available at shorter intervals say on a monthly or quarterly basis.

- *Limited capture of administrative data*

Day-to-day administrative data generated by government departments and agencies remains under-utilised. In addition, methods of collecting and organising this data are not suitable for statistical purposes.

- *Lack of panel data*

Statistics are largely collected on the same variables by observing different sampling units over time. That is, no one sampling unit is followed over time to observe change in its characteristics.

- *Insufficient number of indicators, out-dated weights, intermittent release*

Certain statistical indicators are missing such as import-export prices data and releases are erratic. Weights are also not frequently updated to indicate changes such as shifts in the economic structure.

In view of these limitations, we make the following proposals:

- i. Establishment of coordinating mechanisms for the NSS (including sectoral and subject matter committees for statistics) and harmonizing (standardizing) terms, concepts and nomenclature of statistics across users and producers. This involves, among other things, enacting the relevant law, empowering the Central Statistical Office to take on leadership responsibilities in the NSS.
- ii. Development of Sectoral Statistical Development Strategies (SSDS) since this was not done prior to the design of the NSDS. This will support further integration of the NSS as sector-specific statistical priorities are set to advance the growth of currently under-developed statistical units. The Strategic Plan for Agricultural and Rural Statistics in Zambia (SPARS_ZAM) could be used as a model in this case.
- iii. There is need to secure stable financing. Consideration should be made for the setting up of a national statistics fund to pool resources from public agencies, private institutions and donor agencies with the specific aim of supporting continued production of statistics.
- iv. Information technology infrastructure should be improved so as to allow the setting up and maintenance of reliable statistical databases and linkages between producers of data as well as improve statistical methodologies.
- v. Finally, there is need to increase the number of indicators and types of data. For example introducing quarterly gross domestic product (GDP) and monthly employment surveys to deal with the low-frequency of data, introduction of panel surveys, and a measure of core inflation.

1

Introduction and Motivation

Employment creation is at the top of Zambia's economic development agenda. It has been a key priority for some time now. Jobs are seen as a critical avenue for improving incomes, livelihoods and wellbeing, and for reducing poverty. Zambia has embraced the goal of creating more and better jobs through its Vision 2030, the Revised Sixth National Development Plan (r-SNDP) and a number of specific policies, strategies and plans, notably the Strategic Paper on Industrialization and Job Creation through Foreign and Local Investment (2013), the 2015 National Youth Policy, National Plan of Action for the 2015 Youth Policy and the Action Plan for Youth Empowerment and Employment (2015).

In spite of the explicitly pronounced employment targets, to date Zambia does not have a framework for monitoring or tracking the performance of (private and public) enterprises and other economic entities like households in creating and securing (formal and informal) jobs. As such, the country is only able to glean periodic and sometimes significantly lagged insights into job creation performance. These late insights are usually through Labour Force Surveys (LFSs), Living Conditions and Monitoring Surveys (LCMSs) and similar large scale surveys. The insights are useful; they are not trivial. For instance, the 2012 LFS report shows that out of a labour force of 5.97 million people in 2012, 92% were employed, implying an 8% unemployment rate. The majority (56%) of the labour force live in rural areas, with 3.3% of the rural labour force being unemployed (compared to 14.2% of their urban counterparts). However, by 2014, the labour force had grown to 6.3 million persons and employment had grown marginally higher at 92.6% of the total labour force, implying a 7.4% unemployment rate. Formal employment remained relatively low at 14.9% of the labour force.

While such survey statistics offer important insights, they are grossly inadequate for short-term (e.g., annual) policy-making and planning in line with say the National Budget or monitoring short-run response to changing economic conditions (such as an economic slowdown). For example, although the LFS 2014 was conducted in 2014, it was only published nearly two years later in January 2016, with economic conditions having change dramatically in the interim. As such, the usefulness of the LFS 2014 was greatly diminished.

The objective of this paper is to evaluate the state of statistical data in Zambia. In particular, the paper investigates the inadequacies of existing data to support national options and choices. It also indicates the opportunities offered by the current national statistical system to improve the coverage and quality of statistical data available for policy formulation, implementation, monitoring and evaluation.

There is general consensus among scholars and practitioners that statistical data is a keystone for the formulation, implementation and evaluation of public policies and programmes. The process of evaluating public policies and programmes primarily seeks to take stock of what interventions worked or did not, and at what cost while policy formulation seeks to identify the best alternative for a programme or spending priority. These questions emanate from the demand for 'evidence-based' policy making. Such evidence is seen as the hallmark of a modernizing governance system which transforms from ideology-driven politics to more judicious decision making¹.

In view of the above, measurement of development results is considered vital to understanding progress towards attaining development objectives and identifying what works and what does not in development practice. Initiatives such as PARIS21² have opened up global debate on what is termed the "data revolution" in response to the demand for statistics emanating from the adoption of the post-2015 development agenda enshrined in the Sustainable Development Goals (SDGs). With 169 targets, 17 goals and 100 indicators,

¹Sutcliffe and Court (2005)

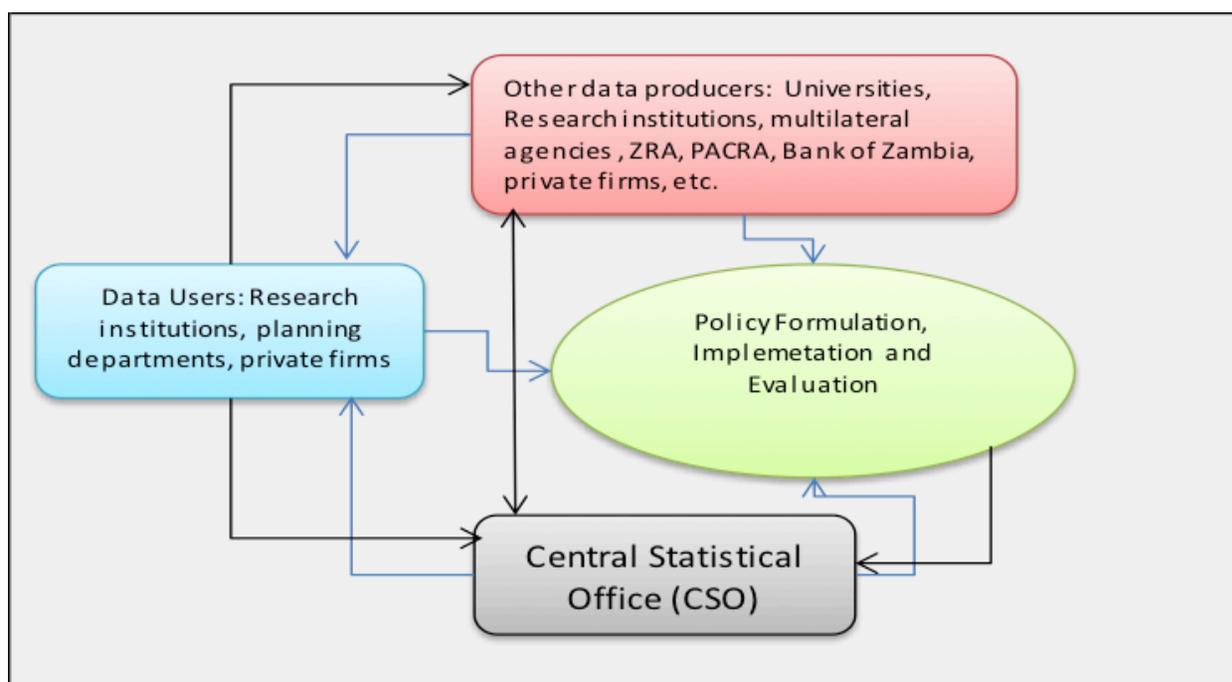
²Krätke, F. and Bruce, B. (2014), "The Political Economy of Official Statistics Implications for the Data Revolution in Sub-Saharan Africa," PARIS21

monitoring of the SDGs will surely require an enormous contribution towards the production of statistics both quantitatively and qualitatively.

The Central Statistical Office (CSO), in collaboration with the Government of the Republic of Zambia, launched the National Strategy for the Development of Statistics (NSDS, 2014-2018) in 2014 so as to address these informational challenges faced in policy formulation, implementation and evaluation as well as the limitations imposed on evidence-based research by inadequate statistical data. As such, it is in order that we take a look at the status quo of available statistical data in Zambia.

The Figure 1 shows how various stakeholders (users and producers of statistical data) are linked into policy processes and how they interact with each other.

Figure 1: Users and producers of statistical data and their relation to policy



The FAO³, however, opines that “many developing countries lack good statistical systems and collect data using costly, labour-intensive and time-consuming methods. Unreliable statistics and weak information hinder policy decision-making. This can lead to increased costs, weak policy design and reduced impacts from these policies”. The result, observes Tsiko⁴, is that “policy and decision making as well as service delivery have suffered while proper allocation and targeting of resources have been hampered while citizens have been unable to make informed decisions. Governments [too] have not been able to effectively monitor and report on progress [and on the other hand] have not been held to account for some of their policies.” Furthermore, Dhaliwal and Tulloch⁵ also note that “Different programs targeted at the same policy outcome can have very different results, but without clear evidence on their final impact there is little guidance for policymakers on which program to choose.”

This paper aims at highlighting the limitations of statistical data that is available for statistical analysis, policy formulation, implementation, monitoring and evaluation in Zambia. Although not a comprehensive review of the national statistical system in its entirety, the paper observes deficiencies in some of the major statistical releases available. It further investigates the contribution that statistical units in Ministries, Departments and Spending Agencies and other private institutions could make to the portfolio of statistical data through the increased use of administrative data. More specific objectives included:

³FAO “UK donates \$25 million to improve agricultural statistics,” accessed at www.fao.org/news/story/en/item/132897/icode/ on April 2, 2015

⁴Tsiko, S. (2011), “Lack of Data Hinders Economic Planning,” *The Herald-Zimbabwe*, February 27, 2011

⁵Dhaliwal and Tulloch (year), “From Research to Policy,” p.2

- i. To investigate the legal and organizational make-up of the national statistical system in Zambia
- ii. To identify any gaps in the major statistical data indicators currently available
- iii. Evaluating the quality (including use of information technology) of statistical data in Zambia

The evaluation of the state of statistical data was twofold. Firstly, existing literature on national statistical systems both in Zambia, other developing countries and developed countries was reviewed. This enriched the study by defining international standard terminology on statistics and simplifying the complex organizational aspects of an ideal national system of statistics. Furthermore, key policy documents such as the Sixth national Development Plan (SNDP), national budgets, and Millennium Development Goals (MDGs) country reports were reviewed for data needs. This approach also enabled the identification of gaps in the current ensemble of statistical data and statistical organization in Zambia.

Secondly, informal discussions were held with staff members at the Central Statistical Office (CSO). This yielded several outcomes. To begin with, these interviews reinforced the researchers' opinion that there was need to revamp the organization of the national statistical system (NSS) and improve the quality and quantity of statistical data in Zambia. This was essential as the CSO are a leading stakeholder in the national system of statistics and their agreement with the problems faced gave thrust to the overall need for research. Additionally, it was brought to our attention of the efforts already being made (through the lead of the CSO in collaboration with the Central Government) to enhance the performance of the NSS and as such, some observations made in this paper were the direct result of such face-to-face engagements⁶. Therefore, we reiterate observations already made by the CSO in some cases.

The rest of the paper is organized as follows: In Section 2, we describe how the national statistical system is organized in Zambia. Section 3 develops a discussion of the inadequacies inherent in the national system of statistics and brings out the limitations of statistical data available. Section 4 gives some recommendations and Section 5 concludes.

2

Organizational and legal structure of the national statistical system

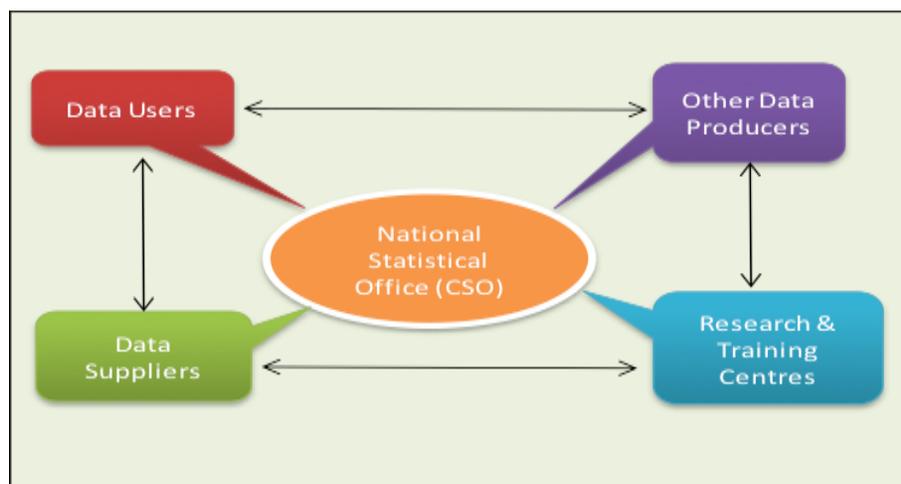
By definition, statistical information includes primary data from all types of sources, administrative data from State and local authorities, secondary data such as banking and financial statistics, statistical information from international organisations, and estimates and calculations based on all sources of data whether official or not. Official statistics are defined as “statistics disseminated by the national statistical system (NSS), excepting those that are explicitly stated not to be official”⁷. “A national statistics system is a system that has a coherent body of data. It consists of users, producers and suppliers of data and information. It aims to ensure continuous co-ordination and co-operation among producers and users of official statistics in order to advance standardisation, quality, consistency, comparability and use of evidence as the basis for policy choices and decision making, and avoid unnecessary and costly duplication.”⁸

⁶Many thanks to the staff at CSO who provided information during these interviews. However, the authors take full responsibility for the observations and opinions expressed in this paper and none should be directly or indirectly attributed to any particular staff member at the CSO as information provided only aided our analysis.

⁷OECD online Glossary of Statistical Terms (<http://stats.oecd.org/glossary/index.htm>)

⁸Lehohla, P. (2002), “*The National Statistics System: Our Challenge*,” Statistics South Africa, Cape Town.

Figure 2: Organization of the National Statistical System



Source: CSO (2014) NSDS, p. 2

In Zambia, national statistics are produced by the Central Statistical Office (CSO). The major sources of data are the Census of Population and Housing, the Living Conditions Monitoring surveys (LCMS), Zambia Demographic and Health surveys (ZDHS), Labour Force surveys (LFS), and Post-harvest Surveys (PHS), Consumer Price Index (CPI) and Gross Domestic Product (GDP) releases. These cover the condition of the population in terms of living standards, health, employment, general productivity, price changes and economic growth. Statistical data provided by these various sources has extensively been used for planning purposes and program implementation by government agencies, private establishments and multilaterals as well as bilateral institutions. For instance, the annual national budget, five-year National Development Plans (NDPs) and the Millennium Development Goals (MDGs) heavily depend on statistics provided by the LCMS, LFS, ZDHS and population censuses.

Various administrative agencies also generate substantial statistical information through customer service. They include, but are not limited to, the Zambia Revenue Authority (ZRA) which collects tax and customs information, Bank of Zambia (BoZ) which generates financial sector information, Patents and Companies Registration Agency (PACRA) which produces business registers, and the Zambia Bureau of Standards (ZABS) which deals with business accreditation and standards, among others. Additionally, government line ministries and other spending agencies also generate substantial volumes of statistical data. However, these various institutions' statistical units (research departments, management information systems, MIS) have evolved differently. For some, fully-fledged statistical units exist whereas others are in the process of developing their management information systems, and there are some without an MIS. As a result, co-ordination amongst the producers of statistical data has been weak and limited.

The demand for evidence for practical applications especially in supporting policy formulation, implementation and evaluation has also grown in Zambia. For instance, government is expected to produce National Development Plans every five years, monitor and produce regular progress reports on MDGs and further, produce annual budgets. Parliament also requires good statistical evidence in its ever-evolving role of enacting laws. Consequently, there has been a dramatic increase in the required number of statistical indicators to support the formulation, implementation and evaluation of policies with wider scope, and quality. This has placed a heavy demand on the production of extensive and good quality statistical information. In the recent past, the number of independent data generating organizations has grown. However, the production of quality statistical information depends on better coverage of geographical areas, data content and the robustness of the national statistical system—a condition which has been difficult to satisfy in the Zambian context.

In its current form, the national statistical system is governed by the Census and Statistics Act Cap 425 of 1964⁹ which was later re-numbered as Cap 127 in 1994. The Act establishes the Central Statistical Office (CSO) as the lead agency and repository of official statistics in the National System of Statistics (NSS).

⁹CSO, *CSO STATISTICS NEWS*, Issue No. 1, September 2001 p.2

Since its enactment, the Census and Statistics Act has not undergone changes required to keep up with the changing technical advancements in statistical standards and conventions¹⁰. It is, therefore, rigid and does not have sufficient provisions for the growth and development of the national statistical system. Most notably, it does not establish the Central Statistical Office as an independent bureau so as to be an important institution in the hierarchy of government institutions. Further, the Act does not provide for the institutional establishment of the NSS thereby contributing to lack of harmonisation and weak co-ordination in the provision of official statistics¹¹. These institutional deficiencies threaten the credibility of official statistics which compromises the practical utility of statistics and has contributed to the lack of appreciation for and limited use of statistics. As a result, users have sought alternative sources such as multinational and donor agency publications for much more ‘reliable’ statistics. This is undesirable especially that the various institutions that comprise the NSS receive public funds for their activities. However, the lack of confidence citizens have in our statistics is partly a symptom of their distrust in our governance systems. As Giovannini et al (2009) show in an empirical case study, “using data [...] in the statistical system is related to trust in governance institutions”.¹² Hence, dealing with the more general issues surrounding the integrity of our institutions besides those related to statistical agencies will have spill over effects on perceptions about the accuracy and adequacy of statistics in Zambia.

The disharmony in the NSS is not without cost, unfortunately. The obvious consequence is that duplication of effort and the collection of almost similar statistics by different agencies in the NSS is not an efficient use of resources. Such wastage of resources can be said to be more costly for a developing country that has limited resources. An issue of concern is that statistical agencies vary in their methods for collection, presentation and dissemination of data resulting

in inconsistency and inefficiency. In addition, different results lead to confusion as to the true extent of social problems since different statistical agencies declare their own statistics for the same population at the same time. This in turn tends to result in respondent fatigue and confuses policy decision making. Contributing to this lack of co-ordination in the NSS is the fact that incentives for sectors to work in harmony with the CSO have been weak. Fear of unnecessarily increased responsibilities for the CSO and loss of independence by sectoral statistical or research units have acted as a disincentive to a more integrated NSS.

Institutionally, two issues relating to funding and information technology warrant special mention and consideration.

i. Poor information technology infrastructure

Information technology (IT) is the backbone of statistical data management. In these modern times, most statistical activities-consultations with users, data collection, compilation, storage, analysis, presentation, dissemination of statistics and archiving-would nearly be impossible to carry out without the utilization of information technology in one form or the other. In developing countries, Zambia included, “there are challenges associated with the equipment and software being used. For instance, hardware and software are not compatible and maintenance is poor and sporadic. There are no central data banks and back-ups leading to dangers of easily losing data and other important information.”¹³

ii. Low levels of funding

Finally, the NSS is overwhelmed by resource constraints which adversely impact on its effectiveness. The NSDS 2014-2018¹⁴ bemoans the fluctuating and irregular financing patterns in which funds are at times released towards the end of the year. Consequently, many activities which are planned for remain unexecuted and as such, major statistics cannot be produced. Human resources constituting statisticians are few in number

¹⁰CSO (2012), “*National Strategy for the Development of Statistics in Zambia: 2011-2015*”, Lusaka pp.1

¹¹Ibid pp.1

¹²Giovannini et al (2009), “Statistics, Knowledge and Governance,” presented at the Conference: “Statistics - Investment in the future 2” Prague,

¹³Malawi National Statistical Office (2008), “*National Statistical System Strategic Plan 2008-2012*,” p.14

¹⁴NSDS 2014-2018 p. 7

and suffer from low morale due to unclear career progression and low funding of activities. This has resulted from what Kiregyera (2001) refers to as a cycle of statistical under-development whereby “Little or lack of appreciation at political and policy level of the role and importance of statistics has led to under-funding statistical production. This has led to production of poor statistics which in turn has led to lack of demand for statistics, low priority for statistics and status of the national statistics office and more under-funding, making it extremely difficult for data providers to meet user requirements.”

Table 2: Trends in budget allocation and execution (ZMK)

Year	CSO Budget	MOF Ceiling	Funding	Percent of Funding against MOF Ceiling	Percent of Funding against CSO Budget
2008	53,013,496	19,013,496	12,323,788	64.82	23.25
2009	40,229,238	36,229,238	26,990,261	74.5	67.09
2010*	253,892,828	253,892,828	250,122,960	98.52	98.52
2011	45,931,277	39,931,277	31,759,601	79.54	69.15
2012	51,077,610	46,577,610	40,127,296	86.15	78.56

Source: CSO (2014) National Statistical System Strategic Plan (p.8) (*year of population census)

3

The Limitations of Statistical Data in Zambia

It has been argued that statistics should be the basis for good governance, managing for results, programme and policy implementation and evaluation, supporting decentralization and so on¹⁵. Even though Zambia’s statistical system has undergone some marked improvements, some challenges still remain and we highlight the most notable ones in this section.

i. Lack of high frequency data

To begin with, economic statistics such as gross domestic product (GDP) are compiled annually and are not available at shorter intervals say on quarterly basis. Wohlrabe¹⁶ warns that “The lack of a timely, comprehensive economic picture may mean that policy needs may be recognized only many months after a significant slowdown or acceleration in the economy. This problem is especially important around business cycle peaks or troughs, where there may be only weak evidence that the economy is changing direction.” Quarterly GDP statistics have the advantage of providing more timely information about economic aggregates than annual data and are more comprehensive than individual short-term (monthly) indicators¹⁷. As the IMF observes, “The strength of annual national accounts is to provide information about economic structure and long-term trends, not to provide data needed for monitoring the business cycle.”¹⁸ Hence, annual data “misses information about the current economic situation thus hampering monitoring of the business cycle and the timing of economic policy aimed at affecting the business cycle.”¹⁹

¹⁵Kiregyera (2001), “Advocacy for Statistics and Statistical Governance” p. 1

¹⁶Wohlrabe, K. (2008), “Forecasting with Mixed-frequency Time Series Models,” p.2

¹⁷The IMF (2001) says quarterly national accounting data is more comprehensive because “QNA are commonly compiled by combining ANA data with short-term source statistics and ANA estimates, thus providing a combination that is more timely than that of the ANA and that *has increased information content and quality* [emphasis added] compared with short-term source statistics.”p.2

¹⁸IMF (2001) p. 2

¹⁹Ibid p.2

In addition, labour market data such as number of new jobs, type of jobs, and in which sector are not available on a monthly or quarterly basis. Without such frequent labour market data, it is difficult to deduce whether slack exists in the economy as well as whether growth is gaining momentum or slowing down. The labour market could be used to gauge business sentiments about future economic prospects. Frequent labour market data could also provide additional indicators to monetary authorities of possible developments in the economy which could be used to tailor policies which favour investment and job creation.

ii. Limited capture of administrative data

Very little attention during statistical compilation and policy and programme monitoring and evaluation (M&E) in Zambia is given to the day-to-day administrative data generated by government departments and agencies. Government departments and agencies generate a tremendous amount of data through their interaction with various economic agents who include individuals and firms as they provide public services. Thus, the collection of administrative data does not generate additional respondent burden, it is not derogated by memory errors and rarely suffers from unit non-response. However, administrative data usually excludes non-participants and may only include program-relevant variables resulting in the exclusion of important demographics. Similarly, survey data often lacks the programmatic detail necessary to compute features of program eligibility and is susceptible to sampling and non-sampling errors. Therefore, linking administrative data to survey data enhances the benefits and minimizes the limitations of either thereby expanding the scope for research.

However, the non-existence of statistical units in most government departments makes administrative data generated less usable in analytical research work and policy analysis thereby limiting the scope for linkage. Further, privacy concerns arise when various agencies link administrative data which, if not carefully handled, could undermine day-to-day operations of institutions concerned.

One area which presents an opportunity for the more effective use of administrative data in statistical analysis is the individual-level and firm-level data generated by the Zambia Revenue Authority as it (ZRA) executes its mandate of mobilising government revenue. The firm level or individual level data which usually spans a time series contains information on income, nature of business for firms or nature of employment for individuals as well as location. Although this information is not primarily collected for statistical purposes, it could be useful for policy and program evaluation relating not only to the tax system but also other areas of the economy. As a case in point, the country is faced with a serious challenge of timely monitoring of the number of jobs created in the economy. Without difficulty, data on employment in the formal sector could be traced from individual tax payer information collected by the Zambia Revenue Authority.

iii. Lack of panel data

The data generated is mostly cross-sectional and time series in nature. Cross-sectional data refers to data collected by observing many objects (such as individuals, firms or countries/regions) at the same point of time, or without regard to differences in time. This is collected by different samples of objects for the same variables. A case in point is the ZDHS data which reports an important (cross-sectional) statistic, the HIV prevalence rate, at a particular time and the aggregate change in the statistic between two reporting periods. While this may suffice for certain purposes, it does not give adequate insights as to how changes in economic and socio-cultural characteristics of individuals (or households) impact on the prevalence rate²⁰. There is need to understand such dynamics and that is the role of panel data which is missing in the current portfolio of statistical surveys. Panel data observes the same objects (such as groups of individuals) and variables over time and gathers information on their changing characteristics and how these changes impact on a variable of interest. Further, welfare indicators reported in the Living Conditions Monitoring Surveys (LCMS) use cross-sectional methodology²¹ which does not enable derivation of statistics such as poverty transition rates and income mobility.

²⁰The Zambia Sexual Behaviour Survey (ZSBS) conducted by CSO attempts to bridge the gap but it too is cross-sectional and is sequenced differently from the ZDHS. Thus, it still misses the dynamic element since it does not track the same respondents over time.

²¹CSO (2012) p.10

In recommending panel data, Haughton and Khandker (2009)²² argue that “only with panel data can one measure who moves into and out of poverty over time”. This information is vital since unlike static analysis, dynamic approaches to poverty will provide insights into movement of households around a poverty line²³. It would direct policy responses if it were known that people are trapped in poverty or they occasionally move in and out due to shocks such as loss of a job or illness suffered over time. In addition, “[panel data] also have econometric advantages, often allowing one to avoid bias due to unobservable factors and to avoid the problems of endogenous program placement and selective migration in evaluating the impact of government programs.”²⁴

iv. Insufficient number of indicators, outdated weights, intermittent release

Typically for certain surveys, the challenge has been the break in the sequence of releases of statistical indicators. This has created a gap as statistics are not available for certain periods making it difficult to follow trends in vital indicators. For example, the Living Conditions Monitoring Survey (LCMS) which is ideally scheduled to be carried out every two years has not been conducted since 2010. Further, weights used in indices such as the Consumer Price Index (CPI) are out of date and thus, do not reflect adequately consumption patterns in the economy. As of 2014, the weights in the CPI were last revised in the year 2002. The Household Budget Survey (HBS) which is meant to provide information of household income and expenditure could be used to update these weights if conducted annually but it too is rarely carried out. Other uses of these weights could be the compilation of the food baskets which are used to determine costs of living. Since consumer behaviour is an important aspect of business decisions, the inaccuracies with regards to weighting makes it difficult to make investment decisions as businesses cannot rely on such data to identify areas of growth in the economy consequently leading to lost opportunities with adverse consequences for economic growth and job creation.

Table 1: Major surveys and years of release

SURVEY	INTERVAL	YEARS FOR WHICH AVAILABLE				
LCMS	2 Years	1996	1998	2002/03	2004	2006/10
LFS	2 Years			2005	2008	2012
ZDHS	4 Years	1992	1996	2001/2	2007	2013/14
PHS	1 Year	1999/2000	2009/2010	2010/2011	2011/2012	
CFS	1 Year	2010/2011	2011/2012	2012/2013	2013/2014	2014/2015

Note: years in bold represent the most recent (latest) release

Moreover, major statistical registers such as the business register have not been updated. This is undesirable since these are registers upon which administrative data could be mobilized²⁵. For example, business registers could be used to derive sample frames for surveys. Additionally, updated registers could be essential in avoiding requests for information which businesses have already supplied to other government (statutory) bodies which in turn results in respondent fatigue. Outdated registers compound the over-reliance on primary data which is more costly and takes longer to obtain. With outdated statistical registers, it becomes difficult to conduct more frequent statistical activities such as the business surveys, which if conducted more frequently, would be less costly and less time consuming.

Additionally, there is no producer price index (PPI) to complement the CPI in measuring inflation. Ideally, the PPI should be used as a deflator for constant gross domestic product (GDP) calculations as opposed to

²²Haughton and Khandker (2009) p.203

²³Kirimi and Sindi (2006) p. 3

²⁴Haughton and Khandker (2009) p.203

²⁵Business Registers Recommendations Manual p.18

the CPI as is currently the case. One important benefit of using the PPI is that it is able to show changes in economic activity which would only be reflected at later periods by the CPI and the GDP deflator. Hence, the PPI serves as a better monitoring mechanism of business cycles since it allows monitoring of short-term price inflation at various stages of production²⁶. Likewise, the PPI includes a broader range of products bought by producers and consumers but does not include imports in its imputation and so, it is a better deflator of 'domestic' product. Also, using the PPI and CPI together would highlight the impact of subsidies, sales and excise taxes and distribution costs on prices²⁷. Availability of such statistics should be very informative for government as it contemplates the direction of its fiscal policy.

Interestingly, statistics on government activities are also generally poor. In Zambia, some statistics on Central and Local Government are collected but the response rates have been very low. This introduces inaccuracies in the statistical data compiled.

Another important element missing from statistical data available which relates to the national accounting framework is input-output tables or supply and use tables. "Supply and use tables offer a detailed picture of the economy by providing the elements of the production process, the use of the goods and services (products) and the income generated in that production... The supply and use tables describe, in a collection of matrices, how supplies of different kinds of goods and services originate from domestic industries and imports and how those supplies are allocated between various intermediate or final uses, including exports"²⁸

v. Missing Import and Export Prices Data

Globalization entails increased movement of goods and services, labour and capital across international borders. Hence, the impact that international trade has on various aspects of the economy is of paramount importance. To be able to analyse the dynamics of the economy vis-à-vis trade, data needs to go beyond the aggregates provided by volume and value statistics. The available trade data is mostly related to values and volumes but does not include measures of import and export prices disaggregated by product and by source country.

It could be argued that value divided by volume would enable one to arrive at the unit price. So if volumes and values are being correctly captured at the transactional level, there is no missing import and export price information and it is then up to the analyst to do his analytical work of constructing the appropriate variables. However, this is not entirely correct since the result of such an exercise would be to give unit values not prices. Kravis and Lipsey (1971) advance the following thoughts: "Unit values are per unit of quantity within detailed export or import classifications. However, since the classifications must in total cover every item of trade, they cannot be narrowly specified unless their number is increased far beyond any practical limit. As a result of the lack of close specification, there is never any certainty that a change in unit value represents a change in price; the unit value of a trade classification can change, even though all prices are constant, if there is a shift from one quality or type of item to another"²⁹ Thus, the effects of foreign exchange, for example, on prices of traded goods and consequently, domestic prices cannot be accurately measured despite the possibility of obtaining unit values from aggregate values and volumes data.

Introducing import and export price data say Feenstra et al³⁰, would enable a country to know, inter alia, the geography of international competition in trade, impact of import prices on inflation and wages, the effects of import prices on domestic production costs and productivity and further an understanding of the dynamics of globally-engaged firms (including offshoring). In addition and as earlier alluded to, the right

²⁶Statistics South Africa, "Producer Price Index: Methods, Sources and Theory" p.3

²⁷US Bureau of Labour Statistics, "Producer Price Indexes-November 2014" Press Release, December 12, 2014 pp.11

²⁸KEurostat "Building the System of National Accounts - supply and use tables," accessed at: http://ec.europa.eu/eurostat/statistics-explained/index.php/Building_the_System_of_National_Accounts_-_supply_and_use_tables

²⁹Kravis and Lipsey (1971), "Price Competitiveness in World Trade," p. 4

³⁰Feenstra et al (2010), "Report on the State of Available Data for the Study of International Trade and Foreign Direct Investment," NBER Working Paper 16254, Massachusetts

deflators are required to convert national accounting data from nominal values to real terms. This means foreign sector aggregates³¹ too require appropriate prices at which they are deflated in order to measure real net exports. Hence, an import-export price index would be a more suited deflator³² given the limitations of the CPI. The utility of import-export indexes is considerable. Uses may include: “predicting possible future inflation in both domestic production and prices charged to consumers, setting fiscal and monetary policy, measuring the impact of exchange rates, forecasting future prices using historical data, negotiating private trade contracts, and identifying industry specific and global price trends.”³³ In this regard, import-export price information plays a significant role in informing anti-dumping policy and where necessary, provides a basis for the implementation of countervailing duties.³⁴

4

Recommendations

The following recommendations are hereby made so as to enhance the development of the NSS as well as aid in its implementation:

1. In order for the NSDS to be successful and contribute to better statistical data, it is imperative that harmonization of the various stakeholders is ensured. This can be achieved by enacting the relevant law, empowering the Central Statistical Office to take on leadership responsibilities in the NSS, establishing coordinating mechanisms for the NSS (including sectoral and subject matter committees for statistics) and harmonizing (standardizing) terms, concepts and nomenclature of statistics across users and producers.
2. Given that an NSDS has been put in place, it is our proposal that sectoral statistical development strategies (SSDS) be developed since this was not done prior to the design of the NSDS. This will support further integration of the NSS as sector-specific statistical priorities are set to advance the growth of currently under-developed statistical units. This will empower implementing institutions in carrying out sector specific monitoring as they have control of the administrative systems that generate most intermediate programme indicators³⁵. Developed and well-implemented sectoral strategies will enhance the use of administrative data which is currently under-utilized. Institutional audits in the form of a Situational Analysis and Statistical Needs Assessment³⁶ have already been conducted and so, devising coherent sector-specific statistical development strategies based on recommendations of the needs assessment shall facilitate for increased capacity of the currently under-developed sectoral Management Information Systems (MIS) and statistical systems and is cardinal for achieving harmonization of the NSS.
3. To ensure sustainability of statistical operations, there is need to secure stable financing. Taking after the Nigerian case³⁷, consideration should be made for the setting up of a national statistics fund which shall pool resources from public agencies, private institutions and donor agencies with the specific aim of supporting continued production of statistics. Similarly, statistical advocacy to raise the profile of

³¹For a full complement of national accounts, such aggregates may include: *monthly trade statistics, balance of payments account and import and Export components of the Gross Domestic Product (GDP)*

³²Bureau of Labour Statistics (2009), “*Handbook of Methods*,” US BLS

³³Bureau of Labour Statistics (<http://www.bls.gov/respondents/mxp/faqs.htm#>)

³⁴Countervailing duty is extra duty charged on subsidized imports that are found to be hurting domestic producers. Such duties are meant to prevent imported products from having unfair price advantage over domestic products on account of foreign governments providing assistance and subsidies, such as tax breaks to manufacturers that export goods enabling the manufacturers to sale the goods cheaper than domestic producers.

³⁵Nsemukila (n.d) p.3

³⁶CSO, “Situational and Statistical Needs Assessment”, March 2011

³⁷Vincent Akinyosoye “Repositioning the National Statistical Systems of African Countries within the Framework of International Best Practices: The Case of Nigeria” in *The African Statistical Journal*, Volume 6, May 2008 p.191

statistics as a public good should be made an important part of the NSDS process so as to break the “vicious cycle” of statistical under-development.³⁸ This is against the observed phenomenon of low priority being attached to statistical production, and there remains, as a result, under-funding of statistical agencies. Sturdier funding will especially enable statistical agencies produce more indicators, update weights and smooth out irregularities in the release of vital statistics.

4. In line with the aspirations of the NSDS, IT infrastructure should be improved so as to allow the setting up and maintenance of statistical databases. This involves, inter alia, expediting the development of an Integrated Multi-sector Management Information System (IMMIS) and central intelligent data warehouse. One step in this direction would be the revival of the National Data Archive (NADA) as the central repository of micro-data and time-series that can be used for further analysis by researchers, policy analysts, academicians and decision makers. All institutions that make up the NSS should be permitted to contribute to this (or other suitable) computerized database to ensure availability and ease of access to sector-specific data.
5. Increase the number of indicators and types of data. For example, the introduction of panel surveys would facilitate the interrogation of dynamic shifts in the behaviour of economic and social variables which in turn shall offer much richer insights to policy makers and programme implementers. High frequency data such as quarterly GDP and monthly employment data will also offer timely information to allow the monitoring of vital socio-economic indicators.

5

Conclusion

It is clear from our discussion in this paper that statistics are central to the development agenda and this is evidenced by developing countries’ increasing use of statistics to support development programmes. In order for progress to be measured, gaps identified, and correct priorities set, statistics will be an indispensable component of the development practitioner’s toolkit. Policy making, programme implementation and evaluations are futile exercises if they are void of quality statistics. Furthermore, the impact that sound statistical evidence has on development is conditional on full appreciation of its importance and skilful application to development problems. Hence, users of statistics need to understand the strengths and weaknesses of statistics and be able to use them appropriately. Thus, in as much as this paper advocates for suitable levels of investment in production of statistics, we equally call for a commensurate share of that investment in developing human capital to enhance skills in handling statistics by both producers and users of statistics.

Given that a case for statistics has already been made and government has shown commitment to enhancing the development of the national statistical system through the NSDS, we hereby reiterate the importance of implementation of the plan. Action on the provisions of the strategy especially with regard to the legal and institutional framework and ensuring sufficient funding will be critical to the success of the strategy.

³⁸Paris21 (2007) p. 13

References

1. OECD online Glossary of Statistical Terms (<http://stats.oecd.org/glossary/index.htm>)
2. Lehohla, P. (2002), *"The National Statistics System: Our Challenge,"* Statistics South Africa, Cape Town.
3. CSPR (2008), *"Mid-Term Evaluation of the Fifth National Development Plan,"* Lusaka
4. Sutcliffe and Court (2005), *"Evidence-Based Policymaking: What is it? How does it work? What relevance for developing countries?"* Overseas Development Institute
5. FAO *"UK donates \$25 million to improve agricultural statistics,"* accessed at www.fao.org/news/story/en/item/132897/icode/ on April 2, 2015
6. Tsiko, S. (2011), *"Lack of Data Hinders Economic Planning,"* *The Herald-Zimbabwe, February 27, 2011*
7. Dhaliwal and Tulloch (2012), *"Using Evidence from Impact Evaluations to Inform Development Policy,"* *Journal of Development Effectiveness*, Volume 4, Issue 4, 2012
8. Krätke, F. and Bruce, B. (2014), *"The Political Economy of Official Statistics Implications for the Data Revolution in Sub-Saharan Africa,"* PARIS21
9. Kiregyera, B. (2001), *"Advocacy for Statistics and Statistical Governance,"* Paper presented at the PARIS21 Workshop for East Africa and The Horn on *"Supporting Development Policy with Statistics,"* Kampala, Uganda, 23-26 July 2001.
10. IMF (2001), *"Manual of Quarterly National Accounts,"* IMF, Washington.
11. CSO (2012), *"National Strategy for the Development of Statistics in Zambia: 2011-2015,"* Lusaka
12. Houghton, J.H. and Khandker, S.R. (2009), *"Handbook on Poverty and Inequality,"* World Bank, Washington.
13. Kirimi, L. and Sindi, K. (2006), *"A Duration Analysis of Poverty Transitions in Rural Kenya,"* Michigan State University, Michigan
14. Wohlrabe, K. (2008), *"Forecasting with Mixed-frequency Time Series Models,"* Doctoral Thesis, University of Munich
15. European Commission (2003), *"Business Register Recommendations Manual,"* Luxembourg
16. Statistics South Africa, *"Producer Price Index: Methods, Sources and Theory"* pp.3
17. US Bureau of Labour Statistics, *"Producer Price Indexes-November 2014"* Press Release, December 12, 2014 pp.11
18. Kravis, I.B and Lipsey, R.E. (1971), *"Price Competitiveness in World Trade,"* NBER/ Columbia University Press, New York
19. Feenstra et al (2010), *"Report on the State of Available Data for the Study of International Trade and Foreign Direct Investment,"* NBER Working Paper 16254, Massachusetts
20. Bureau of Labour Statistics (2009), *"Handbook of Methods,"* US BLS
21. CSO, *CSOSTATSNEWS*, Issue No. 1, September 2001 pp.2
22. CSO (2012), *"National Strategy for the Development of Statistics in Zambia: 2011-2015,"* Lusaka pp.1
23. Giovannini et al (2009), *"Statistics, Knowledge and Governance,"* presented at the Conference: "Statistics - Investment in the future 2" Prague, 14-15 September 2009
24. Nsemukila, B. (n.d), *"Addressing the Data Requirements for the Poverty Reduction Strategy Process: The Case of the Zambian Statistical System,"* CSO, Lusaka
25. Vincent Akinyoso "Repositioning the National Statistical Systems of African Countries within the Framework of International Best Practices: The Case of Nigeria" in *The African Statistical Journal*, Volume 6, May 2008 p.191
26. PARIS21 (2007), *"National Strategies for the Development of Statistics (NSDS): Some Issues in Design and Implementation Planning,"* PARIS21 Secretariat, Paris
27. McNabb, J, et al (2009), *"Uses of Administrative Data at the Social Security Administration,"* in *Social Security Bulletin* No.69 Vol.1, 2009

the \mathbb{R}^n is a linear space over \mathbb{R} and \mathbb{C} and a vector space over \mathbb{R} and \mathbb{C} .

Let V be a vector space over \mathbb{R} or \mathbb{C} . Let \mathcal{B} be a basis for V . Let $\mathcal{B} = \{b_1, b_2, \dots, b_n\}$.

Let $v \in V$. Let $v = x_1 b_1 + x_2 b_2 + \dots + x_n b_n$.

Let $v = (x_1, x_2, \dots, x_n)$.



Zambia Institute for Policy Analysis and Research (ZIPAR)

P.O. Box 50782, Lusaka, Zambia
CSO Annex Building
Corner of John Mbita and Nationalist Road, Lusaka
Phone: +260 211 252559
Fax: +260 211 252566
Email: info@zipar.org.zm
Website: www.zipar.org.zm
www.facebook.com/OfficialZIPAR
Twitter: [@ZiparInfo](https://twitter.com/ZiparInfo)