

Research Ecosystem Strengthening through the Development of a Public Affairs Index to Support the Devolved System of Government in Kenya

*Paul Lutta
Cecilia Naeku
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Judith Nguli
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KIPPRA in Brief

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Bishops Garden Towers, Bishops Road

PO Box 56445-00200 Nairobi, Kenya

tel: +254 20 2719933/4; fax: +254 20 2719951

email: admin@kippra.or.ke

website: <http://www.kippra.org>

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The KIPPRA Special Reports Series deals with specific issues that are of policy concern. The reports provide in-depth survey results and/or analysis of policy issues. They are meant to help policy analysts in their research work and assist policy makers in evaluating various policy options. Deliberate effort is made to simplify the presentation in the reports so that issues discussed can be easily grasped by a wide audience. KIPPRA appreciates any comments and suggestions arising from this report.



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In addition, we extend our gratitude to the technical officers from the 47 counties, university researchers and other government institutions that participated in the survey that informed part of this project. We are also thankful to other research ecosystem stakeholders for their active participation and providing invaluable comments during the validation and dissemination forums.

EXECUTIVE SUMMARY

The Public Affairs Index (PAI) is a framework for monitoring delivery of public services at the county level. The Index helps to identify gaps, bring out emerging issues, and guide in prioritizing policy actions. The project that generated the PAI demonstrates the role of KIPPRA, as a think tank and research intermediary, in strengthening frameworks and tools for coordinating key stakeholders in the research ecosystem in Kenya to dialogue, network and enhance research uptake to inform the implementation of the devolved system of government. Through the project, five ecosystem strengthening goals have been achieved, as part of the RISA Fund, namely the building of human capital for the research stakeholders involved, enhancing research uptake into policies and regulations at the national platform as well as county level, equitable and inclusive participation devolved to each of the 47 counties, the networking of assets to drive collaboration between research actors and policy makers, and providing incentives for high quality research.

Hence, based on the RISA project, this report provides detailed indicators in the framework across nine pillars, namely fiscal management, economic performance, human capital development, essential infrastructure, environmental management, transparency and accountability, crime and justice, water, sanitation and hygiene (WASH), and social welfare. The indicators that form the pillars were constructed using both primary and secondary data sources and an adapted distance-to-frontier score methodology (DTF).

Devolution is one of the most significant changes in governance structure in Kenya, after a long-standing desire to move away from a centralist form of governance since independence. The main objective of creating the new governance structures as spelt out in Article 174 of the Constitution, is to devolve power and resources to attain optimal delivery of public services and allow citizens to effectively participate in governance. The fourth schedule of the Constitution outlines 14 functions now fully devolved to county governments. Since 2013, about Ksh 2 trillion have been disbursed to the counties to facilitate delivery of public services.

The County Government Act 2012, the Public Finance Management Act 2012, and the Public Finance Management Regulations 2015 provide the legal framework for devolution and fiscal decentralization. County governments are mandated by the County Government Act 2012 to implement Integrated Development Planning.

This involves developing 5-year County Integrated Development plans (CIDP) to guide planning, budgeting, allocation of resources and to monitor progress of project implementation.

Key findings of the Public Affairs Index were as follows

The overall index average score was 0.61 ranging from 0.52 to 0.73. Among the pillars that made up the index, the highest average scores were on the Transparency and Accountability (0.74), Human capital development (0.71) while the lowest average score was on the Environmental Management pillar (0.47), Crime and Justice (0.53) and Economic Performance (0.56).

1. *Fiscal Management*

Fiscal management involved looking at compliance with legal budgetary controls and allocation rules, ability to raise own source revenue and prudent management of revenue. Compliance to PFM regulations on development expenditure to total expenditure and personal emolument to total revenue ceiling requires further action with over 50% of the counties scoring below the average. Commitment to pending bills resolution was lower for the development expenditure pending bills compared to resolution of recurrent expenditure pending bills. Own source revenue mobilization indicator was low raising concerns over the high level of dependency on Equitable Share from National Government. This highlights the need for counties to establish budget monitoring and evaluation frameworks and strong budgetary controls to enhance compliance with fiscal rules. There is also need to inculcate a culture of public interest among state officers at county level and enhance use of technology to increase revenue collection.

2. *Economic Performance*

Although counties recorded high scores on financing growth, they had significantly low scores on enabling business environment and economic diversity. This indicating that most counties are yet to deepen their structural transformation to reduce reliance on agriculture as well as create an enabling environment for growth of the private sector. County overall economic performance indicated robust economic growth rate but was below the national aspiration of 10%. It is important for counties to work with National Government to set up Special Economic Zones and Industrial Parks to increase their levels of manufacturing as well as address barriers that hinder private sector growth.

3. *Human Capital*

Overall, this pillar had a high score, mainly because of good performance on children vaccination coverage, adult literacy rates and school enrolment rates. Despite the good scores, the percentage of births attended by skilled health personnel remains low. This is despite the number of programs and campaigns rolled out by the National and County governments to improve on maternal and child health outcomes, and also contribute to gender equality and social inclusion (GESI). The low scores are more prominent in rural and ASAL areas raising a pertinent policy concern on equitable access to maternal healthcare. This highlights the need to continuously provide adequate funding to County health departments and train the traditional birth attendants and community health workers to serve as a strong link between communities and healthcare systems.

4. *Essential Infrastructure*

Essential infrastructure including schools' ICT connectivity, transport affordability, mobile money subscription and access to work indicators recorded high scores. However, average scores were low for households with quality housing, access to electricity and access to internet connectivity. The low scores revealed disparity between urban counties and rural counties. This could slow Kenya's progress towards achieving national goals and SDG 7 and 9 on universal access to information and communications technology and electricity. As such, it is important to accelerate the rural electrification programs and improve on internet connectivity across the country.

5. *Environmental Management*

Environmental management scored the lowest among all the pillars of the PAI. Clean energy use was very low, and forest and solid waste management regulatory and institutional frameworks were weak. These low scores are of policy concern as they may affect Kenya's attainment of national goals as well as SDG goals 7 and 15 on clean energy and forest conservation respectively. There is, therefore, need to continue with efforts to encourage use of clean energy technologies and develop stronger regulatory frameworks for environmental management.

6. *Transparency and Accountability*

High scores on addressing corruption and adhering to public participation best practice reveal counties effort in strengthening their accountability to the citizenry.

Citizen's participation in decision making at the county remains important for a successful devolution process. Although counties had good scores on public participation best practices, they are yet to put in place adequate regulatory and institutional frameworks. Therefore, there is need to develop policies and legislative framework to guide the public participation as well as allocate adequate funding for civic education to create awareness. Counties can enhance partnerships with NGOs and development partners to effectively conduct public participation and civic engagement.

7. *Crime and Justice*

Although law and order are functions of the national government, counties have a role in reducing crime incidences in their jurisdiction. For instance, Counties have been at the forefront in supporting GBV victims through services such as psychological counselling, medical and legal support. Prevalence of all offences and GBV recorded low scores. Thus, there is need for a comprehensive coordination framework for both national and county government on security initiatives.

8. *Water Sanitation and Hygiene (WASH)*

Though counties had slightly above average scores on access to improved water and sanitation, there is a huge disparity among the ASAL and rural counties. This can potentially slow Kenya's progress towards attaining SDG goal 6 targets 6.1 and 6.2 on achieving universal and equitable access to safe and affordable drinking water, sanitation and hygiene for all by 2030. To improve on access to WASH services County Governments need to continue supporting County Water and Sewerage Service Companies to offer pro-poor tariffs, scale up investment in sanitation infrastructure to enhance access to improved sanitation to unserved and underserved populations and encourage use of technologies in water harvesting and water treatment at household level.

9. *Social Welfare*

Counties are doing well with health sector budget. However, the high percentage of households with deprivation of essential services coupled with the low absorption of the budget allocated to social welfare programmes is of concern. Although social protection is largely a national government function and counties have been helping in coordinating the programmes, the high percentage of households with deprivation of essential services indicates more efforts need to be put in place even at county level. Counties can consider, developing county

specific social protection cash transfer programmes to supplement the national government programmes to increase reach to populations experiencing food and multidimensional poverty. Higher social welfare budget execution will also go a long way in enhancing the social welfare programmes, including GESI. Counties can also enhance existing programmes that directly and indirectly reduce levels of food and multidimensionally programmes such as agricultural projects and educational scholarship among others.

ABBREVIATIONS AND ACRONYMS

ASAL	Arid and Semi-Arid Lands
ATIP	African Technology and Innovation Partnerships
CRA	Commission on Revenue Allocation
CIDP	County Integrated Development plans
DTF	Distance to Frontier
ECD	Early Childhood Education
FCDO	Foreign Commonwealth and Development Office (UK)
GBV	Gender Based Violence
GDP	Gross Domestic Product
GESI	Gender Equality and Social Inclusion
HDI	Human Development Index
KRA	Kenya Revenue Authority
KDHS	Kenya Demographic Health Survey
KIHBS	Kenya Integrated Household Budget Survey
KIPPRA	Kenya Institute for Public Policy Research and Analysis
KNBS	Kenya National Bureau of Statistics
MP	Multidimensional Poverty
NACOSTI	National Commission for Science Technology and Innovation
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OSR	Own Source Revenue
PAI	Public Affairs Index
PCA	Principal Component Analysis
PPP	Public Private Partnerships
RISA	Research and Innovation Systems for Africa
SDG	Sustainable Development Goals
SRC	Salaries and Remunerations Commission
SRIA	Strengthening Research Institutions in Africa
STI	Science, Technology and Innovation
WASH	Water Sanitation and Hygiene
WEF	Women Enterprise Fund
YEDF	Youth Enterprise and Development Fund

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1. INTRODUCTION

The 2010 Constitution of Kenya created a two-tier system of government: a national government and 47 county governments that are distinct in nature but interdependent. The devolution system of governance, which has transformed the management of the country's political, social economic affairs, has placed Kenyan citizens from the 47 sub-national governments at the core of governance, affording them a greater voice and inclusion. As provided in Article 174 and 175 of the constitution, the objects of devolution aim to promote democracy and accountability in the exercise of power, foster national unity by recognizing diversity, enhance people's self-governance, empower communities manage their own affairs, protect, and promote interests and rights of minorities and the marginalized through equitable sharing of resources. The objects are achieved through executing the devolved functions mandated to the County Governments which include health, water, and agriculture, among other functions as outlined in the fourth schedule of the Constitution.

To provide public services, the County Governments have three main sources of revenue, the first one is the annual equitable share, which is at least 15% of total national government's most recent audited and approved revenue as stipulated by article 210 (2), (3) of the Constitution of Kenya 2010. Secondly counties receive conditional or unconditional grants from national government and development partners. Thirdly, counties are expected to mobilise revenues from other sources within their counties through fees and taxes as defined in article 209 of the Constitution. In addition, 14 Counties historically marginalised counties receive conditional grants as part of the Equalization Fund used to provide basic services including water, roads, health facilities and electricity to improve the quality of service as articulated in Article 204 of the Constitution. Since the advent of the devolution about Ksh 2 trillion has been disbursed to the counties (Table 1).

The decentralisation of functions and supporting financial resources, brought to closer proximity of citizens, has set a path towards the fruition of the anticipated benefits of devolution. Citizens are more engaged in the policy formulation process and are empowered to monitor spending efficiency of public resources, thus holding the County governments accountable. Resultantly, devolution is likely to contribute to economic growth of counties through improved planning; better prioritization of projects that better target citizen needs; better monitoring of government activities, contributing to better governance; and increased development effectiveness, resulting in better quality of public services.

Table 1: Total Amount of Funds Disbursed to Counties

Fiscal Year	National Government Budget Estimates (Ksh, trillion)	Counties Allocation From Equitable Share (Ksh, billion)	Allocations to Counties (%)	Counties Own source Revenue (OSR) (Ksh, billion)	OSR to total County Revenue (%)
2020/2021	3.2	369.9	11.3	35.7	8.8
2019/2020	3.2	378.5	12.0	34.0	8.2
2018/2019	3.1	376.5	12.0	40.3	9.6
2017/2018	2.7	345.7	12.0	32.4	8.5
2016/2017	2.6	302.2	11.0	32.5	9.7
2015/2016	2.2	287.0	13.0	35.0	10.8
2014/2015	2.1	242.5	12.0	33.8	12.2
2013/2014	1.6	210.0	13.0	26.2	11.1

Source: The National Treasury and Controller of Budget Reports 2013-2021

To achieve full benefits of devolution, of improved delivery of devolved services, and better management of devolved resources, there is a need for good governance which ensures that public interest is prioritised. For instance, accountability as one of the principles of good governance is a key determinant in ensuring that different actors in the service delivery chain deliver on their roles. Ideally, when decision making power is transferred from a principal (e.g., citizens in county governments) to an agent (e.g., county leaders including politicians and bureaucrats), there must be a mechanism in place for holding the agent to account for their decisions, and if necessary for imposing sanctions¹.

Notably, it is combination of all principles of governance which include transparency responsiveness, inclusiveness, participation, equity, effectiveness and efficiency, adherence to the rule of law, and consensus which will promote the success of devolution. In addition, the national government has taken the initiative to establish statutory institutions which promote the implementation of inter-governmental frameworks through bringing both levels of governments together for consultation, cooperation, and coordination of service delivery. They include National & County Governments Coordinating Summit, Council of Governors, Intergovernmental Relations Technical committee, Intergovernmental Budget & Economic Council, County Intergovernmental Forum, Sectoral Forums and Joint Intergovernmental Technical Committee.

To further contribute to the collective efforts of promoting good governance, KIPPRA has developed a framework to monitor the achievements with the governance structure and help to strengthen the quality-of-service delivery by the

¹ Lindberg, S.I., 2013. Mapping accountability: core concept and subtypes. International review of administrative sciences, 79(2), pp.202-226.

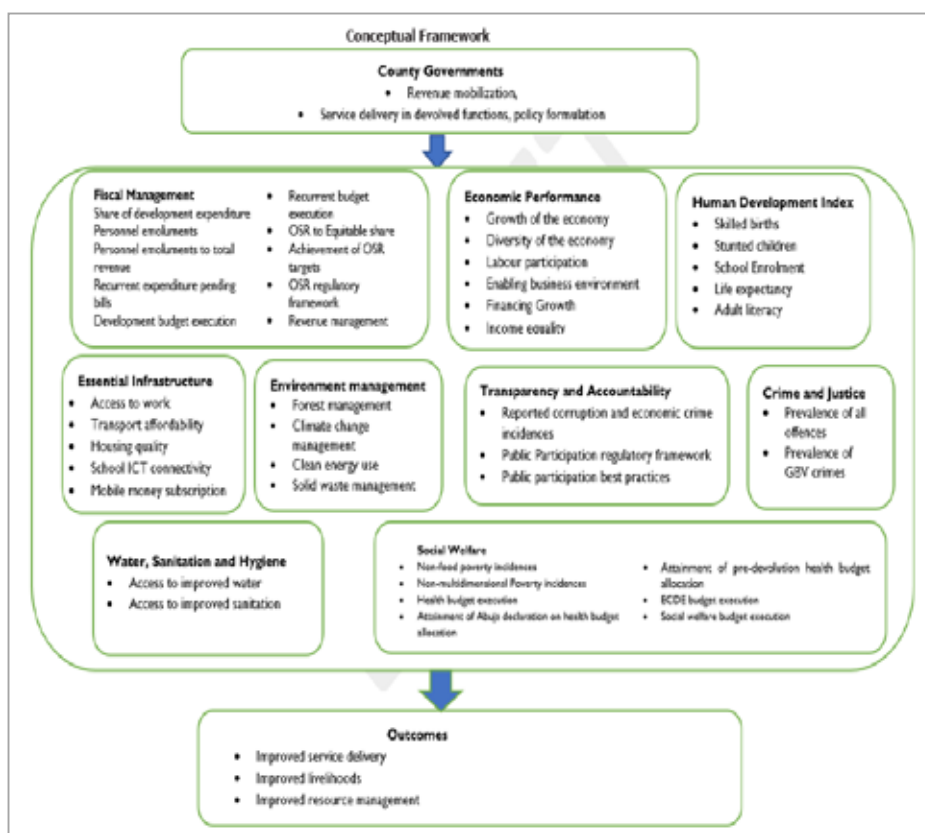
county governments. It also serves as an intermediary in strengthening frameworks and tools for coordinating key stakeholders in Kenya's research ecosystem to dialogue, network and enhance research uptake to inform implementation of the devolved system of government in Kenya. The various pillars which constitute the index have been identified by experienced practitioners and their performance is benchmarked against Kenya's aspirations, commitments and widely accepted best practices.

2. METHODOLOGY

2.1 Conceptual Framework

This section provides a description of the pillars used in the construction of the Public Affairs Index 2022 including measurements, data and methodology used in computing the index.

Figure 1: Conceptual Framework



Source: Authors

Table 2: Description of the Pillars for Kenya's Public Affairs Index

	Pillars	Indicators	Measurements
1	Fiscal Management	Compliance with PFM Regulations - Share of development expenditure - personnel emoluments to total revenue Resolve on pending bills - Recurrent expenditure pending bills - Development expenditure pending bills Budget execution - Recurrent budget - Development budget Revenue mobilization - Own Source Revenue (OSR) to Equitable Share - Achievement of (OSR) targets - OSR regulatory framework - Revenue management	- Development expenditure to total expenditure (%) - Personnel emoluments to total revenue (%) - Recurrent expenditure pending bills to total recurrent expenditure (%) - Development expenditure pending bills to total development expenditure (%) - Recurrent expenditure absorption rate - Development expenditure absorption rate - The share OSR to equitable share - Actual OSR collection to targeted collections - Existence of approved policies, acts, plans, departments to guide revenue collection and management - Revenue management practices (such as revenue automation, IT system for monitoring and evaluation of revenue collection)
2	Economic performance	- Growth of the economy - Diversity of the economy - Labor participation - Enabling business environment - Financing growth - Income equality	- Average Real GCP Growth 2014-2017 - Contribution of manufacturing to GCP 2013-2017 - Labor participation rate (%) - CBEM score 2022 - Percentage of financial access - Gini coefficient
3	Human Capital Development	Health - Use of skilled birth attendants - Non-stunted children - Vaccine coverage Education - School enrollment - Adult literacy Life expectancy	- Percentage of births attended by skilled health personnel - Percentage of non-stunted children - Percentage of Children 12 -23 months fully vaccinated - Primary school net enrolment (%) - Adult literacy rate (%) - Life expectancy at birth (years)
4	Essential Infrastructure	- Access to work - Transport affordability - Housing quality - Internet connectivity - School ICT connectivity - Mobile money subscription - Access to electricity	- Average distance to workplace - Average cost of transport to workplace - Percentage of households with adequate housing quality measured by finished composite housing materials - Percentage of households with home internet connectivity - Percentage of schools with ICT connectivity - Percentage of population subscribed to mobile money transfer platform - Percentage of Households with access to electricity

5	Environment Management	• Clean energy use • Forest management • Climate change management • Solid Waste management	• Percentage of households using clean cooking energy • Existence of county specific forest management policies, acts and guidelines • Forest management best practice by county governments (promoting the establishment of private forests, incorporated forest management in the CIDPs) • Existence of county specific climate change policies, acts and guidelines • Climate change best practices by county governments (having experts, incentives systems, capacity building households on climate resilience and mainstreaming in CIDPs) • Existence of county specific solid waste management policies, acts and regulations • Solid waste management, best practices (collaboration with stakeholders, information management system, creating awareness, PPP, recycling and recovery, collection and sorting, composting sites, engaging public in clean up exercises)
6	Transparency and Accountability	• Control of corruption • Public participation regulatory framework • Public participation best practices	• Reported incidences Corruption & Economic crime rate per 100,000 • Existence of county specific public participation policies, acts and regulations/guidelines • Public participation best practices (providing timely information, giving feedback to public on decisions made, involving public in the process, inclusion of all in public forums, facilitating public participation through budgeting, incorporating public views in decision making).
7	Crime and justice	• Prevalence of All offences • Prevalence of GBV crimes	• All offences rate per 100,000 population • GBV crime rate per 100,000 population
8	Water, Sanitation and Hygiene	• Access to improved water • Access to improved sanitation	• Percentage of households with access to improved water • Percentage of households with access to improved sanitation

9	Social welfare	• Non-food poverty incidences • Non-multidimensional poverty incidences • Health budget execution • Attainment of Abuja declaration on health budget allocation • Attainment of pre-devolution health budget allocation • ECDE budget execution • Social welfare budget execution	• Percentage of non-food poor households • Percentage of non-multidimensionally poor households • Health budget absorption rate for the last 2 financial years 2019/20-2020/21) • Actual health sector budget allocation vs Abuja declaration health budget allocation (15%) • Actual health sector budget allocation vs pre-devolution health sector budget allocation (35%) • ECDE Budget absorption rate in last 2 financial years 2019/20-2020/21 • Social welfare budget absorption rate in last 2 years 2019/20-2020/21
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2.2 The Analytical Approach

The World Bank distance to frontier (DTF) approach was used in computing the Public Affairs Index (PAI) framework (World Bank, 2018). The analysis involved a two-step process. First, the indicators were computed to percentages and rates to make them comparable across counties, thereafter the indicators were presented as a normalized index value, meaning that the values resulting from computations were converted to a scale from 0 to 1 using DTF approach. The choice of the indicators included in the computation of the index was informed by literature, government commitments relevance to Sustainable Development Goals (SDG). The reliability and relevance of the indicators were also supported by the Principal Component Analysis (PCA) and Cronbach alpha results.

Further, using the responses for each indicator were examined and classified in terms of the best (here-in referred to as the frontier) and the worst. In computation of the PAI, the best performance on the indicator formed the frontier for the indicator (also referred to as the benchmark, best practices, the standards/norms, fiscal ceilings, and Kenya's aspiration according to different frameworks Kenya Vision 2030, SDGs, Ratified Treaties, government set targets), while the worst performance of the indicator was taken to represent the worst. Equation 1 shows how the score for the sub-indicator was calculated.

$$Score = \frac{(Worst - y)}{(Worst - frontier)} \dots \dots \dots 1$$

Where y is the response given for each indicator, *Worst* indicates worst performance and *frontier* shows best performance in each indicator represented by the benchmark. The score ranges from zero (0) to one (1). Equation 1 gives the score for each question responded by an individual. This methodology gave an

indication of how far each county was from the best practice and made it easy to rank the performance. In the second step, a score for each sub-pillar was obtained by taking arithmetic mean of all the scores for the indicators. The scores for the pillars were obtained by taking an simple equal weighted average of sub-pillars or indicators where applicable.

For primary data counties had varying scores on the regulatory and institutional frameworks and best practices. The scores were standardized using the adapted distance to frontier methodology to be on a scale of 0-1, 1 being the benchmark and 0 being the worst performance. The questions per section were all weighted equally with every point earned moving towards perfect score of 1.

2.3 Data Sources

2.3.1 Secondary Data

The largest data set used in the computation of the PAI was from the various secondary data sources. These included data from Kenya National Bureau of Statistics (KNBS) including 2019 Population Census, Kenya Demographic Health Survey (KDHS) 2014 updated in 2018, Kenya Integrated Household Budget Survey 2015/16 (KHBS), and Gross County Product, Office of Controller of Budget reports (FY2013/14-2020/21), United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Education statistical booklets 2014-2018, KIPPRA's County Business Environment for MSEs (CBEM) 2022 report and 2021 FinAccess Report.

2.3.2 Primary Data

To supplement secondary data, primary data was collected through Key Informant Interviews (KII) from all the 47 counties provided by technical officers from departments of Environment, Budgeting and Planning, Health, Social welfare, Devolution and Public Administration and Agriculture. The primary data was also used to explain some of the results from secondary data analysis. Prior data request was sent to counties through the Office of the County Secretary three weeks before commencement of the data collection exercise. Pre-test of the data collection tool was conducted in Kiambu and Nairobi City counties. Data collection took place between 30th January 2022 and 18th February 2022 and follow ups on additional data continued within the same period. Close-ended questionnaire were used to gauge the county performance on a set of institutional and regulatory frameworks and recommended best practices.

2.3.3 Reliability Test Results

In computation of the PAI, two reliability tests were conducted, that is, the Cronbach's alpha test and the Principal Component Analysis (PCA). These tests were important in gauging whether the indicators included in the computation of the index conformed with the reliability and consistency statistical requirements. The test results are discussed below in the appendix.

3. PUBLIC AFFAIRS INDEX

The PAI constituted a total of nine pillars namely: Fiscal Management; Economic Performance; Human Capital Development; Essential Infrastructure; Environment Management; Transparency and Accountability; Crime and Justice; Water Sanitation and Hygiene (WASH) and Social Welfare.

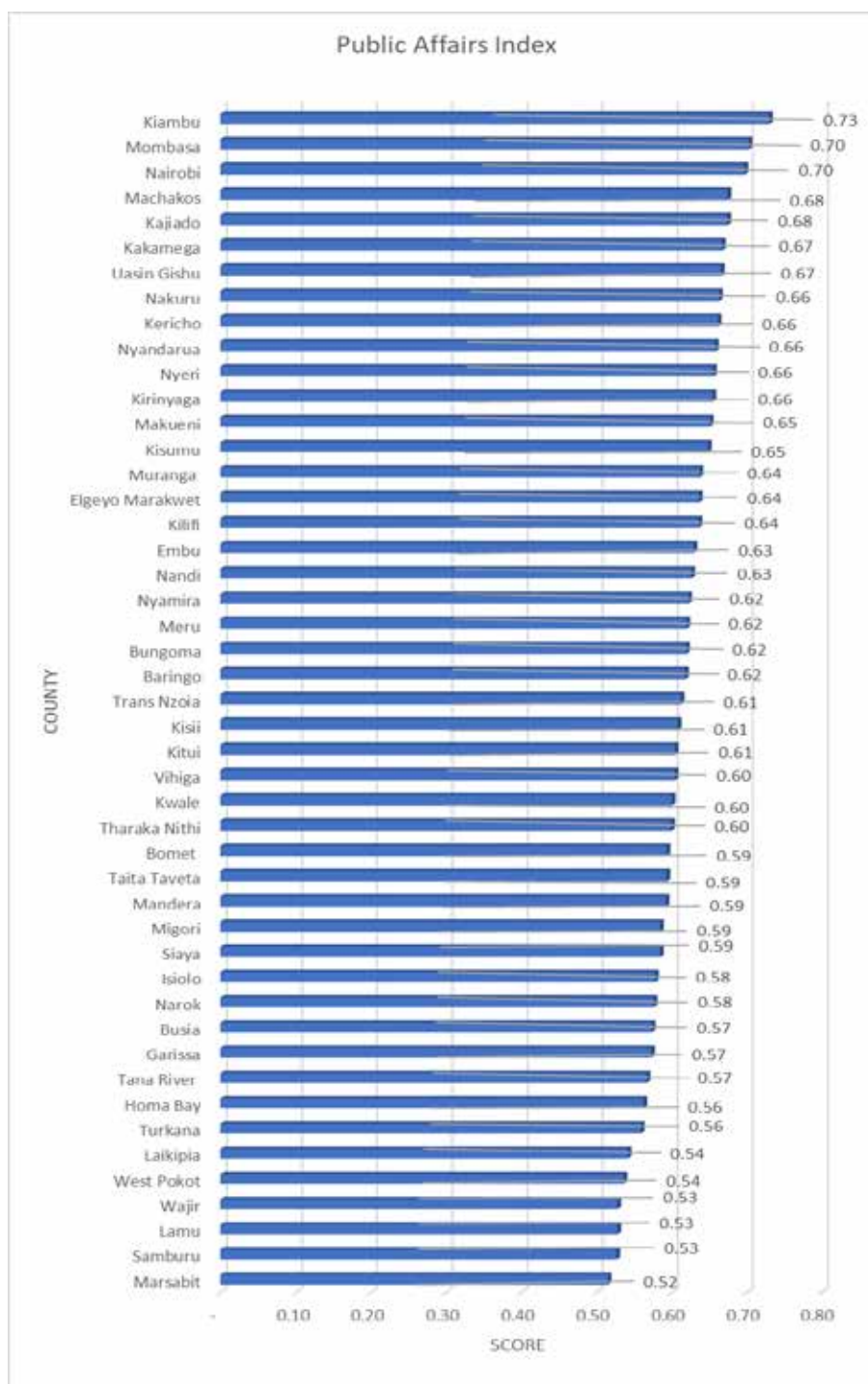
3.1 Overall Public Affairs Index

3.1.1 Overall PAI Score

The overall index score is a composite index of 9 pillars, comprising of the Fiscal Management, Economic Performance, Human Capital Development, Essential Infrastructure, Environmental Management, Transparency and Accountability, Crime and Justice, WASH, and Social Welfare pillars. For each pillar, key indicators are used to construct an index which is specific to the pillar. The overall PAI index therefore is constructed using simple equal weighted average of the pillar indices. Equal weights are used to circumvent the usual criticism, underpinned by index number theory, that weights tend to be so arbitrary that they may be manipulated to generate target indices. Hence, the formula used to generate the equal weighted composite PAI index is:

$$PAI = \frac{\begin{aligned} &Fiscal\ management + Economic\ performance + \\ &Human\ Capital\ Development + Essential\ Infrastructure \\ &+ Environmental\ management + Transparency\ and\ Accountability \\ &+ Crime\ and\ Justice + WASH + Social\ welfare \end{aligned}}{9}$$

The overall index averages 0.61 ranging from 0.52 to 0.73. Among the top performers are Kiambu (0.73), Mombasa (0.70), Nairobi City (0.70), Machakos (0.68) and Kajiado (0.68). The least performers are Marsabit (0.52), Samburu (0.53) and Lamu (0.53).

Figure 2: Performance of counties on Overall PAI

Among the pillars making up the index, the highest average scores were on the Transparency and Accountability (0.74), Human Capital Development (0.71) while the lowest average score was on the Environmental Management (0.47), Crime and Justice (0.53) and Economic Performance (0.56).

Table 3: Scores for the Nine Pillars across the Counties

Indicator County	Fiscal Management	Economic performance	Human Capital development	Essential infrastructure	Environmental management	Transparency and accountability	Crime, law, and order	WASH	Social Welfare	Overall PAI Score
Baringo	0.64	0.55	0.70	0.57	0.42	0.86	0.64	0.60	0.59	0.62
Bomet	0.70	0.59	0.72	0.53	0.52	0.81	0.58	0.29	0.60	0.59
Bungoma	0.65	0.54	0.71	0.54	0.46	0.78	0.62	0.57	0.69	0.62
Busia	0.67	0.5	0.70	0.57	0.36	0.63	0.55	0.68	0.49	0.57
Elgeyo Marakwet	0.61	0.59	0.75	0.57	0.49	0.89	0.65	0.53	0.65	0.64
Embu	0.51	0.53	0.79	0.65	0.58	0.84	0.23	0.82	0.72	0.63
Garissa	0.64	0.45	0.56	0.47	0.51	0.61	0.84	0.52	0.55	0.57
Homa Bay	0.62	0.51	0.69	0.53	0.43	0.73	0.58	0.29	0.69	0.56
Isiolo	0.74	0.51	0.71	0.51	0.50	0.42	0.48	0.73	0.62	0.58
Kajiado	0.68	0.59	0.76	0.55	0.59	0.66	0.68	0.9	0.68	0.68
Kakamega	0.77	0.58	0.70	0.56	0.56	0.86	0.74	0.61	0.63	0.67
Kericho	0.62	0.65	0.73	0.65	0.50	0.82	0.60	0.73	0.66	0.66
Kiambu	0.62	0.74	0.85	0.78	0.56	0.88	0.49	0.92	0.74	0.73
Kilifi	0.76	0.56	0.68	0.61	0.45	0.68	0.59	0.74	0.65	0.64
Kirinyaga	0.64	0.65	0.84	0.73	0.41	0.67	0.40	0.74	0.82	0.66
Kisii	0.60	0.53	0.78	0.67	0.51	0.69	0.45	0.65	0.59	0.61
Kisumu	0.48	0.64	0.73	0.72	0.51	0.79	0.45	0.88	0.64	0.65
Kitui	0.75	0.48	0.70	0.61	0.49	0.67	0.50	0.55	0.70	0.61
Kwale	0.74	0.47	0.67	0.58	0.50	0.86	0.54	0.47	0.57	0.60
Laikipia	0.59	0.60	0.68	0.60	0.42	0.78	0.25	0.53	0.43	0.54
Lamu	0.69	0.48	0.67	0.50	0.41	0.59	0.00	0.73	0.69	0.53
Machakos	0.62	0.69	0.82	0.69	0.47	0.84	0.49	0.76	0.69	0.68
Makueni	0.72	0.51	0.80	0.64	0.44	0.84	0.51	0.71	0.69	0.65
Mandera	0.81	0.49	0.51	0.38	0.44	0.84	0.89	0.37	0.60	0.59
Marsabit	0.82	0.48	0.58	0.42	0.35	0.58	0.58	0.34	0.48	0.52
Meru	0.56	0.55	0.75	0.66	0.47	0.67	0.44	0.78	0.70	0.62

Indicator County	Fiscal Management	Economic performance	Human Capital development	Essential infrastructure	Environmental management	Transparency and accountability	Crime, law, and order	WASH	Social Welfare	Overall PAI Score
Migori	0.72	0.55	0.69	0.61	0.41	0.68	0.52	0.49	0.61	0.59
Mombasa	0.61	0.70	0.78	0.82	0.53	0.83	0.48	0.84	0.70	0.70
Murang'a	0.66	0.62	0.81	0.69	0.45	0.72	0.41	0.67	0.72	0.64
Nairobi City	0.48	0.75	0.78	0.83	0.55	0.79	0.69	0.78	0.63	0.70
Nakuru	0.60	0.62	0.73	0.72	0.50	0.88	0.55	0.67	0.71	0.66
Nandi	0.64	0.55	0.75	0.64	0.43	0.85	0.63	0.58	0.59	0.63
Narok	0.71	0.49	0.66	0.39	0.48	0.68	0.74	0.38	0.66	0.58
Nyamira	0.60	0.57	0.78	0.60	0.47	0.74	0.46	0.62	0.77	0.62
Nyandarua	0.68	0.60	0.78	0.71	0.42	0.86	0.39	0.81	0.68	0.66
Nyeri	0.62	0.63	0.83	0.72	0.55	0.83	0.26	0.69	0.79	0.66
Samburu	0.65	0.48	0.54	0.47	0.45	0.59	0.62	0.37	0.56	0.53
Siaya	0.66	0.57	0.68	0.56	0.47	0.64	0.46	0.51	0.72	0.59
Taita Taveta	0.55	0.54	0.73	0.64	0.41	0.83	0.26	0.89	0.48	0.59
Tana River	0.71	0.44	0.64	0.43	0.55	0.66	0.56	0.64	0.49	0.57
Tharaka Nithi	0.62	0.57	0.78	0.56	0.49	0.48	0.44	0.78	0.69	0.60
Trans Nzoia	0.75	0.51	0.70	0.68	0.51	0.66	0.41	0.58	0.70	0.61
Turkana	0.78	0.47	0.51	0.39	0.53	0.83	0.64	0.48	0.41	0.56
Uasin Gishu	0.72	0.59	0.74	0.69	0.40	0.86	0.56	0.76	0.68	0.67
Vihiga	0.57	0.54	0.73	0.64	0.41	0.75	0.50	0.66	0.64	0.60
Wajir	0.72	0.51	0.44	0.34	0.41	0.67	0.87	0.25	0.55	0.53
West Pokot	0.69	0.47	0.54	0.34	0.44	0.69	0.76	0.32	0.57	0.54
Average	0.66	0.56	0.71	0.62	0.59	0.47	0.74	0.53	0.64	0.62

Source: Authors' calculations

3.2 Fiscal Management Pillar

Fiscal Management pillar was measured using four sub-pillars; Compliance with PFM regulations, Resolve on pending bills, County Budget execution and Revenue mobilization. The data for this pillar were OCOB reports (2013/14-2020/21) and primary data from Key Informants interviews with county technical officers from revenue, planning and finance departments. The score for the pillar was a simple equal weighted average of the sub-pillars while the scores for the sub-pillars were

an arithmetic mean of the indicators. The average score for this pillar was 0.66, with 23 counties having scores above this average. Of the sub-pillars, Resolve on pending bills topped at a score of 0.80, followed by budget execution at 0.75 and a tie of Compliance with PFM regulations and Revenue mobilization at 0.55.

3.2.1 Compliance with PFM regulations

Public Financial Management (PFM) Act (2012) and Regulations (2015) guide resource mobilization and expenditure management in public sector in Kenya and are an integral part in guiding the successful implementation of the devolution process. The two key fiscal rules of interest to this index are the PFM regulations on development expenditure and ceiling on personnel emoluments. The PFM regulations state that “a minimum of 30% of the total county budget should be utilized on capital expenditure”. While PFM regulations on personnel emoluments state that “the county government wages and compensation to employees shall not exceed 35 per cent of the county’s total revenue. These budget conditions aim to ringfence resources to finance capital projects.

The average score on compliance on PFM regulations on development expenditure was 0.62. 18 counties had above average scores while only 5 counties had fully complied on average for last 8 financial years. Counties that recorded the highest score of 1 which indicates full compliance with the rule were Kakamega, Kwale, Marsabit, Turkana and Wajir. Nairobi City scored the least at 0.06. Development expenditures in most counties are still below the 30% stipulated by the regulations. Budget priorities are reflected in the final expenditure hence the lower amounts expended on development illustrates that more priority is given to recurrent expenditure. Counties often cite high wage bills, low OSR outturns and delays in procurement process as reasons for failing to adhere to the regulations.

Average score for compliance with personnel emoluments to total revenue ceiling, was 0.47 with 26 counties scoring above average. Only 6 counties fully complied with the minimum threshold of 35% for the last 8 financial years. Counties that recorded the highest score of 1 personnel emoluments included Kilifi, Kwale, Mandera, Marsabit, Tana River and Turkana. These counties tended to be ones that are historically marginalized. Embu, Kisii and Murang’a all got scores of 0 on this indicator for failing to comply with the regulations in all the 8 financial years under review.

The persistent non-compliance to this regulation is majorly attributed to high wage bills that contravene guidelines given by Salaries and Remuneration Commission (SRC) for optimal staffing. A review of OCOB report also reveal

that in most counties compensation of employees constitutes more than 50% of the recurrent budget expenditure. Counties that are not complaint often cite inheriting significantly high numbers of workers from the defunct local authorities, absorption of staff devolved from national government and hiring new staff for the county assembly and county executive as reasons for high wage bills. Unsteady and low collection revenue is another contributing factor to the fluctuations in compliance with the regulations. This when compared with yearly increments in salaries and wages, new hiring, and promotions of personnel in the County government hampers consistent compliance with the regulations. Political goodwill to uphold compliance with the regulations also plays a role in determining county's compliance level. The low compliance to PFM regulations on personal emolument to total revenue ceiling of 35% in most counties could constrain revenue allocations to development programs.

3.2.2 Commitment to resolving Pending bills

This sub pillar was measured by two indicators namely, resolution of recurrent expenditure pending bills measured by percentage of recurrent pending bills to total recurrent expenditure averaged for 7 financial years (2014/15-2020/21) and resolution of development expenditure pending bills measured by percentage development expenditure pending bills to total development expenditure averaged for 7 financial years (2014/15-2020/21). The average score for all counties on resolution of recurrent expenditure pending bills was 0.93, while the average score on resolve of development expenditure pending bills was 0.66. The scores are illustrate that more priority is being given to settling recurrent expenditure pending bills as opposed to development expenditure pending bills.

Counties that recorded high scores on resolve on recurrent expenditure pending bills were West Pokot and Makueni both recording scores of 0.99. Nairobi City County had a score of 0 for having an average percentage of recurrent expenditure pending bills to total recurrent expenditure of 112% for the financial years under review. On resolution of development expenditure pending bills, Makueni, Baringo and Mandera recorded high scores of 0.98, 0.96 and 0.95 respectively. Kisumu county had the lowest score of 0 for having an average percentage of development expenditure pending bills to total development expenditure of 105% for the financial years under review. The accumulated pending bills, poses challenges in fiscal stability since counties will have to offset them first as they are obligations, and this reduces allocations available for capital expenditure. High build-up of pending bills affects the overall liquidity of the private sector derailing the overall economic growth.

3.2.3 County Budget execution

The county budget execution sub-pillar illustrates weaknesses in the budget execution. This sub-pillar was measured by two indicators: development expenditure budget execution (average of 8 financial years) whose average score was 0.60 and recurrent expenditure budget execution (average of 8 financial years) which had an average score of 0.89. The disparities in the scores of the two indicators reveal that priority is given to recurrent expenditure compared to development expenditure. This corroborates with Office of Auditor General queries as most counties have been flagged for having low absorption of development expenditure. Generally development expenditure in counties seem to face a triple threat namely low allocations, low absorption rates and high accumulated pending bills.

Counties that scored highest on development expenditure budget execution indicator were Murang'a and Bomet with scores of 0.76 each and West Pokot, Mandera and Wajir with scores of 0.73 each. While counties that had high scores on recurrent expenditure budget execution were Baringo, Kericho, Wajir and West Pokot all with scores of 0.95.

Inadequate monitoring and evaluation frameworks are often the reason for poor implementation of development budget contributing to the disparity between allocation and actual expenditure. Other reasons are inefficient procurement processes and late disbursement of funds from the exchequer. Low development expenditure budget execution could affect implementation of counties' CIDPs.

3.2.4 Revenue mobilization

Counties are empowered by the Constitution to collect their own source of revenue by charging specific taxes and fees. Property taxes also known as land rates, business permits, parking fees, market and trade fees, natural resources related fees, public health services and sanitation services and cess are among the OSR streams for counties. Robust revenue mobilization is critical in ensuring counties have adequate resources to execute devolved functions and offer public services. This sub-pillar, therefore, included indicators that gauged counties performance in mobilizing and managing their own source revenue. These indicators are the ratio of Own Source Revenue to Equitable Share, Achievement of Own Source Revenue targets, Own Source Revenue regulatory framework and Revenue management. The average scores for counties on these indicators are OSR share to equitable share at 0.10, OSR targets at 0.68, OSR Regulatory framework at 0.63 and Revenue management at 0.78.

The average score for OSR to Equitable share was 0.10 with 13 counties scoring above this average score. Counties with relatively high scores were Nairobi City County (0.80), Mombasa (0.43), Narok (0.33), Kiambu (0.25) and Nakuru (0.24). This can be explained by higher revenue potential in the counties partly from more robust private sectors, higher property value and higher natural resources endowment among others. 35 counties had scores below 0.10 illustrating that most counties still have high fiscal dependency on National Government Equitable share. A review of the OCOB reports corroborates this findings as it shows that OSR contributes to about 8-11% of the total county revenue (see table 1 above). Among the barriers cited by counties that impacted collection of revenues were political interference when charging and changing tax rates, tax non-compliance, inadequate tools to detect revenue leakages and corruption, lack of databases on potential taxpayers and inadequate capacity building and motivation for revenue collection personnel.

Achievement of own source revenue targets assessed the ability of counties to collect the forecasted revenue in the budget. Counties that recorded high scores on this indicator were Tana River (0.92), Kwale (0.90) and Bomet (0.90). Despite recording satisfactory scores in achievement of revenue targets, all the counties cited having a challenge in forecasting revenue due to inadequate tools and technical capacities. Additionally, majority of counties cited using historical trends on revenue performance of different revenue streams to determine the targets. This indicates that counties are yet to base their OSR targets on revenue potential of the different revenue streams. This raises concern given the efforts and guidance by the Commission on Revenue Allocation (CRA) and National Treasury to strengthen counties ability to enhance OSR collections. Inadequate forecasting and minimal knowledge on revenue potential leads to underestimation of revenue targets contributing to revenue shortfalls.

Own Source Revenue Regulatory framework assessed the counties initiatives to develop policies and other regulatory frameworks to support revenue mobilization. Adequate policy, legislative and regulatory framework indicate the willingness of a county to strengthen their revenue mobilization. Seventeen counties scored 0.67 including Kakamega, Tana River and Kwale among others. The high scores can be attributed to the guidelines provided by PFM Regulations 2015 and PFM Act 2012 that have helped streamline fiscal management regulatory frameworks in the counties. Counties were majorly using the County Finance Acts to guide the charging of fees and levies. However, none of the counties had developed customized Own Source Revenue generation policy to guide revenue mobilization. This indicates that counties are yet to have a clear and sufficient policy rationale and justification for charging and changing tax rates, fees and charges.

Revenue management was based on an assessment of counties' application of a total of 9 revenue management local and international best practices. The practices include automation of revenue collections, formal mechanism for recovering outstanding amounts, database of taxpayers, procedures for charging and changing tax rates and adequate support to the treasury departments. The highest score of 0.89 was recorded by 23 counties indicating that counties had made efforts to put in place systems and qualified personnel for revenue management. The levels of automation of revenue collection in counties were particularly high with counties using electronic payment systems and some counties being completely cashless. Some counties also had independent County Revenue Authorities that were analogous to the Kenya Revenue Authority (KRA) while counties such as Nairobi had engaged KRA for their revenue administration.

Table 4: Scores for Fiscal Management Indicators

Indicator County	Share of development expenditure	personnel emoluments to total revenue ceiling	Resolve on recurrent expenditure pending bills	Resolve on development expenditure pending bills	Development expenditure budget execution	Recurrent expenditure budget execution	OSR share to equitable share	Achievement of OSR targets	OSR Regulatory framework	Revenue management	Fiscal Management Index
Baringo	0.40	0.13	0.98	0.95	0.48	0.95	0.06	0.88	0.67	0.89	0.64
Bomet	0.82	0.25	0.98	0.74	0.76	0.92	0.04	0.90	0.33	0.89	0.70
Bungoma	0.50	0.50	0.97	0.80	0.57	0.87	0.07	0.84	0.33	0.78	0.65
Busia	0.62	0.50	0.94	0.76	0.54	0.90	0.05	0.51	0.67	0.89	0.67
Elgeyo Marakwet	0.57	0.13	0.98	0.66	0.60	0.94	0.03	0.75	0.67	0.56	0.61
Embu	0.34	0.00	0.87	0.37	0.50	0.91	0.10	0.60	0.67	0.78	0.51
Garissa	0.61	0.38	0.97	0.71	0.60	0.92	0.02	0.39	0.67	0.78	0.64
Homa Bay	0.60	0.13	0.98	0.52	0.67	0.92	0.02	0.83	0.67	0.78	0.62
Isiolo	0.73	0.63	0.95	0.87	0.70	0.90	0.04	0.62	0.67	0.89	0.74
Kajiado	0.52	0.75	0.95	0.59	0.58	0.89	0.14	0.54	0.67	0.89	0.68
Kakamega	1.00	0.63	0.95	0.90	0.66	0.90	0.06	0.60	0.67	0.89	0.77
Kericho	0.59	0.38	0.97	0.52	0.61	0.95	0.09	0.78	0.33	0.78	0.62
Kiambu	0.44	0.13	0.93	0.64	0.68	0.91	0.25	0.73	0.67	0.89	0.62
Kilifi	0.84	1.00	0.92	0.82	0.64	0.81	0.07	0.53	0.67	0.89	0.76
Kirinyaga	0.40	0.13	0.98	0.90	0.60	0.91	0.09	0.71	0.67	0.89	0.64
Kisii	0.60	0.00	0.96	0.70	0.67	0.89	0.04	0.37	0.67	0.89	0.60
Kisumu	0.34	0.13	0.90	0.00	0.44	0.85	0.15	0.62	0.67	0.89	0.48
Kitui	0.86	0.63	0.98	0.87	0.64	0.88	0.05	0.59	0.67	0.89	0.75

Indicator County	Share of development expenditure	personnel emoluments to total revenue ceiling	Re-solve on recurrent expenditure pending bills	Re-solve on development expenditure pending bills	Development expenditure budget execution	Re-current expenditure budget execution	OSR share to equitable share	Achievement of OSR targets	OSR Regulatory framework	Revenue management	Fiscal Management Index
Kwale	1.00	1.00	0.98	0.29	0.59	0.87	0.04	0.90	0.67	0.78	0.74
Laikipia	0.49	0.13	0.97	0.39	0.56	0.94	0.14	0.84	0.67	0.78	0.59
Lamu	0.51	0.88	0.97	0.86	0.46	0.80	0.03	0.84	0.67	0.56	0.69
Machakos	0.59	0.13	0.97	0.73	0.49	0.85	0.18	0.73	0.67	0.78	0.62
Makueni	0.67	0.63	0.99	0.96	0.53	0.89	0.05	0.61	0.67	0.89	0.72
Mandera	1.00	1.00	0.95	0.94	0.73	0.90	0.01	0.43	0.67	0.78	0.81
Marsabit	1.00	1.00	0.95	0.82	0.72	0.92	0.02	0.84	0.67	0.78	0.82
Meru	0.44	0.13	0.95	0.30	0.62	0.92	0.07	0.63	0.67	0.89	0.56
Migori	0.70	0.75	0.92	0.69	0.62	0.88	0.05	0.72	0.67	0.89	0.72
Mombasa	0.55	0.25	0.74	0.82	0.69	0.81	0.43	0.73	0.33	0.56	0.61
Murang'a	0.93	0.00	0.94	0.72	0.76	0.92	0.10	0.62	0.67	0.67	0.66
Nairobi City	0.06	0.13	0.00	0.78	0.50	0.89	0.80	0.61	0.67	0.89	0.48
Nakuru	0.30	0.63	0.94	0.31	0.40	0.86	0.24	0.84	0.67	0.89	0.60
Nandi	0.64	0.63	0.96	0.49	0.63	0.90	0.05	0.55	0.33	0.78	0.64
Narok	0.47	0.63	0.93	0.72	0.66	0.91	0.33	0.85	0.67	0.89	0.71
Nyamira	0.45	0.25	0.95	0.63	0.58	0.92	0.03	0.54	0.67	0.89	0.60
Nyandarua	0.62	0.50	0.96	0.60	0.65	0.93	0.07	0.78	0.67	0.89	0.68
Nyeri	0.41	0.13	0.97	0.71	0.65	0.93	0.14	0.70	0.67	0.78	0.62
Samburu	0.56	0.63	0.93	0.54	0.58	0.87	0.06	0.73	0.67	0.78	0.65
Siaya	0.60	0.63	0.94	0.80	0.53	0.87	0.03	0.51	0.67	0.67	0.66
Taita Taveta	0.30	0.13	0.94	0.61	0.58	0.91	0.06	0.77	0.67	0.44	0.55
Tana River	0.78	1.00	0.91	0.53	0.48	0.80	0.01	0.92	0.67	0.78	0.71
Tharaka Nithi	0.57	0.25	0.96	0.61	0.62	0.90	0.04	0.65	0.67	0.78	0.62
Trans Nzoia	0.77	0.88	0.91	0.77	0.71	0.88	0.06	0.69	0.67	0.78	0.75
Turkana	1.00	1.00	0.96	0.63	0.56	0.89	0.02	0.82	0.67	0.89	0.78
Uasin Gishu	0.60	0.75	0.96	0.91	0.52	0.90	0.14	0.77	0.67	0.67	0.72
Vihiga	0.50	0.50	0.84	0.39	0.55	0.85	0.03	0.68	0.67	0.56	0.57
Wajir	1.00	0.75	0.98	0.44	0.73	0.95	0.01	0.41	0.67	0.67	0.72
West Pokot	0.72	0.63	0.99	0.89	0.73	0.95	0.02	0.70	0.33	0.22	0.69
Average	0.62	0.47	0.93	0.66	0.60	0.89	0.10	0.68	0.63	0.78	0.66

Source: Authors' computations using various data sources

3.3 Economic Performance Pillar

Economic performance pillar was measured using six indicators namely, growth of the economy, diversity of the economy, labor participation, enabling business environment, financing growth and income equality indicators. The data sources for this pillar were KNBS Gross County Product (2013-2017), KNBS census 2019, KIPPRA CBEM 2022, 2021 Finaccess and OCHA income inequality data. The score on this pillar was calculated by averaging the scores of the indicators. The average score for this pillar was 0.56, Nairobi City (0.75), Kiambu (0.74) and Mombasa (0.70) recorded the highest scores with 21 counties having above average scores. Detailed scoring on the indicators and average performance of the counties are given below.

- a) Growth of the economy** indicator was measured using data on Gross County Product (GCP) from 2013 to 2017 where average real Gross County Product (GCP) growth rates for counties were computed. The benchmark for scoring counties on this indicator was 10% real GCP growth which is the aspired annual GDP growth rate for Kenya as per Vision 2030. The average score for this indicator was 0.58, with 19 counties scoring above the average score. Although the average score is below the aspired level, counties have experienced robust growth over the years since devolution took effect. Counties that recorded high scores on this indicator are Elgeyo Marakwet that had a perfect score of 1, Baringo (0.76) and Nairobi City County (0.75). counties that recorded lower scores are Embu (0.27), Garissa (0.32) and Kitui (0.37). Economic growth in counties increases tax revenue that is necessary to adequately finance public service delivery. Further, sustained economic growth, reduces levels of poverty, increases life expectancy, resulting in inclusive economic development.
- b) Diversity of the economy** was measured using the average contribution of manufacturing to the County Gross product from 2013-2017. The benchmark was set at 15% in the big four agenda. The average score for this indicator was 0.27, with 16 counties scoring above average. This low average score indicates that most counties are yet to deepen structural transformation of their economies. This indicator also had the highest disparity between counties with high scores and those with low scores. Nairobi, Mombasa, Machakos and Kiambu recorded scores of 1.00 as their manufacturing subsectors contributed to more than 15% of the GCP. Other counties with high scores are Kisumu (0.96), Kericho (0.89) and Kilifi (0.61). 23 counties recorded the very low scores that were below 0.10. This illustrates that manufacturing continues to be concentrated in a few counties while levels of manufacturing in most counties remain low as their economies continue to be reliant on agriculture.

- c) **Labor Participation** indicator was measured using labour participation rate that were computed as the percentage of working age population that are in the labor force. The benchmark for this indicator was 100% labour participation. Labour participation rate is important as it measures the amount labour resources put in the production of goods and services. Hence, counties that have high labour participation are more likely to experience faster economic growth. The average score for this indicator was 0.79, implying that majority of counties' working age population are engaged in the labor force. Muranga, Nyeri and Kirinyaga counties recorded the highest scores.
- d) **Enabling Business Environment** measured business environment for Micro Small Enterprises based on the County Business Environment for MSEs (CBEM) scores of 2022. A score of 100% on County Business Environment for MSEs was the set benchmark. The average score for this indicator was 0.29 with 33 counties scoring above the average. Nairobi, Nandi and Kiambu counties recorded the highest scores at 0.37, 0.36 and 0.35 respectively. While Samburu (0.18), Garissa (0.21), Tharaka Nithi (0.22) and Lamu (0.22) had the lowest scores. The low average score indicate that most counties are yet to create an enabling environment for growth of the private sector.
- e) **Financing growth measures** access to financial services per counties. The benchmark for this was 100% financial inclusion. Financial inclusion is in line with Kenya's Vision 2030 goal of "Improved access and deepening of financial services and products for households and small businesses". Financial access is also addressed by SDG goal 8 on decent work and economic growth target 8.10 on universal access to financial services. The average score on this indicator was 0.81, implying that there is high level of financial inclusion. Nairobi, Kiambu, Muranga, Kirinyaga Nyeri and Mombasa recording the highest scores. The high scores on financial access can be attributed to several initiatives by the government including establishing affirmative action funds such as Uwezo Fund, Youth Enterprises Development Fund (YEDF) and Women Enterprises Fund (WEF) that aim to support different groups of youth, Persons With Disability and women to engage access financial services. Additionally, there are also increased digital lending platforms that makes access to credit easy due to their convenience, easy access, and fast loan remittances. Counties are also playing their part in increasing financial access and deepening financial inclusion to vulnerable groups through empowerment programs in order to promote inclusive growth.
- f) **Income equality** is measured using Gini coefficient. Since gini coefficient measures varies between '0' reflecting complete equality and '1' indicating complete inequality. The benchmark in this case is 0% inequality while the

worst performance is 100% inequality. Using DTF scores were transformed on a scale of 0-1, where 1 was perfect equality, and counties were scored on their distance to this frontier. The average scores of all counties is 0.61, with 31 counties having above average scores. This indicates that income is generally well distributed in most counties. Bomet, Elgeyo Marakwet and Turkana had the highest scores at 0.72. Counties that recorded the lowest scores were Lamu, Tana River, Kwale and Kilifi at 0.38, 0.40, 0.44 and 0.52 respectively. While economic growth is fundamental it is not sufficient for poverty reduction. Hence income equality is necessary for ensuring citizens benefit from economic growth of their counties.

Table 5: Scores for the Economic Performance Indicators

Indicator County	Growth of the economy	Economic diversity	Labour participation rate	Enabling business environment	Financing growth	Income equality	Economic performance index
Baringo	0.76	0.03	0.78	0.31	0.75	0.64	0.55
Bomet	0.60	0.35	0.78	0.30	0.79	0.72	0.59
Bungoma	0.78	0.10	0.74	0.30	0.74	0.57	0.54
Busia	0.73	0.02	0.76	0.33	0.78	0.54	0.53
Elgeyo Marakwet	1.00	0.00	0.75	0.32	0.74	0.72	0.59
Embu	0.27	0.21	0.88	0.34	0.88	0.62	0.53
Garissa	0.32	0.23	0.77	0.21	0.61	0.56	0.45
Homa Bay	0.55	0.07	0.76	0.29	0.82	0.58	0.51
Isiolo	0.53	0.01	0.78	0.32	0.88	0.57	0.51
Kajiado	0.63	0.36	0.77	0.29	0.89	0.60	0.59
Kakamega	0.46	0.56	0.77	0.30	0.80	0.61	0.58
Kericho	0.42	0.89	0.79	0.32	0.86	0.62	0.65
Kiambu	0.72	1.00	0.81	0.35	0.92	0.67	0.74
Kilifi	0.48	0.61	0.75	0.31	0.74	0.44	0.56
Kirinyaga	0.50	0.59	0.90	0.34	0.92	0.65	0.65
Kisii	0.55	0.18	0.77	0.29	0.81	0.58	0.53
Kisumu	0.40	0.96	0.73	0.32	0.88	0.57	0.64
Kitui	0.37	0.01	0.82	0.25	0.80	0.61	0.48
Kwale	0.57	0.03	0.79	0.31	0.73	0.40	0.47
Laikipia	0.88	0.09	0.84	0.34	0.83	0.63	0.60
Lamu	0.50	0.02	0.78	0.22	0.84	0.53	0.48
Machakos	0.52	1.00	0.84	0.28	0.90	0.60	0.69
Makueni	0.39	0.04	0.84	0.28	0.88	0.62	0.51
Mandera	0.44	0.01	0.74	0.27	0.84	0.67	0.49
Marsabit	0.49	0.00	0.77	0.23	0.78	0.64	0.48
Meru	0.52	0.24	0.83	0.23	0.81	0.65	0.55

Indicator County	Growth of the economy	Economic diversity	Labour participa- tion rate	Enabling business environ- ment	Financing growth	Income equality	Economic perform- ance index
Migori	0.72	0.26	0.74	0.28	0.76	0.54	0.55
Mombasa	0.65	1.00	0.71	0.30	0.90	0.64	0.70
Murang'a	0.47	0.41	0.93	0.31	0.93	0.64	0.62
Nairobi City	0.75	1.00	0.74	0.37	0.95	0.66	0.75
Nakuru	0.80	0.35	0.78	0.29	0.88	0.62	0.62
Nandi	0.38	0.32	0.77	0.36	0.79	0.66	0.55
Narok	0.47	0.13	0.78	0.24	0.65	0.69	0.49
Nyamira	0.50	0.50	0.78	0.26	0.77	0.61	0.57
Nyandarua	0.93	0.07	0.87	0.30	0.81	0.61	0.60
Nyeri	0.71	0.23	0.90	0.34	0.94	0.64	0.63
Samburu	0.54	0.01	0.81	0.18	0.69	0.68	0.48
Siaya	0.85	0.02	0.82	0.29	0.84	0.60	0.57
Taita Taveta	0.67	0.02	0.86	0.30	0.82	0.56	0.54
Tana River	0.53	0.00	0.78	0.24	0.71	0.38	0.44
Tharaka Nithi	0.83	0.03	0.86	0.22	0.85	0.60	0.57
Trans Nzoia	0.43	0.06	0.73	0.33	0.89	0.64	0.51
Turkana	0.42	0.01	0.77	0.30	0.60	0.72	0.47
Uasin-Gishu	0.61	0.40	0.73	0.32	0.88	0.63	0.59
Vihiga	0.64	0.05	0.83	0.32	0.79	0.60	0.54
Wajir	0.37	0.00	0.81	0.31	0.87	0.68	0.51
West Pokot	0.51	0.01	0.75	0.30	0.58	0.68	0.47
Average	0.58	0.27	0.79	0.29	0.81	0.61	0.56

Source: Authors' computation from various data sources

3.3.1 Human Capital Development

The Human Capital Development pillar focused on the human capital formation through the process of child survival and development, education and life expectancy. The main goal of this pillar was to understand the challenges faced by an individual from birth to death through the various development stages of life considering the health and education status. Further, human capital development index highlights how current health and education outcomes shape the productivity of the next generation of workers. In this way, it underscores the importance for governments and societies to invest in the human capital of their citizens. Countries have developed Human Development Index (HDI) for their countries for various reasons, but the global goal is to accelerate progress towards a world where all children can achieve their full potential.

Previous studies have developed HDI by considering varying indicators. For instance, World Bank developed the HDI considering three key dimensions including: A long and healthy life (measured by life expectancy); Access to education (measured by expected years of schooling of children at school-entry age and mean years of schooling of the adult population; and a decent standard of living (measured by Gross National Income per capita adjusted for the price level of the country) (Roser, 2014).

The main source of data for this pillar was KDHS 2014 data and Education statistical booklets 2014-2018. This pillar was measured by three sub-pillars namely a) health measured by percentage of births attended by skilled health personnel, percentage of children 12 -23 months fully vaccinated, percentage of non-stunted children, b) education measured by adult literacy rate, school enrolment rates and c) life expectancy at birth. Access to social services is an important aspect of human development, household's deprivation from healthcare, nutrition/adequate food, drinking water, sanitation and hygiene, education, affects individual active participation in the economy thus leading to increased levels of poverty.

The average score for Human Capital Development index for all counties was 0.71 with 27 counties scoring above average performance. Across the indicators, results indicated that the percentage of children 12 -23 months fully vaccinated scored higher with an average score of 0.85, followed by school enrolment with an average score of 0.80, Adult literacy rate at 0.78, percentage of non-stunted children at 0.75 while indicator that scored the least were percentage of births attended by skilled health personnel at 0.65 and life expectancy at 0.58. On the overall Human Capital Development pillar counties that recorded high scores were Kiambu County (0.85), Kirinyaga (0.84) and Muranga (0.81). Wajir and West Pokot had the lowest scores of 0.44 and 0.54 respectively.

In terms of the specific indicators, the score performance varied across the counties as discussed below.

a) Percentage of births attended by skilled health personnel; the country has an aspiration to achieve a 100 percent delivery under a skilled birth attendant to improve on maternal and child health outcomes. This aspiration resonates with SDG goal 3 target 3.1 that envisions reduction in maternal mortality. The average score for this indicator was 0.65 with 23 counties scoring above average. This is a sub-optimal score given different government initiatives aimed at improving maternal and child health outcomes. This low score is more prominent in rural and ASAL areas that could hamper efforts towards improving maternal and child health outcomes. Counties that recorded high scores on this indicator were Kirinyaga (0.95), Nyeri (0.93), Kisii (0.93), Murang'a (0.91) and Nairobi City (0.91) (Table 6).

Lower scores were recorded in Wajir (0.20), West Pokot (0.31), and Turkana (0.31) (Table 6). The low scores in these counties could be associated with the geographical factors such as distance to the nearest health facility, individual factors such as culture, and the health systems such as inadequate public health facilities which offer free maternity services².

- b) Percentage of non-stunted children;** Considered the Vision 2030 aspiration which sought to reduce the number of stunted children by 14.5 per cent. Reduction in stunting is also addressed by SDG goal 2. The indicator was measured by giving a score of 1 for counties that have achieved 85.5 per cent non-stunted children (reduction of 14.5 per cent). The average score on this indicator is 0.84 with 29 counties having scores above average. High scores were recorded in Uasin Gishu, Kiambu, Kirinyaga and Kajiado counties (Table 6). Uasin Gishu recorded a score of 1, because it had surpassed the national target. West Pokot was the only county below the halfway mark recording the lowest score at 0.49. Low scores in West Pokot can be attributed to poor maternal health and nutrition, food insecurity, inadequate nutrition and inadequate breastfeeding practices³.
- c) Children vaccination** measured the percentage of children 12 -23 months fully vaccinated. In the computation of the index, the 100 per cent national target was considered as the benchmark, and scores awarded across the counties based on their current status. This aspiration also matches SDG goal 3 target 3.B on vaccine coverage. The average score on this indicator was 0.75, with 25 counties scoring above average scores. The highest scores were recorded in Kiambu, Nandi, Tharaka Nithi, Vihiga and Kirinyaga counties (Table 6). West Pokot, Mandera recorded the lowest scores at 0.31 and 0.43. Low literacy level, nomadic lifestyle, lack of knowledge on the immunization schedule, low economic status and long distances to the health facilities are the major factors that may be hindering child vaccination in West Pokot and Mandera⁴. This also reveals gaps in access to health facilities in ASAL regions due to historical marginalization.
- d) Adult literacy rates** refers to the percentage of population aged 15 years and over who can both read and write with understanding a short simple statement on his/her everyday life. In the computation of the index, the benchmark was the 100 per cent which had a score of 1 on a scale of 0-1. The average score on this indicator was 0.77, with 36 counties above average score. The highest score of high adult literacy rates were recorded in Mombasa, Kiambu, Kisumu

2 Karanja, S., Gichuki, R., Igunza, P., Muhula, S., Ofware, P., Lesiamon, J., ... & Ojakaa, D. (2018). Factors influencing deliveries at health facilities in a rural Maasai Community in Magadi sub-County, Kenya. BMC pregnancy and childbirth, 18(1), 1-11.

3 <https://www.unicef.org/kenya/nutrition>

4 <https://www.wvi.org/kenya/timing-spacing-immunisation-project-0>

and Machakos counties with scores of over 0.90 (Table 6). The lowest scores of adult literacy were recorded in Wajir (0.36), Turkana (0.40), and Samburu (0.40). The low adult literacy rates in these ASAL counties can be attributed to historical marginalization that led to low investment in infrastructure, cultural norms and pastoralist lifestyle.

- e) School enrolment** measured primary school net enrolment (NET) (%). The net enrolment is the number of boys and girls of the age of a particular level of education that are enrolled in that level of education, expressed as a percentage of the total population in that age group. The country's NET target was considered as the benchmark in the computation of the index, where a score of 1 was awarded to counties that had attained 100 per cent. The average score was 0.80 with 31 counties scoring above the average. The highest net enrolment rates scores were recorded in Nyeri, Machakos, Makueni and Kirinyaga with Garissa and Turkana having the least scores (Table 6). The disparity in scores between ASAL regions and other regions continues to be of policy concern.
- f) Life expectancy** at birth measured by the number of years lived. The global aspiration of 85 years and a minimum of 20 years as used in World Bank HDI was considered in the computation of the index as the frontier and worst respectively. The highest scores of life expectancy at birth were recorded in Isiolo and Kitui counties while Wajir had the least score of 0.35 (Table 6). The low rates in some counties such as Wajir can be associated with extreme poverty in the counties. The average score was 0.58 with 25 counties scoring above average.

Table 6: Scores for the Human Capital Development Indicators

Indicator County	Percentage of births attended by skilled health personnel	Percentage of Non stunted children	Children vaccination	Adult literacy	School enrolment	Life expectancy at birth	Human Capital development index
Baringo	0.59	0.82	0.69	0.84	0.83	0.56	0.70
Bomet	0.65	0.75	0.81	0.79	0.90	0.58	0.72
Bungoma	0.47	0.88	0.76	0.88	0.82	0.58	0.71
Busia	0.59	0.91	0.80	0.83	0.80	0.50	0.70
Elgeyo Marakwet	0.70	0.82	0.85	0.85	0.88	0.61	0.75
Embu	0.78	0.86	0.86	0.86	0.94	0.65	0.79
Garissa	0.43	0.99	0.58	0.42	0.38	0.62	0.56
Homa Bay	0.67	0.95	0.64	0.86	0.80	0.48	0.69
Isiolo	0.44	0.95	0.82	0.60	0.72	0.73	0.71

Indicator County	Percentage of births attended by skilled health personnel	Percentage of Non stunted children	Children vaccination	Adult literacy	School enrolment	Life expectancy at birth	Human Capital development index
Kajiado	0.76	0.96	0.56	0.83	0.91	0.65	0.76
Kakamega	0.62	0.84	0.73	0.81	0.87	0.52	0.70
Kericho	0.66	0.83	0.72	0.86	0.92	0.56	0.73
Kiambu	0.86	0.99	0.97	0.94	0.91	0.67	0.85
Kilifi	0.58	0.71	0.74	0.80	0.73	0.61	0.68
Kirinyaga	0.95	0.97	0.92	0.89	0.95	0.65	0.84
Kisii	0.93	0.87	0.82	0.91	0.88	0.58	0.78
Kisumu	0.88	0.83	0.79	0.94	0.88	0.45	0.73
Kitui	0.62	0.72	0.57	0.83	0.66	0.72	0.70
Kwale	0.70	0.76	0.85	0.68	0.67	0.57	0.67
Laikipia	0.59	0.85	0.79	0.78	0.76	0.54	0.68
Lamu	0.55	0.83	0.67	0.82	0.75	0.55	0.67
Machakos	0.75	0.86	0.90	0.92	0.95	0.70	0.82
Makueni	0.64	0.88	0.90	0.82	0.95	0.72	0.80
Mandera	0.28	0.80	0.43	0.47	0.58	0.51	0.51
Marsabit	0.29	0.86	0.68	0.38	0.53	0.68	0.58
Meru	0.87	0.87	0.84	0.78	0.67	0.68	0.75
Migori	0.76	0.89	0.57	0.88	0.77	0.49	0.69
Mombasa	0.88	0.92	0.79	0.95	0.86	0.56	0.78
Murang'a	0.91	0.94	0.86	0.87	0.93	0.63	0.81
Nairobi City	0.91	0.90	0.74	0.88	0.82	0.65	0.78
Nakuru	0.66	0.85	0.75	0.92	0.91	0.52	0.73
Nandi	0.60	0.82	0.96	0.92	0.85	0.56	0.75
Narok	0.38	0.79	0.59	0.69	0.76	0.68	0.66
Nyamira	0.83	0.87	0.92	0.85	0.87	0.60	0.78
Nyandarua	0.87	0.76	0.81	0.91	0.90	0.62	0.78
Nyeri	0.93	0.99	0.84	0.93	0.96	0.62	0.83
Samburu	0.27	0.68	0.64	0.40	0.57	0.61	0.54
Siaya	0.84	0.90	0.78	0.89	0.82	0.35	0.68
Taita Taveta	0.79	0.77	0.89	0.89	0.87	0.49	0.73
Tana River	0.45	0.84	0.70	0.69	0.69	0.55	0.64
Tharaka Nithi	0.74	0.78	0.95	0.81	0.90	0.65	0.78
Trans Nzoia	0.48	0.83	0.64	0.91	0.85	0.57	0.70
Turkana	0.31	0.89	0.62	0.40	0.48	0.50	0.51
Uasin Gishu	0.76	1.00	0.72	0.85	0.86	0.55	0.74

Indicator County	Percentage of births attended by skilled health personnel	Percentage of Non stunted children	Children vaccination	Adult literacy	School enrolment	Life expectancy at birth	Human Capital development index
Vihiga	0.73	0.89	0.94	0.89	0.90	0.45	0.73
Wajir	0.20	0.86	0.50	0.36	0.53	0.35	0.44
West Pokot	0.31	0.49	0.31	0.62	0.68	0.60	0.54
Average	0.65	0.85	0.75	0.79	0.80	0.58	0.71

Source: Authors' computations from various data sources

3.4 Essential Infrastructure Pillar

Infrastructure constitutes the backbone of any economy in the world. Presence of world class roads, electricity connectivity, ICT, access to water and sanitation as well as affordable housing are key to the growth of any economy. Counties have invested substantial amount of resources in the development and maintenance of infrastructure and several counties have made strides in the development of these sectors. There is a close interlinkage of infrastructure and the growth of other sectors of the economy, for instance infrastructure will helps in access and improvement of health, education, housing, and sanitation. This pillar comprises of seven indicators namely, access to work, transport affordability, housing quality, internet connectivity, percentage of school with ICT connectivity, mobile money subscription and access to electricity.

The average score for all counties on this pillar was 0.59. Twenty six counties scored above the average with top counties including Nairobi (0.83), Mombasa (0.82), Kiambu (0.78) and Kirinyaga (0.73). Counties recording low scores were Wajir (0.34), West Pokot (0.34) and Mandera (0.38). The measurement of the indicators and the performance of counties is discussed below.

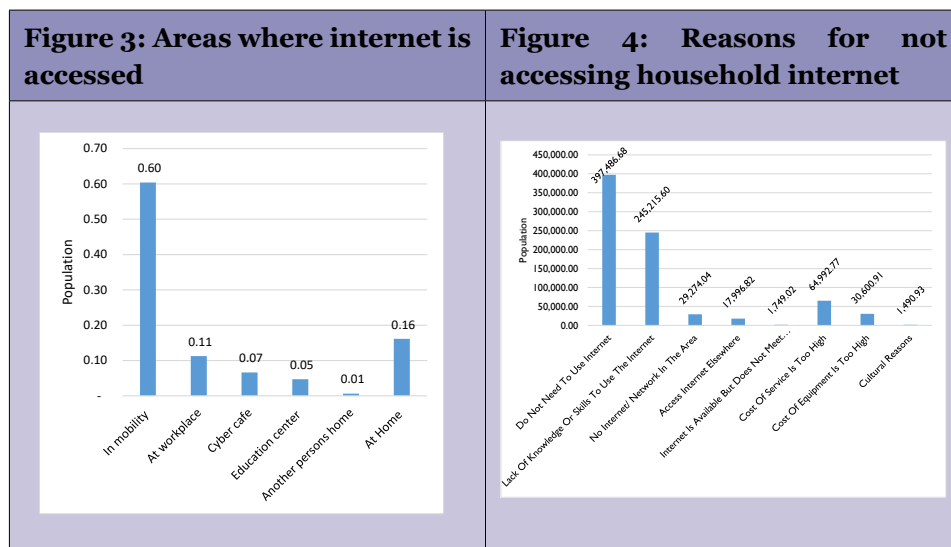
- a) Access to work** was measured using average road distance to workplace. The benchmark being the distance to frontier where countries were measured using the distance to frontier benchmark, the county with the least average distance being the best. Average road distance to access work is a proxy for physical proximity to work and business opportunities. The average score for this indicator was 0.67 with 29 counties scoring above the average. Migori (1), Kisii (0.97) and Busia County (0.97) had the highest scores. Counties that had the lowest scores were Kajiado (0), Marsabit (0.10) and Tana River (0.22) as they had the longest average road distance to work. This could be attributed to historical disadvantages such as lower investments in infrastructure in the ASAL and pastoral regions.

- b) Transport affordability** measured by the average cost of transport to workplace where the county with the least transport cost was the frontier while one with the highest score was the worst performer. This indicator proxies financial access to transport systems. This is in line with SDG goal 11 target 2 on access to safe, affordable, accessible and sustainable transport systems. The average score for this indicator was 0.73, with 30 counties scoring above the average score. Nandi (1), Mombasa (0.98), Trans Nzioa (0.97), and Nakuru (0.96) had the highest scores. Lamu (0), Narok (0.02) and Wajir (0.35) have the lowest scores as they had the highest transport costs to workplace.
- c) Housing quality** was measured by looking at the percentage of households with adequate housing quality measured by finished composite housing materials. Housing quality is in line with target 1 of SDG 11 on access to adequate, safe and affordable housing and basic services and upgrade slums. A county was considered to achieve a score of 1 if it has attained 100 per cent in housing quality. The average score across all the counties was 0.52 with 21 counties scoring above average. Nairobi, Nyeri, Mombasa and Kiambu had the highest scores while Bungoma, Busia and Mandera had the least scores.
- d) Internet connectivity** plays a vital role in transforming and improving lives of majority of Kenyans thus an enabler of economic growth. It provides employment, access to financial institution, and unity of people both locally and internationally. According to GSMA 2020 Survey, mobile internet penetration in Kenya is currently at 27% slightly above the average internet penetration in Sub-Saharan Africa.⁵ In this survey, the internet connectivity indicator was measured by assessing the ratio of households with internet connection and the county aspiration of 100 percent attainment of internet connectivity at households. The results indicated a relatively low average of home internet connection score at 0.21. Kisumu has the highest scores of 0.70 followed by Nairobi at 0.67 while the counties with lowest score include Bomet (0.02), Busia (0.03), Narok (0.05), West Pokot (0.07) and Mandera (0.08). The score also showed great disparity between urban counties and rural counties. The disparities are expected because major cities and towns have fast and reliable internet connection, high digital literacy and proportionately higher disposable income. According to Kenya Integrated Household Survey 2015/2016, the connection of internet connection at home is limited as compared to mobile internet use. The variation is as shown in Figure 3.

Other reasons which contribute to limited home connection are internet non-usage. According to Kenya Integrated Household Survey 2015/2016, some of the reasons contributing to internet non-usage include no need to use internet,

⁵ GSMA 2020 Survey <https://www.gsma.com/r/wp-content/uploads/2020/09/Mobile-Internet-Connectivity-SSA-Fact-Sheet.pdf>

limited knowledge or skills to use the internet, no internet/ network in the area, ability to access internet elsewhere, available internet but inadequate to meet the household need (e.g. speed, quality), high cost of internet, high cost of equipment needed to access internet and cultural reasons. The distribution of the reasons is as depicted in Figure 4.



Data Source: KIHBS data 2015/2016

e) Percentage of schools' with ICT connectivity. Kenya is committed to achieving SDG 4 which seeks to ensure inclusive and equitable quality education for all through establishing the Digital Literacy Program (DLP) which aims to entrench ICT in teaching and learning process and equip public primary schools with appropriate ICT infrastructure to support teaching and learning among other objectives. The programme is implemented in three phases whereby Phase I targets young learners of grade 1 to 3, phase II targets learners of grade 4-6 and phase III targets advanced learners of grade 7 and above. Since the phase 1 is considered complete, this indicator aims to assess the extent of implementation of the DLP in schools across the 47 counties. The average score for this indicator was 0.90, the highest among all the indicators in the pillar. Elgeyo Marakwet, Nandi, Kitui, Makueni, Taita Taveta, Uasin Gishu, Trans Nzioa have the highest scores attaining a 100 per cent school ICT connectivity. Wajir and West Pokot had the least scores.

f) Mobile money subscription. Mobile money has proven to be the most transformative technology of economic growth and development. The increased ability to save and borrow money has positive effects to welfare of poor firms and households. This pillar measures the percentage of population subscribed to mobile money transfer platform; the benchmark is to achieve a

100 per cent mobile money subscription. The average score for this indicator was 0.72 with 25 counties scoring above average. Mombasa, Nairobi and Nyandarua have the highest scores at 0.94, 0.92 and 0.90 respectively. West Pokot, Turkana and Mandera had the lowest scores at 0.42, 0.44 and 0.50 respectively.

- g) Access to electricity** is a strategic driver to economic development, the index assessed electricity connectivity measured by the percentage of conventional households with mains electricity for lighting. The government has an aspiration to achieve a 100 per cent electricity connectivity, through several energy projects the government has undertaken in the recent past. Universal access to electricity is also addressed in SDG 7. Counties were given a score of 1 if they had attained the 100 per cent electricity connectivity. The average score for this indicator was 0.39. Nairobi, Mombasa and Kiambu having the highest scores at 0.97, 0.92, 0.87 respectively while Wajir, West Pokot and Turkana had the least scores at 0.14, 0.12 and 0.09 respectively revealing disparities between urban counties and ASAL counties in access to electricity.

Table 7: Scores for selected Essential infrastructure Indicators

Indicator County	Access to work	Transport affordability	Housing quality	Internet connectivity	School's ICT connectivity	Mobile money subscription	Access to electricity	Essential infrastructure index
Baringo	0.76	0.50	0.53	0.38	0.84	0.71	0.28	0.57
Bomet	0.82	0.79	0.35	0.02	0.80	0.73	0.22	0.53
Bungoma	0.58	0.90	0.24	0.28	0.90	0.69	0.22	0.54
Busia	0.97	0.87	0.26	0.03	0.97	0.60	0.26	0.57
Elgeyo Marakwet	0.90	0.68	0.30	0.26	1.00	0.64	0.24	0.57
Embu	0.64	0.93	0.73	0.01	0.97	0.77	0.47	0.65
Garissa	0.80	0.61	0.38	0.01	0.61	0.64	0.24	0.47
Homa Bay	0.89	0.87	0.31	0.14	0.69	0.65	0.18	0.53
Isiolo	0.28	0.75	0.49	0.13	0.75	0.75	0.41	0.51
Kajiado	0.00	0.43	0.78	0.29	0.81	0.84	0.67	0.55
Kakamega	0.66	0.88	0.27	0.22	0.92	0.73	0.25	0.56
Kericho	0.80	0.91	0.46	0.23	0.99	0.73	0.45	0.65
Kiambu	0.48	0.9	0.91	0.43	0.98	0.87	0.92	0.78
Kilifi	0.70	0.53	0.53	0.32	0.99	0.83	0.39	0.61
Kirinyaga	0.82	0.89	0.73	0.25	0.97	0.77	0.65	0.73

Indicator County	Access to work	Transport afford-ability	Housing quality	Internet connec-tivity	School's ICT con-nectivity	Mobile money subscrip-tion	Access to electricity	Essential infra-structure index
Kisii	0.97	0.96	0.38	0.21	0.99	0.78	0.39	0.67
Kisumu	0.68	0.91	0.56	0.70	0.8	0.87	0.53	0.72
Kitui	0.81	0.96	0.57	0.09	1.00	0.69	0.17	0.61
Kwale	0.68	0.75	0.42	0.25	0.98	0.69	0.32	0.58
Laikipia	0.58	0.72	0.50	0.29	0.88	0.79	0.42	0.60
Lamu	0.67	0.00	0.58	0.15	0.97	0.69	0.43	0.50
Machakos	0.69	0.77	0.89	0.26	0.92	0.82	0.48	0.69
Makueni	0.92	0.62	0.87	0.14	1.00	0.75	0.20	0.64
Mandera	0.39	0.54	0.19	0.08	0.82	0.5	0.16	0.38
Marsabit	0.10	0.81	0.33	0.00	0.93	0.54	0.21	0.42
Meru	0.60	0.86	0.9	0.28	0.93	0.64	0.40	0.66
Migori	1.00	0.96	0.33	0.21	0.77	0.76	0.23	0.61
Mombasa	0.7	0.98	0.94	0.32	0.97	0.94	0.86	0.82
Murang'a	0.60	0.81	0.66	0.31	0.99	0.82	0.61	0.69
Nairobi City	0.44	0.90	0.96	0.67	0.97	0.92	0.97	0.83
Nakuru	0.66	0.96	0.62	0.39	0.94	0.82	0.64	0.72
Nandi	0.88	1.00	0.41	0.18	1.00	0.70	0.31	0.64
Narok	0.54	0.02	0.34	0.05	0.93	0.63	0.20	0.39
Nyamira	0.71	0.81	0.41	0.2	0.91	0.77	0.43	0.60
Nyandarua	0.91	0.69	0.74	0.30	0.99	0.90	0.41	0.71
Nyeri	0.78	0.50	0.94	0.27	0.99	0.86	0.72	0.72
Samburu	0.75	0.46	0.48	0.11	0.77	0.58	0.15	0.47
Siaya	0.86	0.79	0.45	0.20	0.73	0.70	0.20	0.56
Taita Taveta	0.79	0.76	0.62	0.02	1.00	0.84	0.48	0.64
Tana River	0.22	0.41	0.34	0.18	0.99	0.58	0.26	0.43
Tharaka Nithi	0.47	0.74	0.60	0.16	0.98	0.66	0.35	0.56
Trans Nzoia	0.81	0.97	0.48	0.41	1.00	0.74	0.38	0.68
Turkana	0.75	0.54	0.19	0.02	0.72	0.44	0.09	0.39
Uasin Gishu	0.68	0.86	0.57	0.27	1.00	0.81	0.64	0.69
Vihiga	0.91	0.91	0.32	0.25	0.99	0.71	0.38	0.64
Wajir	0.49	0.35	0.2	0.00	0.62	0.58	0.14	0.34

Indicator County	Access to work	Transport affordability	Housing quality	Internet connectivity	School's ICT connectivity	Mobile money subscription	Access to electricity	Essential infrastructure index
West Pokot	0.25	0.65	0.25	0.07	0.67	0.42	0.12	0.34
Average	0.67	0.73	0.52	0.21	0.90	0.72	0.39	0.59

Source: Authors' computation from various data sources

3.5 Environment Management

Environment management is critical to sustainability of mankind, it's a source of natural resources necessary for exploitation by human being for economic, social, and sustainable development. Article 42 of the Constitution indicates that every person has the right to a clean and healthy environment and that the government shall ensure environment protection and utilization of the environment for sustainability. This pillar is measured by four sub-pillars namely a) clean energy use, b) forest management c) climate change management and d) solid waste management. The key indicators include clean energy use, forest management regulatory frameworks, forest management best practices, climate change regulatory and institutional framework, climate change best practices, solid waste management regulatory frameworks, and solid waste management best practices. The average score for this pillar was 0.47. The findings shows that Embu, Kajiado, Kakamega and Kiambu had the highest scores.

- a) Clean energy use.** This indicator measures percentage of households with access to clean cooking energy. A score of 1 was earned by counties for attaining 100 per cent clean energy use which is the national aspiration. The average score on this indicator was 0.17 indicating a very low level of using clean cooking energy. Additionally, only 22 counties scored above the average score. There was also high disparity among urban counties and rural counties scores on this indicator. Counties that recorded relatively higher scores are Nairobi (0.39), Kiambu (0.37) and Kajiado (0.37). Counties with the lowest scores are Wajir (0.01), Garissa (0.01) and Turkana (0.05). Low scores on clean energy could be attributed to many factors including high costs of access to clean energy such as LPG and electricity, limited availability of electricity and low awareness.
- b) Forest management regulatory frameworks.** This indicator measures presence of policies and legislations that guide forest management, a score of 1 was allocated to counties having in place forest regulatory frameworks. The average score on this indicator was 0.26 with only 11 counties having scores above this average. Elgeyo Marakwet (0.80) and Kajiado (0.80) had

the highest score for having county specific forest management Policies, Acts and Guidelines. The low average scores indicate weak forest management regulatory frameworks. These can be attributed to the fact that forestry is not a fully devolved function and forest related issues are addressed in environmental policies for some counties. Although gazetted forests are under the national government, 15 forest functions have been devolved to counties, hence counties still have a role to play in forest management.

- c) Forest management best practices.** This indicator measured forest management best practices. A score of 1 was for counties that attained the highest level of best practice. The average score for this indicators is 0.98, with 43 counties having high scores on the best practices that are above the average scores. This implies that most counties are building capacity for their citizenry in forest management as well as collaborating with other players in managing forest resources. Forest management is an important policy issue in Kenya, with the country having a target of 10 per cent forest cover. Forest management is also addressed in SDG 15 on life on land.
- d) Climate change regulatory and institutional framework.** This indicator measured presence of policies and Acts that guides climate management, a score of 1 was given to counties for having regulatory and institutional framework. The average score on this indicator was 0.52 with 28 counties scoring above the average score. Turkana and West Pokot had the highest scores at 0.86 each. Low scores were recorded in Marsabit (0.14), Migori (0.14) and Kirinyaga (0.14).
- e) Climate change best practices.** This indicator measured climate change best practices, a score of 1 was for counties with the highest level of best practices in place. The average score on this indicator was 0.76 and 25 counties scored above the average score indicating a readiness to handle climate change issues. Counties with high scores included Garissa County which had high scores of 1.00, West Pokot at 0.93 and Kakamega at 0.93.
- f) Solid waste management regulatory frameworks.** This indicator measured presence of policies and legislations that guide solid waste management, with score of 1 for counties for having in place all the required regulatory and institutional frameworks. This included having solid waste management policies, acts, guidelines and budgets. The average score was 0.43 and 23 counties had scores above average score. Tana River, Mombasa, and Embu had the highest scores of 1, indicating adequate preparedness in handling solid waste management.
- g) Solid waste management best practice.** This indicator measured

performance of counties on 17 solid waste management best practices solid waste management information system, complaint handling mechanisms for solid waste management service delivery and systems for solid waste recovery. A score of 1 was earned by counties applying all the best practices listed. The average score on this indicator was 0.47, and 31 counties recorded scores above this average score. Counties that recorded the highest scores were Meru (0.71), Embu (0.65), Kisii (0.65), Nakuru (0.65) and Nairobi (0.65).

Table 8: Scores for Environment Management Indicators

Indicator County	Clean energy use	Forest management regulatory framework	Forest management best practices	Climate change regulatory & institutional framework	Climate change best practices	Solid waste management regulatory framework	Solid waste management best practices	Environmental management Index
Baringo	0.16	0.20	1.00	0.29	0.87	0.25	0.41	0.42
Bomet	0.34	0.20	1.00	0.71	0.80	0.50	0.29	0.52
Bungoma	0.10	0.20	1.00	0.43	0.67	0.75	0.47	0.46
Busia	0.12	0.20	1.00	0.57	0.73	0.00	0.12	0.36
Elgeyo Marakwet	0.23	0.80	1.00	0.43	0.67	0.25	0.29	0.49
Embu	0.17	0.20	1.00	0.71	0.73	1.00	0.65	0.58
Garissa	0.01	0.40	1.00	0.57	1.00	0.50	0.59	0.51
Homa Bay	0.11	0.20	1.00	0.57	0.73	0.25	0.47	0.43
Isiolo	0.23	0.20	1.00	0.71	0.93	0.25	0.47	0.50
Kajiado	0.37	0.80	1.00	0.43	0.47	0.75	0.53	0.59
Kakamega	0.10	0.40	1.00	0.71	0.93	0.75	0.47	0.56
Kericho	0.28	0.40	0.80	0.57	0.53	0.75	0.41	0.50
Kiambu	0.37	0.20	1.00	0.71	0.93	0.25	0.65	0.56
Kilifi	0.16	0.20	1.00	0.29	0.80	0.50	0.53	0.45
Kirinyaga	0.20	0.20	1.00	0.14	0.60	0.50	0.41	0.41
Kisii	0.14	0.20	1.00	0.43	0.80	0.75	0.65	0.51
Kisumu	0.20	0.20	1.00	0.71	0.87	0.50	0.41	0.51
Kitui	0.13	0.20	1.00	0.71	0.93	0.25	0.53	0.49
Kwale	0.13	0.60	1.00	0.29	0.80	0.50	0.53	0.50
Laikipia	0.23	0.20	1.00	0.29	0.73	0.25	0.41	0.42
Lamu	0.21	0.40	1.00	0.14	0.67	0.25	0.41	0.41
Machakos	0.22	0.20	1.00	0.57	0.80	0.25	0.47	0.47
Makueni	0.15	0.20	0.80	0.57	0.80	0.25	0.59	0.44
Mandera	0.06	0.20	1.00	0.57	0.93	0.25	0.47	0.44
Marsabit	0.09	0.20	1.00	0.14	0.53	0.25	0.53	0.35
Meru	0.13	0.20	1.00	0.43	0.93	0.25	0.71	0.47

Indicator County	Clean energy use	Forest management regulatory framework	Forest management best practices	Climate change regulatory & institutional framework	Climate change best practices	Solid waste management regulatory framework	Solid waste management best practices	Environmental management Index
Migori	0.13	0.20	1.00	0.14	0.67	0.50	0.53	0.41
Mombasa	0.36	0.00	0.80	0.57	0.67	1.00	0.47	0.53
Murang'a	0.19	0.20	1.00	0.57	0.87	0.25	0.35	0.45
Nairobi City	0.39	0.20	1.00	0.57	0.73	0.50	0.65	0.55
Nakuru	0.27	0.20	1.00	0.43	0.67	0.50	0.65	0.50
Nandi	0.19	0.20	1.00	0.57	0.47	0.50	0.29	0.43
Narok	0.17	0.20	1.00	0.57	0.73	0.50	0.47	0.48
Nyamira	0.14	0.20	1.00	0.57	0.87	0.25	0.59	0.47
Nyandarua	0.18	0.20	1.00	0.43	0.73	0.25	0.41	0.42
Nyeri	0.27	0.40	1.00	0.71	0.67	0.50	0.53	0.55
Samburu	0.08	0.20	1.00	0.43	0.93	0.25	0.59	0.45
Siaya	0.10	0.40	1.00	0.43	0.93	0.25	0.59	0.47
Taita Taveta	0.17	0.20	1.00	0.29	0.80	0.25	0.41	0.41
Tana River	0.11	0.20	1.00	0.71	0.93	1.00	0.35	0.55
Tharaka Nithi	0.12	0.20	1.00	0.57	0.67	0.75	0.47	0.49
Trans Nzoia	0.14	0.40	1.00	0.71	0.87	0.25	0.59	0.51
Turkana	0.05	0.40	1.00	0.86	0.87	0.50	0.53	0.53
Uasin Gishu	0.26	0.20	0.80	0.43	0.47	0.25	0.53	0.40
Vihiga	0.14	0.20	1.00	0.57	0.47	0.50	0.24	0.41
Wajir	0.01	0.20	1.00	0.71	0.67	0.25	0.47	0.41
West Pokot	0.08	0.20	1.00	0.86	0.93	0.25	0.12	0.44
Average	0.17	0.26	0.98	0.52	0.76	0.43	0.47	0.47

Source: Authors' computation from various data sources

3.6 Transparency and Accountability Pillar

The key indicators under this pillar include control of corruption measured by corruption and economic crimes rates and quality of public participation measured by public participation best practices and public participation regulatory frameworks. The fight against corruption remains a key policy priority for most economies, corruption undermines development by hindering delivery of services, and increasing the costs of doing businesses and affects good governance. Over the last 20 years, Kenya's performance on the Transparency International's Corruption Perceptions Index (CPI) has remained low. In the latest CPI report of 2020, Kenya is ranked 124 out of 179 countries surveyed. On the other hand

is crucial for enhancing transparency and accountability. Public participation is entrenched in the Constitution of Kenya 2010 which stipulates it for budget and legislation processes. It is also supported by the PFM Act 2012 and the County Governments Act 2012.

The average score for this pillar was 0.74. Elgeyo Marakwet, Nakuru had the highest scores of 0.89 and 0.88 a reflection of deliberate efforts towards addressing corruption and increasing the quality of public participation. The scores for the three indicators are discussed below.

- a) **Control of corruption.** This index was measured by reported incidences of corruption and economic crime rate per 100,000. Counties were given a perfect score of 1 if they had 0 corruption and economic crime rate per 100,000 population, while counties that had the highest corruption and economic crime rate per 100,000 population got scores of 0. The average score on this indicator was 0.81, with 35 counties scoring above average. Baringo and Homa Bay county counties had the highest scores on control of corruption at 0.96.
- b) **Public participation best practices.** Public Participation is meaningful engagement of citizens where their views and ideas are incorporated into decision making and affairs of their counties. Public participation remains a key ingredient towards achievement of development goals, Article 1 (1) of the Constitution vests all sovereign power to the people of Kenya. These powers can be exercised through direct participation or indirectly through elected representatives. Counties were given a score of 1 for applying all the public participation best practices which included information sharing, inclusion of all citizens and incorporation of citizens views in decision making. The average score on this indicator was 0.96, with 36 counties scoring above average and having a perfect score of 1 implying that they were applying public participation best practices and engaging citizens in governance. Counties, however, cited challenges with conducting civic education due to low budgets allocated to public participation directorates. They also expressed concerns over the quality of public participation, political interference as well as inadequate coordination between the county executive and county assembly when conducting public participation.
- c) **Public participation regulatory frameworks.** Meaningful public participation is to be attained in accordance to the constitution if counties put in place policies to guide citizen participation⁶. This indicator was measured by assessing the presence of policies and legislations that guide public participation. Counties were given a score of 1 for having a sufficient policy framework and 0 for having no policy framework. The average score for this

⁶ The County Governments Act, in sub section 91

indicator was 0.38 with only 26 counties scoring above average and 18 counties having no public participation regulatory frameworks. This illustrates that although majority of counties had high scores on public participation best practices, the policy frameworks were weak.

Table 9: Scores for Transparency and Accountability Indicators

Indicator County	Control of Corruption	Public participation best practices	Public participation regulatory frameworks	Transparency and accountability Index
Baringo	0.96	0.86	0.67	0.86
Bomet	0.86	0.86	0.67	0.81
Bungoma	0.89	1.00	0.33	0.78
Busia	0.77	1.00	0.00	0.63
Elgeyo Marakwet	0.95	1.00	0.67	0.89
Embu	0.85	1.00	0.67	0.84
Garissa	0.71	1.00	0.00	0.61
Homa Bay	0.96	1.00	0.00	0.73
Isiolo	0.00	1.00	0.67	0.42
Kajiado	0.82	1.00	0.00	0.66
Kakamega	0.89	1.00	0.67	0.86
Kericho	0.88	0.86	0.67	0.82
Kiambu	0.92	1.00	0.67	0.88
Kilifi	0.86	1.00	0.00	0.68
Kirinyaga	0.84	1.00	0.00	0.67
Kisii	0.72	1.00	0.33	0.69
Kisumu	0.75	1.00	0.67	0.79
Kitui	0.85	1.00	0.00	0.67
Kwale	0.89	1.00	0.67	0.86
Laikipia	0.73	1.00	0.67	0.78
Lamu	0.82	0.71	0.00	0.59
Machakos	0.84	1.00	0.67	0.84
Makueni	0.85	1.00	0.67	0.84
Mandera	0.85	1.00	0.67	0.84
Marsabit	0.73	0.86	0.00	0.58
Meru	0.91	0.86	0.00	0.67
Migori	0.86	1.00	0.00	0.68
Mombasa	0.83	1.00	0.67	0.83
Murang'a	0.93	1.00	0.00	0.72
Nairobi City	0.75	1.00	0.67	0.79
Nakuru	0.92	1.00	0.67	0.88
Nandi	0.87	1.00	0.67	0.85

Indicator County	Control of Corruption	Public participation best practices	Public participation regulatory frameworks	Transparency and accountability Index
Narok	0.85	1.00	0.00	0.68
Nyamira	0.80	1.00	0.33	0.74
Nyandarua	0.95	0.86	0.67	0.86
Nyeri	0.83	1.00	0.67	0.83
Samburu	0.69	1.00	0.00	0.59
Siaya	0.85	0.86	0.00	0.64
Taita Taveta	0.83	1.00	0.67	0.83
Tana River	0.48	1.00	0.67	0.66
Tharaka Nithi	0.53	0.86	0.00	0.48
Trans Nzoia	0.90	0.86	0.00	0.66
Turkana	0.82	1.00	0.67	0.83
Uasin Gishu	0.88	1.00	0.67	0.86
Vihiga	0.67	1.00	0.67	0.75
Wajir	0.83	1.00	0.00	0.67
West Pokot	0.87	0.71	0.33	0.69
Average	0.81	0.96	0.38	0.74

Source: Authors' computation from various data sources

3.7 Crime and Justice

The indicators that formed this pillar include the Gender Based Violence (GBV) crime rate per 100,000 population and all offences crime rate per 100,000 population. The benchmark for this indicators was 0 crime rate per 100,000 population. The worst performer was the county with the highest GBV crime rate and all offences crime rate per 100,000 population. Using the DTF methodology counties were scored with counties with the least crime rates having the highest scores on a scale of 0-1. The pillar score was an simple equal weighted average of the two indicator scores. The average score for this pillar was 0.53 with 23 counties scoring above average scores. Mandera, Wajir and Garissa had the highest scores at 0.89, 0.87 and 0.84 respectively.

a) Prevalence of GBV Crime rates per 100,000 population. This index measured non-prevalence of GBV Crime rates per using data on GBV crime rate per 100,000 population(Average 2020 & 2021). The average score was 0.49, with only 23 counties scoring above this score. Wajir and Mandera had the highest scores of 0.92 and 0.90 respectively. Low scores in GBV crime rates were recorded in Lamu, Embu and Taita Taveta indicating that there was high prevalence of GBV crime in those counties. GBV is great violation

of human right, it undermines the development of victims and affects them physically, psychologically, thus affecting the victims in engaging in economic development of a country. Counties have been at the forefront in supporting GBV victims through services such as psychological counselling, medical and legal support. Low scores of counties on GBV indicator could also be attributed to COVID-19 following loss of income, jobs, and livelihoods leading to increased cases of GBV.

- b) Prevalence of all offences per 100,000 population.** This index measured non-prevalence of other crimes apart GBV using data on other per 100,000 population(average 2016-2021). The average score on this indicator was 0.57, only 26 counties scored above this score. Wajir and Mandera had the highest at 0.90 and 0.82 respectively. Counties recording high crime rates per 100,000 populations got low scores and they included Lamu, Nyeri and Embu.

Table 10: Scores for Crime and Justice

Indicator County	GBV Crime	All Offences	Crime and Justice
Baringo	0.58	0.70	0.64
Bomet	0.48	0.68	0.58
Bungoma	0.56	0.69	0.62
Busia	0.56	0.54	0.55
Elgeyo Marakwet	0.63	0.67	0.65
Embu	0.16	0.30	0.23
Garissa	0.90	0.79	0.84
Homa Bay	0.51	0.65	0.58
Isiolo	0.34	0.61	0.48
Kajiado	0.68	0.68	0.68
Kakamega	0.71	0.78	0.74
Kericho	0.55	0.65	0.60
Kiambu	0.53	0.45	0.49
Kilif	0.50	0.67	0.59
Kirinyaga	0.46	0.34	0.40
Kisii	0.36	0.54	0.45
Kisumu	0.33	0.56	0.45
Kitui	0.40	0.59	0.50
Kwale	0.35	0.73	0.54
Laikipia	0.20	0.30	0.25
Lamu	0.00	0.00	0.00
Machakos	0.42	0.57	0.49

Indicator County	GBV Crime	All Offences	Crime and Justice
Makueni	0.42	0.60	0.51
Mandera	0.88	0.90	0.89
Marsabit	0.71	0.45	0.58
Meru	0.57	0.31	0.44
Migori	0.30	0.74	0.52
Mombasa	0.42	0.55	0.48
Murang'a	0.40	0.41	0.41
Nairobi City	0.67	0.71	0.69
Nakuru	0.49	0.62	0.55
Nandi	0.57	0.69	0.63
Narok	0.68	0.80	0.74
Nyamira	0.46	0.47	0.46
Nyandarua	0.29	0.49	0.39
Nyeri	0.35	0.17	0.26
Samburu	0.59	0.66	0.62
Siaya	0.45	0.48	0.46
Taita Taveta	0.19	0.33	0.26
Tana River	0.45	0.67	0.56
Tharaka Nithi	0.37	0.51	0.44
Trans Nzoia	0.26	0.55	0.41
Turkana	0.69	0.59	0.64
Uasin Gishu	0.55	0.56	0.56
Vihiga	0.48	0.52	0.50
Wajir	0.92	0.82	0.87
West Pokot	0.74	0.77	0.76
Average	0.49	0.57	0.53

Source: Authors' computation from various data sources

3.8 Water, Sanitation and Hygiene Pillar

Clean water, proper sanitation and good hygiene remains an essential component in protecting human health, water is essentially used for drinking and maintaining hygiene as well as used for other sectors of the economy. Water, Sanitation and Hygiene (WASH) services are integral in the provision of Universal Health Care (UHC) and an essential foundation for averting communicable diseases as well as increased school attendance among girls. The constitution of Kenya recognizes that access to water and sanitation as a basic human right⁷ and obligates both

⁷ Article 43 of the constitution

the national and county governments to ensure these services are accessible and enjoyed by all⁸. Kenya's commitment to WASH include Kenya Vision 2030 which stipulates that 'every Kenyan should have access to clean, safe water and improved sanitation by the year 2030'. The goal is to ensure that water and sanitation is available and accessible to all by 2030. Access to WASH is also extensively addressed by SDG goal 6 which spells out 8 targets all aimed at ensuring access to water and sanitation for all.

The key indicators included in the computation of the WASH index comprised of the access to improved sanitation and access to improved sources of water. The average score for this pillar was 0.62, with 26 counties having above average scores. Kiambu (0.92), Kajiado(0.90) and Taita Taveta had the highest scores while Wajir (0.25), Bomet (0.29) and Homa bay (0.29) having the least scores. The disparities in the scores between the top ranking counties and the least is worrying indicates that some counties have large populations unserved and underserved by WASH services. Left unaddressed this may significantly leave some counties behind and derail achievement of national and international goals on WASH.

- a) **Access to improved sanitation** is measured by the percentage of households with access to improved sanitation in a given year. Counties were given a score of 1 if they had attained the national aspiration. The country has an aspiration to achieve 100 per cent access to improved sanitation. This indicator had an average score of 0.59, with 25 counties scoring above average. The highest scores of access to improved sanitation were recorded in Taita Taveta (0.99), Embu (0.98) , Kisumu (0.96) and Tharaka Nithi (0.96) while Wajir, Homa Bay, Turkana, and Marsabit had the least scores at 0.06, 0.25 and 0.26 respectively.
- b) **Access to improved water.** The index measures percentage of population with access to improved drinking water source in a given year. The country has an aspiration to achieve 100 per cent access to improved sources of water. Counties were given a score of 1 if they attained the national aspiration. The average score on this indicator was 0.65 with 26 counties scoring above average. Nairobi City and Kiambu Counties had the highest scores at 0.97 and 0.93 respectively while Bomet, Mandera and Homabay had the least scores at 0.28, 0.33 and 0.34 respectively.

⁸ Article 21 of the constitution

Table 11: Scores for Access to WASH services

County	Indicator	Access to improved sanitation	Access to improved water	WASH Index
Baringo		0.71	0.48	0.60
Bomet		0.31	0.28	0.29
Bungoma		0.39	0.76	0.57
Busia		0.62	0.75	0.68
Elgeyo/Marakwet		0.62	0.44	0.53
Embu		0.98	0.66	0.82
Garissa		0.45	0.60	0.52
Homa Bay		0.25	0.34	0.29
Isiolo		0.71	0.75	0.73
Kajiado		0.92	0.87	0.90
Kakamega		0.32	0.90	0.61
Kericho		0.79	0.66	0.73
Kiambu		0.90	0.93	0.92
Kilifi		0.70	0.78	0.74
Kirinyaga		0.85	0.64	0.74
Kisii		0.41	0.89	0.65
Kisumu		0.96	0.80	0.88
Kitui		0.57	0.53	0.55
Kwale		0.34	0.61	0.47
Laikipia		0.42	0.64	0.53
Lamu		0.70	0.75	0.73
Machakos		0.84	0.68	0.76
Makueni		0.88	0.53	0.71
Mandera		0.41	0.33	0.37
Marsabit		0.26	0.43	0.34
Meru		0.86	0.70	0.78
Migori		0.38	0.61	0.49
Mombasa		0.86	0.83	0.84
Murang'a		0.66	0.68	0.67
Nairobi City		0.59	0.97	0.78
Nakuru		0.62	0.72	0.67
Nandi		0.71	0.45	0.58
Narok		0.42	0.35	0.38
Nyamira		0.40	0.84	0.62
Nyandarua		0.81	0.82	0.81
Nyeri		0.55	0.83	0.69
Samburu		0.32	0.42	0.37

Indicator County	Access to improved sanitation	Access to improved water	WASH Index
Siaya	0.44	0.57	0.51
Taita/Taveta	0.99	0.80	0.89
Tana River	0.60	0.67	0.64
Tharaka -Nithi	0.96	0.59	0.78
Trans Nzoia	0.36	0.80	0.58
Turkana	0.32	0.63	0.48
Uasin Gishu	0.83	0.69	0.76
Vihiga	0.43	0.88	0.66
Wajir	0.06	0.45	0.25
West Pokot	0.27	0.37	0.32
Average	0.59	0.65	0.62

Source: Authors' computations from various data sources

3.9 Social Welfare Pillar

The 2010 Constitution of Kenya, fourth schedule, part two (4)(f)(j) and the County Government Act, 2012 give mandate to county governments to constitute a department of Gender Youth and Social Services. The department to handle matters related to gender, disability, children and other special groups; social welfare, firefighting, disaster management, county parks and recreation facilities. The department therefore has the mandate of addressing the social and economic empowerment of youth, promotion, development and support of youth programs.

The goal on provision of social welfare program is to reduce vulnerability and to support households and families to build resilient against different economic shocks. Complete elimination of vulnerability may be difficult to attain, and no single nation has adequately managed to do so, but many have effectively managed to increase resilient to vulnerability against different economic and social shocks. Kenya Vision 2030 envisages transforming the country into a middle income industrialized and globally competitive economy with a high quality of life for its citizens in a clean and secure environment. The Vision is based on economic, social, and political pillars. The social pillar seeks “to build a just and cohesive society with social equity in a clean and secure environment, by investing in the Kenyan people with a focus on education; health; environment, water, and sanitation; population, urbanization, and housing”. Over the years the country has managed to build a more effective nationally owned social protection system that include expansion of social welfare programs and coverage to households.

The key sub indicators under the social welfare pillar include food and multidimensional poverty, health sector budgeting, Early Childhood budget execution, social sector budget execution, female labour participation and female empowerment. Across the indicators included in computation of the index, multi-dimensional poverty scored the least average index of 0.37 followed by female labour participation index with a score of 0.53. While the best performing indicators was the attainment of Abuja declaration of 15 per cent spending in the health sector.

- a) **Non-Food poverty** indicator measures the availability of food and the individual's ability to access it. This index was measured by considering the percentage of non-food poverty incidences. The average score for all counties is 0.64 with 28 counties scoring above average. Meru (0.85), Nairobi (0.84) and Kirinyaga (0.84) counties had the highest scores while Turkana (0.35), Mandera (0.37) and Samburu (0.39) had the lowest scores.
- b) **Non-Multidimensional Poverty** comprises the various deprivations experienced by poor people in their daily lives such as poor health (especially child health, nutrition), lack of education, and inadequate living standards. This index was measured by looking at non-multidimensional poverty incidences. The average score for all counties is 0.37 with 24 counties having above average scores. Nairobi, Kiambu and Mombasa recorded the highest scores at 0.85, 0.81 and 0.78 respectively. Wajir, Mandera and Turkana counties have the least scores at 0.06, 0.08 and 0.09 respectively.
- c) **Health budget execution** was measured by considering the health budget execution for the last 2 financial years. Counties scored 1 if they had 100 per cent health budget execution. The average score is 0.73 with 26 counties scoring above average. Murang'a, Trans Nzoia and Kirinyaga counties had the highest scores at 0.95, 0.91 and 0.90 respectively. Bomet, Tana River and Machakos had the least scores at 0.48, 0.54 and 0.56 respectively.
- d) **Attainment of Abuja declaration.** This index was measured on the aspiration of countries to allocate at least 15% of their annual budget to improve the health sector as per the Abuja declaration. Counties were given a score of 1 if they had attained the Abuja declaration benchmark of 15 per cent. The average score was 0.96, with 41 counties attaining scores above average, All counties had attained a perfect score of 1 apart from 7 counties. Taita Taveta (0.49), Laikipia (0.61) and Turkana (0.62) had the least scores.
- e) **Pre-devolution Health budget target.** This Index measures Pre-devolution health budget benchmark of 35 per cent. The goal of the national government before devolution was to allocate 35 per cent of annual budget on

health care. Nandi, Muranga and Kirinyaga had the highest scores meaning they had attained and surpassed the 35 per cent health budget allocation. The average score for this indicator is 0.74 with 31 counties attaining above average.

- f) ECDE Budget execution.** This index measures percentage of Early Childhood Development (ECD) budget execution for the last 2 financial years. Counties were given a score of 1 if they had attained the national aspiration of 100 per cent ECD budget execution. The average score for this indicator was 0.62 in which 23 counties scored above the average. Wajir, Vihiga, Nyamira, Mandera and Kitui had the highest scores meaning they have made strides in attempt to attain a 100 per cent ECD budget execution. Laikipia, Baringo and Tana River had the least scores at 0.02, 0.18 and 0.21 respectively.
- g) Social welfare budget execution.** This index measured percentage of social welfare budget execution in the last 2 financial years. Counties were given a score of 1 if they had attained the national aspiration of 100 per cent social welfare budget execution. The average score on this indicator was 0.56, in which 25 counties had above average scores. Uasin Gishu (0.94), Nakuru (0.93) and Bungoma (0.93) counties had higher scores. Low social welfare budget execution was recorded in Nandi, Taita Taveta and Kiambu counties. Low social welfare budget execution is of major concern given the relatively high levels of multidimensionally poverty.
- h) Female labour participation.** This index measured percentage of female labour participation. Counties were given a score of 1 if they had attained the national aspiration of 100 per cent female labour participation. The average score was 0.53, with 21 counties having scores above the average. Kirinyaga and Muranga had the highest scores of 0.64 and 0.62 respectively. Trans-Nzoia and Mombasa counties tied with the least scores at 0.46. Low female labour participation is of concern as it indicates gaps in gender equality.
- i) Female literacy.** This index measured percentage of female literacy rate. The average score was 0.73 and 34 counties had scores above the average. Nairobi City and Mombasa have the highest scores of 0.98 and 0.93 respectively. Turkana, Wajir and Marsabit had the least scores at 0.25, 0.26 and 0.28 respectively. The low female literacy rates in the ASAL counties can be attributed to cultural practices as well as historical marginalization of the regions.

Table 12: Scores for Social Welfare Indicators

Indicator County	Food poverty indicator	Multi-dimensional Poverty indicator	Health budget execution	Attainment of Abuja declaration	Pre-devolution Health budget target	ECDE Budget execution	Social welfare budget execution	Female labour participation	Female literacy	Social Welfare Index
Baringo	0.58	0.34	0.62	1.00	0.91	0.18	0.63	0.53	0.80	0.59
Bomet	0.67	0.17	0.48	1.00	0.66	0.48	0.86	0.51	0.73	0.60
Bungoma	0.67	0.21	0.64	1.00	0.83	0.77	0.93	0.47	0.85	0.69
Busia	0.41	0.17	0.66	1.00	0.75	0.31	0.17	0.50	0.76	0.49
Elgeyo Marakwet	0.55	0.38	0.70	1.00	0.93	0.57	0.64	0.47	0.82	0.65
Embu	0.72	0.56	0.60	1.00	0.90	0.86	0.51	0.61	0.82	0.72
Garissa	0.54	0.34	0.64	1.00	0.78	0.73	0.34	0.56	0.30	0.55
Homa Bay	0.77	0.21	0.86	1.00	0.90	0.96	0.43	0.48	0.81	0.69
Isiolo	0.65	0.47	0.80	1.00	0.68	0.24	0.85	0.52	0.56	0.62
Kajiado	0.64	0.61	0.77	1.00	0.75	0.36	0.82	0.53	0.81	0.68
Kakamega	0.66	0.21	0.74	0.96	0.41	0.82	0.66	0.49	0.77	0.63
Kericho	0.68	0.39	0.76	1.00	0.91	0.57	0.49	0.52	0.81	0.66
Kiambu	0.77	0.81	0.86	1.00	0.95	0.91	0.06	0.57	0.92	0.74
Kilifi	0.53	0.41	0.66	1.00	0.82	0.61	0.81	0.49	0.70	0.65
Kirinyaga	0.81	0.57	0.90	1.00	1.00	0.90	0.87	0.64	0.84	0.82
Kisii	0.56	0.41	0.73	1.00	0.95	0.34	0.26	0.50	0.88	0.59
Kisumu	0.68	0.54	0.66	1.00	0.90	0.43	0.39	0.47	0.91	0.64
Kitui	0.60	0.18	0.88	1.00	0.86	0.94	0.78	0.54	0.78	0.70
Kwale	0.60	0.30	0.65	1.00	0.77	0.56	0.43	0.52	0.56	0.57
Laikipia	0.71	0.38	0.59	0.61	0.26	0.02	0.09	0.57	0.72	0.43
Lamu	0.80	0.43	0.75	1.00	0.82	0.92	0.40	0.48	0.77	0.69
Machakos	0.75	0.53	0.56	1.00	0.81	0.81	0.41	0.58	0.89	0.69
Makueni	0.69	0.33	0.78	1.00	0.90	0.64	0.75	0.56	0.79	0.69
Mandera	0.37	0.08	0.87	1.00	0.59	0.96	0.88	0.54	0.29	0.60
Marsabit	0.44	0.12	0.71	0.83	0.36	0.78	0.43	0.55	0.28	0.48
Meru	0.85	0.40	0.75	1.00	0.86	0.46	0.85	0.55	0.76	0.70
Migori	0.68	0.20	0.65	1.00	0.79	0.31	0.76	0.47	0.81	0.61
Mombasa	0.77	0.78	0.82	1.00	0.65	0.58	0.48	0.46	0.93	0.70
Murang'a	0.77	0.48	0.95	1.00	1.00	0.38	0.73	0.62	0.83	0.72
Nairobi City	0.84	0.85	0.77	0.68	0.29	0.22	0.44	0.52	0.98	0.63
Nakuru	0.80	0.39	0.65	1.00	0.94	0.47	0.93	0.52	0.88	0.71
Nandi	0.68	0.31	0.76	1.00	1.00	0.49	-	0.51	0.90	0.59
Narok	0.78	0.24	0.81	1.00	0.80	0.86	0.56	0.51	0.62	0.66
Nyamira	0.63	0.27	0.81	1.00	0.83	0.97	0.53	0.51	0.81	0.77

Indicator County	Food poverty indica- tor	Multi- dimen- sional Poverty indica- tor	Health budget execu- tion	Attain- ment of Abuja declara- tion	Pre-de- volution Health budget target	ECDE Budget execu- tion	Social welfare budget execu- tion	Female labour partici- pation	Female literacy	Social Welfare Index
Nyandarua	0.71	0.57	0.75	0.80	0.34	0.63	0.82	0.59	0.87	0.68
Nyeri	0.84	0.61	0.71	1.00	0.94	0.91	0.63	0.63	0.91	0.79
Samburu	0.39	0.19	0.60	1.00	0.60	0.86	0.64	0.62	0.34	0.56
Siaya	0.73	0.19	0.76	1.00	0.77	0.93	0.85	0.52	0.85	0.72
Taita Taveta	0.61	0.58	0.76	0.49	0.21	0.28	-	0.57	0.85	0.48
Tana River	0.44	0.39	0.54	1.00	0.49	0.21	0.44	0.52	0.58	0.49
Tharaka Nithi	0.69	0.33	0.82	1.00	0.92	0.72	0.64	0.58	0.76	0.69
Trans Nzoia	0.67	0.39	0.91	1.00	0.78	0.78	0.66	0.46	0.88	0.70
Turkana	0.35	0.09	0.77	0.62	0.27	0.44	0.50	0.58	0.25	0.41
Uasin Gishu	0.62	0.46	0.62	1.00	0.67	0.56	0.94	0.49	0.83	0.68
Vihiga	0.64	0.24	0.65	1.00	0.72	0.95	0.37	0.52	0.86	0.64
Wajir	0.56	0.06	0.84	1.00	0.71	0.99	0.22	0.61	0.26	0.55
West Pokot	0.42	0.14	0.82	1.00	0.79	0.43	0.73	0.52	0.54	0.57
Average	0.65	0.37	0.73	0.96	0.74	0.62	0.61	0.53	0.73	0.64

Source: Authors' computations from various data sources

4. CONCLUSIONS AND RECOMMENDATIONS

The Public Affairs Index is the first to be developed in Kenya aimed at supporting delivery of public services at the county level. The overall index average score was 0.61 ranging from 0.52 to 0.73. Among the pillars making up the index, the highest average scores were on the Transparency and Accountability (0.74), Human Capital Development (0.71) while the lowest average score was on the Environmental Management (0.47), Crime and Justice (0.53) and Economic Performance (0.56). The key conclusions and policy recommendations are covered below across all the pillars.

Fiscal Management

Compliance with PFM regulations and fiscal rules help to reduce fiscal risks. To continue improving fiscal management for effective service delivery counties need to do the following.

- Enhance controls at the budget planning stage to ensure that a minimum of 30 per cent of the total county budget is allocated to development expenditure.
- The County Public Service Boards to comply with SRC guidelines in implementing optimal staffing structures to reduce spending on emoluments.
- The County Government Finance and Economic Planning Departments to strengthen budget monitoring and evaluation framework to effectively monitor budget implementation and recommend timely corrective actions
- Inculcate a culture of public service among state officers at the county level to enhance political commitment to complying with PFM regulations.
- In cases of persistent non-compliance, the National Treasury to consider imposing sanctions to make the regulations more stringent and enhance adherence.

Pending bills are detrimental to growth of private sector, in addition to denying county governments the ability to provide public service effectively. Counties perform better with resolution of recurrent spending pending bills compared to development expenditure pending bills. To improve on resolution of development expenditure pending bills:

- The National Treasury to impose penalties on counties that breach financial commitments.

- County Governments to maintain comprehensive records of expenditure arrears including age and composition for effective management of obligations.
- County Governments to have in place clear rules on transparency in reporting on budget implementation, including fully disclosure of arrears and contingent liabilities to enhance accountability and oversight that will help reduce accumulation of pending bills.
- National Treasury to continue with on-site training of procurement and accounting officers on pending bills to equip them with skills on capturing and settling pending bills.

Development budget execution has implication on the ability of a county government to expand the capacity for economic activity. To improve on the development budget execution County Governments to consider:

- Streamline procurement processes to avoid delays in the implementation of development projects.
- Develop budget monitoring and evaluation framework to ensure budget implementation is in tandem with budget allocation and funds are absorbed appropriately.
- Enhance transparency in public finance by involving all stakeholders including civil society and citizenry in the budgetary process.

Mobilization of own source revenue remains a priority in adequately financing provision of public service at county level. To enhance own source revenue:

- Build capacity of county officials on revenue and expenditure forecasting to come up with realistic targets.
- Formalize mechanisms for recovering outstanding revenues including empowering counties to legally seek redress for non-compliance through the courts
- Automate revenue systems, update business registers, and establish systems to monitor revenue arrears.

Economic Performance

Business environment at county level is a major constraint to private sector growth. Further, low diversity in economic activity may delay achievement of the transformation agenda. For sustained inclusive growth:

- Improve worksite related infrastructure such as electricity, water and internet connectivity to support the MSEs which are the bedrock for economic transformation.
- Support growth of manufacturing firms that use raw materials sourced in the county and encourage consumption and use of locally manufactured goods in promoting the Build Kenya, Buy Kenya initiative.
- Counties to collaborate with National Government in setting up Special Economic Zones and Industrial Parks by providing adequate land.

Human Capital Development

A low percentage of births attended by skilled health personnel can constrain progress in achieving maternal health care. To continue improving on maternal health care:

- Allocate adequate budget to health sector to increasingly provide for physical infrastructure, medical supplies and skilled health workers, continuously strengthening the healthcare system especially in rural and ASAL areas
- Create awareness on importance of using skilled deliveries to meet the targets on maternal health care
- Train traditional birth attendants and community health workers to build their knowledge and skills especially among communities with high cultural preference to home births

Essential Infrastructure

The percentage of households with access to internet connectivity and electricity is low. To improve connectivity:

- Expand ICT infrastructure by fast-tracking implementation of County Connectivity Project Phase III
- Fastrack access to electricity through the rural electrification programme.

Environmental Management

Counties are performing poorly on environmental management. The use clean energy is low, forest and solid waste management regulatory and institutional frameworks are weak or absent, and the use of best practices is negligible. To improve on environmental management:

- Promote and encourage use of clean energy by household including through use of local cooking technologies such as improved jiko, biogas, briquettes, smokeless jikos and supplement with reduced cost for accessing LPG and electricity.
- Counties to develop forest management policies to guide implementation of the 15 forest functions that are fully devolved.
- Counties to strengthen solid waste management frameworks by developing policies and legislations.
- Counties to embrace Public Private Partnership to improve solid waste management practices.

Transparency and Accountability

Public participation regulatory and institutional frameworks remain weak to support effective social accountability. To strengthen public participation:

- County Governments to develop policy and legislative frameworks to appropriately guide the process of public participation
- Undertake continuous civic education by partnering with development partners and non-Governmental organization that conduct civic education for effective public participation.
- Establish and provide public participation directorates with adequate budgets to facilitate in undertaking public participation activities
- The County Executives and County Assembly to work together to ensure systematic engagement of the public, citizens' opinions and priorities are incorporated in decision making and the process of public participation is not overshadowed by political interests.

Crime and Justice

Security challenges are manifested by incidences of offences and prevalence of GBV. To create safe spaces:

- Establish a framework to seamlessly coordinate implementation of national and county government security initiatives
- Increase access to quality and comprehensive support services to GBV victims and survivors.

- Strengthen the capacity of institutions and service providers handling GBV across the health and criminal justice system.
- Protect vulnerable persons by implementing a witness protection programme for GBV victims and survivors.
- Fasttrack implementation of GBV offenders' rehabilitation and reintegration into the community.
- Eliminate harmful cultural practices such as early child marriages, forced marriages, amongst others are practices, which contributes to GBV

Water Sanitation and Hygiene (WASH)

Although counties have made progress in enhancing access to WASH services, there are huge disparities among the ASAL and rural counties with a significant percentage of households having limited access to improved water and sanitation. To enhance access to WASH services:

- Support County Water and Sewerage Service Companies to implement pro-poor tariffs to increase access to WASH services.
- Scale up implementation of physical plans by investing in sanitation infrastructure to adequately enhance access to sanitation services by the unserved and underserved populations.
- Establish a coordination framework to enhance collaboration among players in WASH sector at both the County and National level as well as development partners.
- Increase investments in water harvesting, digging wells, and create awareness on home water-treatment to increase access to improved water.

Social Welfare

A high percentage of households are deprived of essential goods and services and this coupled with the low absorption of the budget allocated to social welfare programmes is lagging efforts to address poverty. To improve on welfare:

- County governments to consider developing county specific social protection cash transfer programmes to supplement the national government programmes in reaching to vulnerable population

- County governments to identify and address causes of low absorption of social welfare budgets and have in place mechanisms to map out the vulnerable members of the society.
- County governments to promote programmes that directly and indirectly reduce food poverty such as kitchen garden initiatives, nutrition programmes and other empowerment programmes
- Counties to consider partnering with private sector and development partners to initiate programmes that build skills in self-employment and employability among the youths with a particular focus on females to enhance labour participation

5. APPENDIX

Appendix 1: Cronbach's Alpha

The Cronbach's alpha measures the reliability or internal consistency of a set of scale or test items by predicting the strength of that consistency. It was computed by correlating the score of each scale item with the total score for each observation, and then comparing it to the variance for all individual item scores. The Cronbach alpha results ranges from 0 to 1 in providing the overall assessment of a measure's reliability.

The rule of thumb is that:

- If $\alpha = 0$, implies all of the scale items are entirely independent from one another, that is, not correlated or share no covariance.
- If $\alpha = 1$, Implies as the number of items in the scale approaches infinity, that is, the higher the coefficient, the more the items have shared covariance and probably measure the same underlying concept.
- Alpha coefficients of below 0.50 are unacceptable.
- Between 0.65 and 0.8 (Or higher in many cases), presents a good coefficient (Pallant, 2020).

Table 13: Cronbach's Alpha Results

Pillars	Indicators	Cronbach's alpha	Decision
Fiscal Management	- Development expenditure to total expenditure (%) - Personnel emoluments to total revenue (%) - Recurrent pending bills to total recurrent expenditure (%) - Development expenditure pending bills to total development expenditure (%) - Development expenditure absorption rate - Recurrent expenditure absorption rate - The share OSR to equitable share - Actual OSR collection to target - Existence of policies, plans, systems to guide OSR - Revenue management practices	Scale reliability coefficient: 0.65 Average interitem covariance: 0.005 Number of items in the scale: 10.00	With the alpha coefficient of above 0.65, it reflects a good reliability. Therefore, all the 10 indicators were included in the computation of the index.

Pillars	Indicators	Cronbach's alpha	Decision
Economic Performance	- Average Real GCP Growth 2014-2017 - Contribution of manufacturing to GCP 2013-2017 - Labor participation rate (%) - CBEM score 2022 - Percentage of financial access - Gini coefficient	Scale reliability coefficient: 0.62 Average interitem covariance: 0.009 Number of items in the scale: 6.00	With the alpha coefficient of above 0.50, it presents a fairly good reliability.
Human capital Development	- Percentage of skilled birth - Percentage of stunted children - Percentage of Children 12 -23 months fully vaccinated - Adult literacy rates - Primary school net enrolment (%) - Life expectancy at birth	Scale reliability coefficient: 0.84 Average interitem covariance: 95.53 Number of items in the scale: 6.00	With the alpha coefficient of above 0.65, reflecting a strong and good reliability. Thus, all the indicators were included
Essential Infrastructure	- Average distance to workplace - Average cost of transport to workplace % of households by housing material Composite-Finished materials(adequate) % of households with internet connectivity % of ICT connectivity in schools % of population subscribed to mobile money transfer platform	Scale reliability coefficient: 0.82 Average interitem covariance: 106.86 Number of items in the scale: 6.00	The alpha results indicate a strong and a good and coefficient of 0.82 indicating a strong reliability, thus the inclusion of all the indicators in the computation of the index.
Environment Management	- Percentage of households using clean energy - Existence of county specific forest management policies, acts and guidelines - Existence of county specific climate change policies, acts and guidelines - Existence of county specific solid waste management policies, acts and regulations	Scale reliability coefficient: 0.19 Average interitem covariance: 0.002 Number of items in the scale: 4.00	The alpha coefficient is below 0.50. Indicates the data included in the model is not sufficient to be predict model. Additional indicators can be included.
Transparency and Accountability	- Corruption & Economic crime incidences per 100,000 - Existence of county specific public participation policies, acts and regulations/guidelines - Public participation best practices (providing timely information, giving feedback to public on decisions made, inclusion of all in public forums, facilitating public participation through budgeting, incorporating public views in decision making).	Scale reliability coefficient: 0.64 Average interitem covariance: 0.019 Number of items in the scale: 3.00	With the alpha coefficient of above 0.50, it presents a fairly good reliability. Therefore, all the 3 indicators were included in the computation of the sub-index.
Crime and Justice	- All offences per 100,000 population - GBV Crime per 100,000 population	Scale reliability coefficient: 0.82 Average interitem covariance: 0.023 Number of items in the scale: 2.00	The alpha results indicate a strong and a good and coefficient of 0.82 indicating a strong reliability
Social welfare	- Percentage of households in food poverty - Percentage of households in multidimensional Poverty - Health budget absorption rate for the last 2 financial years 2019/20-2020/21) - Actual health sector budget allocation vs Abuja declaration health budget allocation (15%) - Actual health sector budget allocation vs pre-devolution health sector budget allocation (35%) - ECDE Budget absorption rate in last 2 financial years 2019/20-2020/21 - Social welfare budget absorption rate in last 2 years 2019/20-2020/21	Scale reliability coefficient: 0.63 Average interitem covariance: 0.007 Number of items in the scale: 6.00	With the alpha coefficient of above 0.50, it presents a fairly good reliability.

Appendix 2: Principal Component Analysis

The Principal Component Analysis (PCA) is a classic dimensionality technique used to capture the essence of the data. That is, examining the direction and magnitude of the coefficients for the original variables. The key outputs for the PCA includes the eigenvalues, the proportion of the variance that the component explains, the coefficients and the eigenvectors. The rule of thumb is that the larger the absolute value (regardless of the direction i.e., positive or negative) the more important the corresponding variable is in calculating the component. The PCA results under each thematic area are discussed below.

Fiscal management

Table 14: Principal Component Analysis Fiscal Management Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)			
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2	Comp3
Comp1	2.70	0.27	Revenue management index	-0.10	0.23	-0.26
Comp2	1.65	0.44	Compliance with personnel emoluments to total revenue ceiling	0.17	-0.15	0.44
Comp3	1.44	0.58	Recurrent pending bills to total recurrent expenditure	0.45	0.08	-0.38
Comp4	1.36	0.72	Recurrent expenditure budget execution	0.31	0.46	0.37
Comp5	0.86	0.80	Compliance with PFM regulations on development expenditure	0.52	0.12	0.17
Comp6	0.75	0.88	OSR Regulatory framework index	-0.07	0.38	-0.37
Comp7	0.59	0.94	Ratio of OSR share to equitable share	-0.06	0.11	0.14
Comp8	0.37	0.97	Achievement of own source revenue targets index	-0.49	-0.14	0.34
Comp9	0.17	0.99	Development expenditure pending bills to total development expenditure	0.11	-0.56	-0.37
Comp10	0.11	1.00	Development expenditure budget execution	0.36	-0.46	0.15

The results show the first four (4) components out of the ten (10) components, have eigenvalues greater than 1. These four components explain 71.56 per cent of the variations in the data. Further, the eigenvectors indicate the magnitude and direction of the correlation between the four principal components with the original variables. The larger the absolute value of the coefficient, the more important the corresponding variable is in calculating the component. In the results, the first principal component analysis has large positive associations with Compliance with PFM regulations on development expenditure, recurrent expenditure budget execution, and recurrent expenditure budget execution, and negatively associated with ratio of OSR share to equitable share. While the

second principal component has large negative associations with development expenditure budget execution and recurrent expenditure budget execution large positive associations with Compliance with personnel emoluments to total revenue ceiling and OSR Regulatory framework. At least, all the indicators contribute to a larger association with the four components. This, therefore makes all the selected indicators essential in computation of the index.

Economic Performance

Table 15: Principal Component Analysis Economic Performance Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)			
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2	Comp3
Comp1	1.92	0.32	Average Real GCP Growth 2014-2017	0.19	0.50	-0.61
Comp2	1.15	0.51	Contribution of manufacturing to GCP 2013-2017	0.47	-0.59	0.06
Comp3	1.05	0.69	Labor participation rate (%)	0.26	0.62	0.38
Comp4	0.96	0.85	CBEM score 2022	0.55	0.02	-0.28
Comp5	0.54	0.94	Percentage of financial access	0.60	-0.01	0.14
Comp6	0.38	1.00	Reversed Gini coefficient	0.10	0.18	0.61

The results show the first three (3) components out of the six (6) components, have eigenvalues greater than 1. These three components explain 68.68 per cent of the variations in the data. In the results, the first principal component analysis has large positive associations with the financing growth, enabling business environment and economic diversity (average contribution of Manufacturing to GCP). The second principal component depicts a larger positive relation with labour participation rate, economic growth and large adverse effect on economic diversity. Principal component three has larger positive associations with income equality and larger effect on growth economy. This implies, at least all the selected indicators have significant contributions.

Human Capital Development

Table 16: Principal Component Analysis Human Capital Development Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)			
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2	Comp3
Comp1	3.49	0.58	Percentage of skilled birth	0.50	0.05	-0.08
Comp2	1.01	0.75	Percentage of stunted children	0.20	0.88	0.23
Comp3	0.91	0.90	Percentage of Children 12 -23 months fully vaccinated	0.45	0.15	0.11

Comp4	0.35	0.96	Adult literacy rates	0.48	-0.22	-0.27
Comp5	0.18	0.99	Primary school net enrolment (%)	0.49	-0.20	-0.21
Comp6	0.07	1.00	Life expectancy at birth	0.20	-0.35	0.90

The results show the first two (2) components out of the six (6) components, have eigenvalues greater than 1. These two components explain 74.95 per cent of the variations in the data. In the results, the first principal component analysis has large positive associations with the percentage of skilled births, literacy rates, and primary net enrolment ratio (%). While the second principal component comprises larger positive associations with percentage of children not stunted, and large negative associations with life expectancy and literacy rates. The results indicate that at least 5 selected indicators contribute greatly to the associations between the data with only percentage of children 12 -23 months fully vaccinated (%) contributing moderately to the changes in the model. Therefore, all the variables are fit to contribute to the development of the index.

Essential Infrastructure

Table 17: Principal Component Analysis Essential Infrastructure Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)			
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2	Comp3
Comp1	3.33	0.55	Average distance to workplace	-0.03	0.90	0.29
Comp2	1.12	0.74	Percentage of households with internet connection	0.47	0.12	0.10
Comp3	0.70	0.86	% of households by housing material Composite Finished materials	0.42	0.09	-0.47
Comp4	0.49	0.94	% of ICT connectivity in schools	0.33	-0.32	0.80
Comp5	0.22	0.98	% of population subscribed to mobile money transfer platform	0.50	-0.12	-0.20
Comp6	0.13	1.00	% of Conventional Households with mains electricity for lighting	0.50	0.21	-0.01

The results show the first two (2) components out of the six (6) components, have eigenvalues greater than 1. These two components explain 74.17 per cent of the variations in the data. In the results, the first principal component analysis has large positive associations with the percentage of conventional Households with mains electricity for lighting, percentage of population subscribed to mobile money transfer platform, and percentage of households by housing material composite-Finished materials(adequate). While for the second component, the largest positive contributions are from average distance to workplace and percentage of conventional Households with mains electricity for lighting. The percentage of

ICT connectivity in schools' contribution to the model. The indicator on average cost of transport to workplace was dropped to make the model reliable.

Environment Management

Table 18: Principal Component Analysis Environment Management Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)			
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2	Comp3
Comp1	1.23	0.31	Percentage of households using clean energy	0.60	0.33	-0.50
Comp2	1.12	0.59	Existence of county specific forest management policies, acts and guidelines	0.20	0.63	0.75
Comp3	0.90	0.81	Existence of county specific climate change policies, acts and guidelines	0.31	-0.69	0.44
Comp4	0.75	1.00	Existence of county specific solid waste management policies, acts & regulations	0.71	-0.15	0.02

The results show the first two (2) components out of the four (4) components, have eigenvalues greater than 1. These two components explain 58.63 per cent of the variations in the data. In the results, the first principal component analysis has large positive association with solid waste management regulatory and institutional frameworks indicator and proportion of household using clean energy. For the second principal component, the larger negative proportion is associated with climate change regulatory and institutional framework and largely positively associated with forest management regulatory and institutional frameworks. Evident by the 58.63 per cent of the variations in the model explained by the two components, and the alpha of below 0.6, additional data ought to have been included in the model for computation of a reliable index.

Transparency and Accountability

Table 19: Principal Component Analysis Transparency and Accountability Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)			
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2	Comp3
Comp1	1.98	0.66	Corruption	-0.08	1.00	0.02
Comp2	0.99	0.99	Public participation regulatory framework	0.70	0.07	-0.71
Comp3	0.02	1.00	Public participation best practices	0.71	0.04	0.71

The results show the first component out of the three components, has eigenvalue greater than 1. This component explains 66.04 per cent of the variations in the data. In the results, the first principal component analysis has large positive association with public participation regulatory and institutional frameworks and the public participation index. This imply the indicators contribute equally to the changes in the model. The association with corruption and economic crime rate per 100,000 has a greater contribution in component two although the eigenvalue is slightly below 0.1. Therefore, all the indicators are significant for computation of the transparency and accountability index.

Crime and Justice

Table 20: Principal Component Analysis Crime and Justice Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)		
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2
Comp1	1.69	0.84	GBV Crime rate per 100,000 population	0.70	0.70
Comp2	0.30	1.00	All offences crime rate per 100,000 population	0.70	-0.70

The results show the first component out of the two components, has eigenvalue greater than 1. This component explains 84.82 per cent of the variations in the data. In the results, the first principal component analysis has large positive association with both the GBV crime index and the index for all the offences. This imply the indicators contribute equally to the changes in the model.

Social Welfare

Table 21: Principal Component Analysis Social Welfare Pillar

Principal Components (Correlation)			Principal Components (Eigenvectors)			
Component	Eigen value	Cumulative	Indicators	Comp 1	Comp2	Comp3
Comp1	2.35	0.39	Percentage of households in multidimensional Poverty	0.41	0.51	0.20
Comp2	1.53	0.65	Health budget absorption rate for the last 2 financial years 2019/20-2020/21)	0.22	-0.13	0.78
Comp3	1.10	0.83	Actual health sector budget allocation vs Abuja declaration health budget allocation (15%)	0.48	-0.37	-0.40
Comp4	0.62	0.93	Actual health sector budget allocation vs pre-devolution health sector budget allocation (35%)	0.57	-0.14	0.27
Comp5	0.25	0.98	ECDE Budget absorption rate in last 2 financial years 2019/20-2020/21	0.31	-0.45	0.35
Comp6	0.14	1.00	Social welfare budget absorption rate in last 2 years 2019/20-2020/21	0.37	0.60	-0.05

The results show the first three components out of the six components, have eigenvalue greater than 1. This component explains 83.04 per cent of the variations in the data. In the results, the first principal component analysis has large positive association with the Pre-Devolution Health budget target, attainment of Abuja Health declaration and food poverty index. The multi-dimensional indicator was dropped since it can be explained using the food poverty index. For component two, the larger positive association was from the food poverty index and female literacy, and adverse larger association from ECDE budget. This implies, at least all the selected indicators have significant contributions.

Appendix 3: Performance of Counties on PAI across the regional Blocks

1. FCDC

1	Frontier Counties Development Council (FCDC): 11 counties	Baringo, Garissa, Isiolo, Lamu, Mandera, Marsabit, Samburu, Tana River, Turkana, Wajir, West Pokot
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PAI Index

County	Fiscal Management Pillar	Economic performance Pillar	Human Capital development pillar	Essential infrastructure Pillar	Environmental management pillar	Transparency and accountability Pillar	crime and justice Pillar	WASH Pillar	Social Welfare Index	Overall PAI Score
Baringo	0.64	0.50	0.70	0.57	0.42	0.86	0.64	0.60	0.59	0.61
Garissa	0.64	0.43	0.56	0.47	0.51	0.61	0.84	0.52	0.55	0.57
Isiolo	0.74	0.46	0.71	0.51	0.50	0.42	0.48	0.73	0.62	0.57
Lamu	0.69	0.45	0.67	0.50	0.41	0.59	0.00	0.73	0.69	0.52
Mandera	0.81	0.48	0.51	0.38	0.44	0.84	0.89	0.37	0.60	0.59
Marsabit	0.82	0.45	0.58	0.42	0.35	0.58	0.58	0.34	0.48	0.51
Samburu	0.65	0.46	0.54	0.47	0.45	0.59	0.62	0.37	0.56	0.52
Tana River	0.71	0.40	0.64	0.43	0.55	0.66	0.56	0.64	0.49	0.56
Turkana	0.78	0.42	0.51	0.39	0.53	0.83	0.64	0.48	0.41	0.55
Wajir	0.72	0.47	0.44	0.34	0.41	0.67	0.87	0.25	0.55	0.52
West Pokot	0.69	0.43	0.54	0.34	0.44	0.69	0.76	0.32	0.57	0.53

2. CEKEB

4	Central Kenya Economic Bloc (CEKEB): 10 counties	Embu, Kiambu, Kirinyaga, Laikipia, Meru, Murangá, Nakuru, Nyandarua, Nyeri, Tharaka Nithi
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PAI Index CEKEB

County	Fiscal Management pillar	Economic performance Pillar	Human Capital development pillar	Essential infrastructure pillar	Environmental management pillar	Transparency and accountability pillar	crime and justice pillar	WASH pillar	Social Welfare pillar	Overall PAI Score
Embu	0.51	0.51	0.79	0.65	0.58	0.84	0.23	0.82	0.72	0.63
Kiambu	0.62	0.72	0.85	0.78	0.56	0.88	0.49	0.92	0.74	0.73
Kirinyaga	0.64	0.61	0.84	0.73	0.41	0.67	0.40	0.74	0.82	0.65

County	Fiscal Management pillar	Economic performance pillar	Human Capital development pillar	Essential infrastructure pillar	Environmental management pillar	Transparency and accountability pillar	crime and justice pillar	WASH pillar	Social Welfare pillar	Overall PAI Score
Laikipia	0.59	0.57	0.68	0.60	0.42	0.78	0.25	0.53	0.43	0.54
Meru	0.56	0.54	0.75	0.66	0.47	0.67	0.44	0.78	0.70	0.62
Muranga	0.66	0.58	0.81	0.69	0.45	0.72	0.41	0.67	0.72	0.63
Nakuru	0.60	0.59	0.73	0.72	0.50	0.88	0.55	0.67	0.71	0.66
Nyandarua	0.68	0.60	0.78	0.71	0.42	0.86	0.39	0.81	0.68	0.66
Nyeri	0.62	0.59	0.83	0.72	0.55	0.83	0.26	0.69	0.79	0.65
Tharaka Nithi	0.62	0.55	0.78	0.56	0.49	0.48	0.44	0.78	0.69	0.60

3. JKP

5	Jumuiya ya Kaunti za Pwani (JKP): 6 counties	Kilifi, Kwale, Lamu, Mombasa, Taita Taveta, Tana River
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PAI Index JKP

County	Fiscal Management pillar	Economic performance pillar	Human Capital development pillar	Essential infrastructure pillar	Environmental management pillar	Transparency and accountability pillar	crime and justice pillar	WASH pillar	Social Welfare pillar	Overall PAI Score
Kilifi	0.76	0.52	0.68	0.61	0.45	0.68	0.59	0.74	0.65	0.63
Kwale	0.74	0.44	0.67	0.58	0.50	0.86	0.54	0.47	0.57	0.60
Lamu	0.69	0.45	0.67	0.50	0.41	0.59	0.00	0.73	0.69	0.52
Mombasa	0.61	0.67	0.78	0.82	0.53	0.83	0.48	0.84	0.70	0.70
Taita Taveta	0.55	0.50	0.73	0.64	0.41	0.83	0.26	0.89	0.48	0.59
Tana River	0.71	0.40	0.64	0.43	0.55	0.66	0.56	0.64	0.49	0.56

4. LREB

3.	Lake Region Economic Bloc (LREB): 14 counties	Bomet, Bungoma, Busia, Homa Bay, Kakamega, Kericho, Kisii, Kisumu, Migori, Nandi, Nyamira, Siaya, Trans Nzoia, Vihiga
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PAI Index LREB

County	Fiscal Management Pillar	Economic performance pillar	Human Capital development pillar	Essential infrastructure pillar	Environmental management pillar	Transparency and accountability pillar	crime and justice pillar	WASH pillar	Social Welfare pillar	Overall PAI Score
Bomet	0.70	0.55	0.72	0.53	0.52	0.81	0.58	0.29	0.60	0.59
Bungoma	0.65	0.52	0.71	0.54	0.46	0.78	0.62	0.57	0.69	0.62
Busia	0.67	0.49	0.70	0.57	0.36	0.63	0.55	0.68	0.49	0.57
Homa Bay	0.62	0.48	0.69	0.53	0.43	0.73	0.58	0.29	0.69	0.56
Kakamega	0.77	0.56	0.70	0.56	0.56	0.86	0.74	0.61	0.63	0.67
Kericho	0.62	0.61	0.73	0.65	0.50	0.82	0.60	0.73	0.66	0.66
Kisii	0.60	0.52	0.78	0.67	0.51	0.69	0.45	0.65	0.59	0.61
Kisumu	0.48	0.63	0.73	0.72	0.51	0.79	0.45	0.88	0.64	0.65
Migori	0.72	0.53	0.69	0.61	0.41	0.68	0.52	0.49	0.61	0.58
Nandi	0.64	0.49	0.75	0.64	0.43	0.85	0.63	0.58	0.59	0.62
Nyamira	0.60	0.53	0.78	0.60	0.47	0.74	0.46	0.62	0.77	0.62
Siaya	0.66	0.53	0.68	0.56	0.47	0.64	0.46	0.51	0.72	0.58
Trans Nzoia	0.75	0.47	0.70	0.68	0.51	0.66	0.41	0.58	0.70	0.61
Vihiga	0.57	0.50	0.73	0.64	0.41	0.75	0.50	0.66	0.64	0.60

5. NAKAEB

7.	Narok-Kajiado Economic Bloc (NAKAEB): 2 counties	Kajiado, Narok
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PAI Index NAKAEB

County	Fiscal Management pillar	Economic performance pillar	Human Capital development pillar	Essential infrastructure pillar	Environmental management pillar	Transparency and accountability pillar	crime and justice pillar	WASH pillar	Social Welfare pillar	Overall PAI Score
Kajiado	0.68	0.56	0.76	0.55	0.59	0.66	0.68	0.90	0.68	0.67
Narok	0.71	0.46	0.66	0.39	0.48	0.68	0.74	0.38	0.66	0.57

6. NOREB

2.	North Rift Economic Bloc (NOREB): 8 counties	Baringo, Elgeyo Marakwet, Nandi, Samburu, Trans Nzoia, Turkana, Uasin Gishu, West Pokot
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PAI Index NOREB

County	Fiscal Management pillar	Economic performance pillar	Human Capital development pillar	Essential infrastructure pillar	Environmental management pillar	Transparency and accountability pillar	crime and justice pillar	WASH pillar	Social Welfare pillar	Overall PAI Score
Baringo	0.64	0.50	0.70	0.57	0.42	0.86	0.64	0.60	0.59	0.61
Elgeyo Marakwet	0.61	0.55	0.75	0.57	0.49	0.89	0.65	0.53	0.65	0.63
Nandi	0.64	0.49	0.75	0.64	0.43	0.85	0.63	0.58	0.59	0.62
Samburu	0.65	0.46	0.54	0.47	0.45	0.59	0.62	0.37	0.56	0.52
Trans Nzoia	0.75	0.47	0.70	0.68	0.51	0.66	0.41	0.58	0.70	0.61
Turkana	0.78	0.42	0.51	0.39	0.53	0.83	0.64	0.48	0.41	0.55
Uasin Gishu	0.72	0.56	0.74	0.69	0.40	0.86	0.56	0.76	0.68	0.66
West Pokot	0.69	0.43	0.54	0.34	0.44	0.69	0.76	0.32	0.57	0.53

7. SEKEB

6.	South Eastern Kenya Economic Bloc (SEKEB): 3 counties	Kitui, Machakos, Makueni
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PAI Index SEKEB

County	Fiscal Management pillar	Economic performance pillar	Human Capital development pillar	Essential infrastructure pillar	Environmental management pillar	Transparency and accountability pillar	crime and justice pillar	WASH pillar	Social Welfare pillar	Overall PAI Score
Kitui	0.75	0.44	0.70	0.61	0.49	0.67	0.50	0.55	0.70	0.60
Machakos	0.62	0.66	0.82	0.69	0.47	0.84	0.49	0.76	0.69	0.67
Makueni	0.72	0.48	0.80	0.64	0.44	0.84	0.51	0.71	0.69	0.65

Kenya Institute for Public Policy Research and Analysis
Bishops Garden Towers, Bishops Road
P.O. Box 56445-00200, Nairobi, Kenya
Tel: +254 20 4936000; +254 20 2719933/4
Email: admin@kippra.or.ke
Website: <http://www.kippra.or.ke>

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