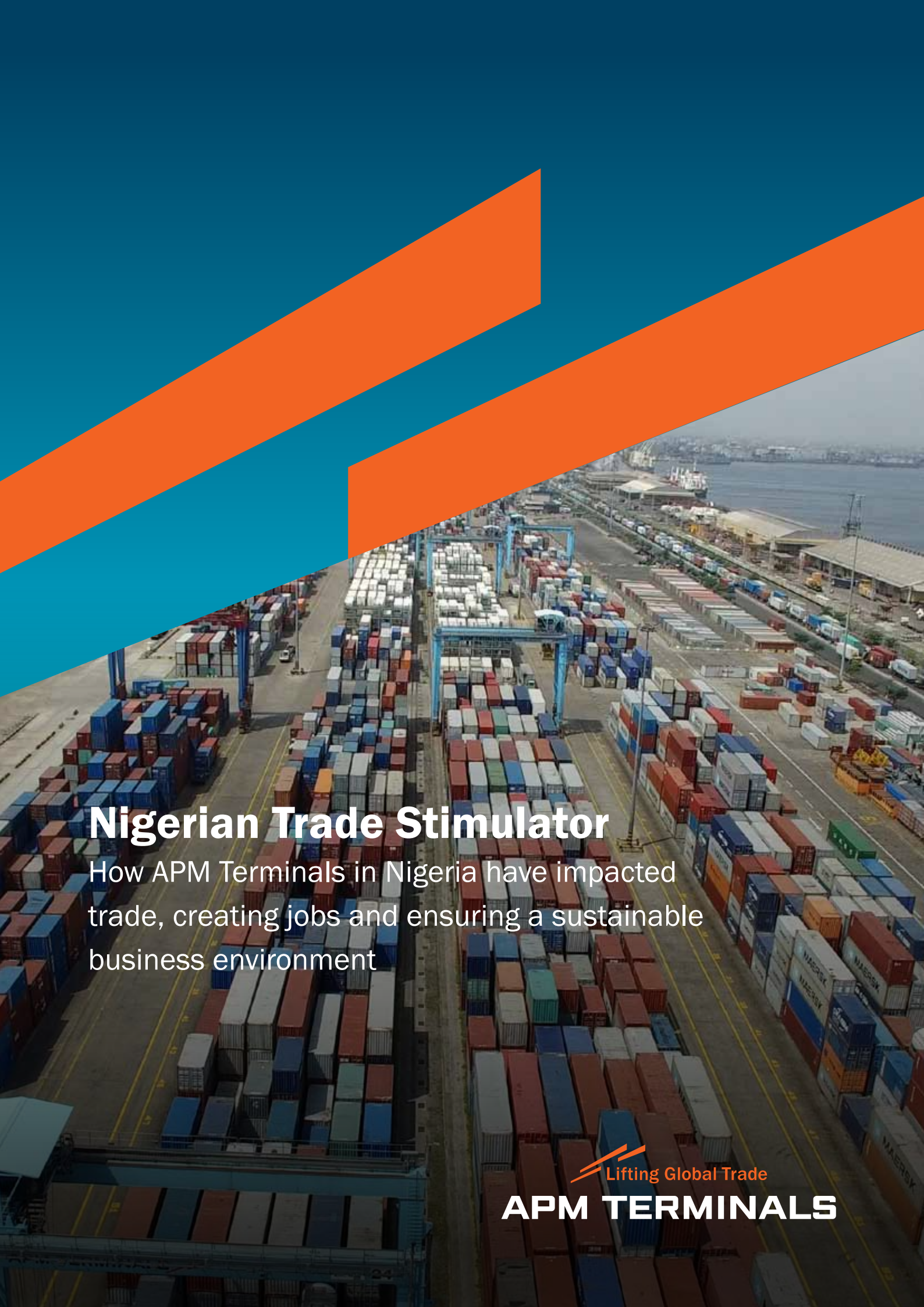


Nigerian Trade Stimulator

How APM Terminals in Nigeria have impacted trade, creating jobs and ensuring a sustainable business environment

Lifting Global Trade

APM TERMINALS

Contents

Lifting Global Trade

APM TERMINALS

Nigeria, an attractive economy for international trade

> "The performance of Nigerian foreign trade is challenged in many ways. Both on the physical infrastructure and on other administrative processes."

As the second largest economy on the African continent, Nigeria has the potential to become one of the largest economies in the world. To unlock this potential, Nigeria is dependent on international trade to further grow and diversify its economy beyond oil which despite the high growth-rates of the past decade has been largely non-inclusive. With more than 90% of goods carried by sea, Nigeria's maritime ports are the most important gateways to economic diversification and the second largest source of revenue after oil.

For decades, Nigeria's publicly run ports put a brake to the country's economic development due to poor performance and high costs and the ports suffered from numerous ills. As a result, the government introduced a comprehensive reform of the port sector in the mid-2000s leading to a significant influx of investments from private terminal operators such as APM Terminals.

While this move resulted in drastic improvements in port productivity, there is wide agreeance that the country's maritime transport system is in continuous need of reform with factors such as longer-than-ideal border clearance times, informal payments to customs and other government agencies and poor hinterland connectivity continuing to drive up costs for importers and exporters in several Nigerian ports.

Today, the country's biggest container terminals and economic lifeline, Apapa and Tin can, continue to be heavily challenged by hinterland congestion which significantly adds to the costs and time for importers and exporters to get their containers in and out of Lagos.

Terminal operators such as APM Terminals can be important engines of diversified economic growth to their host countries, both directly through their operations and indirectly through the provision of more efficient terminal services.

It is in the context of the important strides made in Nigerian ports over the past decades and the significant challenges that remain that APM Terminals undertook a socio-economic impact study of its investments and operations in Nigeria.

This study does however observe that the trade impacts of APM Terminals have been less significant in recent years, despite continued strong performance and idle capacity. For APM Terminals' full potential to be unlocked to the benefit of Nigerian importers and exporters, several exogenous trade determinants should be addressed, including challenges relating to Nigeria's inland infrastructure.

The consequences of the poor performing trade determinants are potentially dire. After significant drops in the Naira against the dollar since 2015 and the breakdown of Lagos road infrastructure, manufactured import and export have lost almost USD 30 billion in value (65%-70%), which is associated with around 7.0-8.9 million lost jobs and reductions in GDP of around USD 35.0-54.3 billion out of a total GDP of around USD 400 billion.

Thus, while value of trade has been significantly reduced, volume of trade has increased. This apparent contradiction does not seem to be due to changing export and import composition in the period.

Detailed export data from UNCOMTRADE (HS2) shows no sign of shifts from high value goods to low value goods among top 10 exports and imports. It is thus unclear which one of these sources – trade value or trade volume - that best reflects actual development in Nigeria. However, if trade value has dropped, it is plausible considering the steeply rising direct and indirect Transport & Logistic (T&L) costs. Since many T&L service providers have large part of their capex and operational cost in US Dollars, the devaluation of the Naira will also hit exporters through higher T&L costs.

- *With more than 90% of goods carried by sea, Nigeria's maritime ports are the most important gateways to economic diversification and the second largest source of revenue after oil.*
- *After significant drops in the Naira against the dollar since 2015 manufactured import and export have lost almost $30 billion in value.*

Challenges and opportunities to growth in Nigeria

The current congestion in Lagos due to the breakdown of the main roads for entry and exit of the Lagos port resulting mile long queues of trucks blocking vital parts of Lagos, has further increased the Total Transport & Logistic Cost (TTLC) for Nigerian importers and exporters. A TTLC survey among Nigerian importers and forwarders shows that long lead times and delays now add almost 50% to the direct costs of importing.

Opportunities

2nd largest economy in Africa

GDP $400b

190 million

mostly young people and rising

Very fertile soil suited for most crops

Challenges

Poor infrastructure for almost everything

Widespread **corruption** and mismanagement

Widespread **poverty, equality**

Must-wins

Diversify the economy through **trade**

Make sector reforms and attract more **investments**

Make inclusive politics and inclusive **economic growth**

Corporate Impacts

Turnover generates more turnover

One of the most obvious ways that terminal operators generate value to society is through the generation of economic activity and the share of this activity which is funnelled back into its host societies.

A simple break-down of APM Terminals' turnover in Nigeria from 2012-2016 shows that half (50%) of the turnover generated by Apapa was funnelled back to the local economy through employees, suppliers, financiers, and tax payments.

APM Terminals in Nigeria had a direct annual turnover of around USD 350 million in the period from 2013 to 2016 and a significant portion of this turnover stay in the local economy.

Based on an input-output model of the Nigerian economy, it can be further observed that the direct turnover created by APM Terminals from 2013-2016 has created around USD 44 million of annual turnover in companies supplying goods and services to APM Terminals (indirect production) and around USD 215 million of annual turnover in companies supplying consumption goods to the employees of APM Terminals and its suppliers (induced production). This means that APM Terminals' business activities have created a total turnover of around USD 610 million per year to the Nigerian economy in the period from 2013 to 2016.

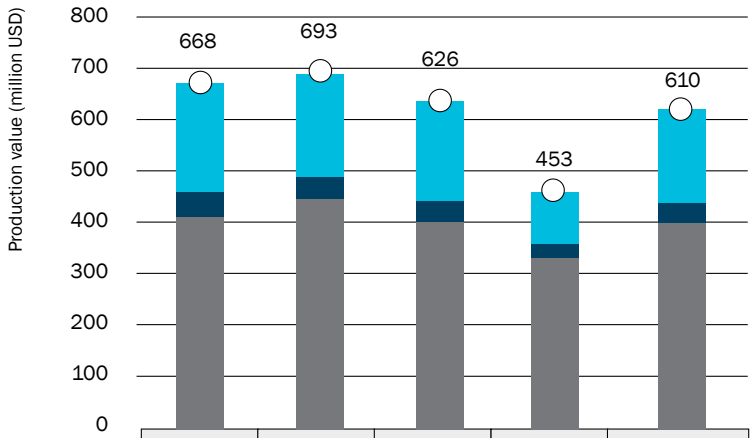
A direct annual turnover from 2013 to 2016

$350million

Induced production:
Production created in the economy through spending of wages and salaries of the direct and indirect employees on food, housing, transportation, etc.

Indirect production:
Production created by companies providing goods and services to APM Terminals

Direct production
Production created by APM Terminals



	2013	2014	2015	2016	Average
Induced	244	238	226	151	215
Indirect	52	49	44	29	44
Direct	372	409	356	273	352
Total	668	693	626	453	610

Source: QBIS based on input-output tables for the Nigerian economy and financial data from APM Terminals in Nigeria.

One APM Terminals fulltime employee equals 28 in the Nigerian Economy

The operation of APM Terminals in Apapa has a measurable impact on local job creation. With increases in production and GDP come expected increases in number of jobs and salaries which in turn increases households' income and leads to increased private consumption. This increased private consumption leads to a further increase in demand from the sectors delivering goods and services for private consumption, which in turn again increase employment and salaries, also referred to as induced effects.

In the period 2013 to 2016, APM Terminals employed an average of 1,196 full time employees per year (direct jobs). In the same period, APM Terminals further supported another nearly 4,800 jobs per year (indirect jobs) in the companies supplying goods and services to APM Terminals and another around 29,000 jobs per year (induced jobs) when the people hired by APM Terminals or its suppliers spend their salaries on private consumption.

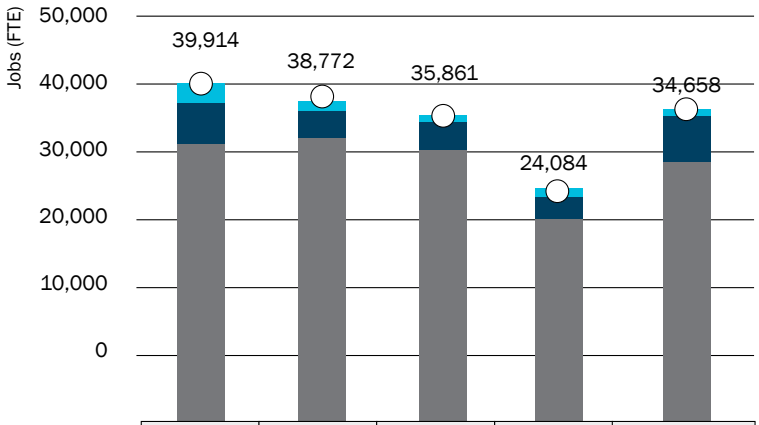
In total, APM Terminals has supported nearly 35,000 direct, indirect and induced jobs per year in Nigeria in the period from 2013 to 2016.

This means that for each job created by APM Terminals, the company supported another 28 jobs at suppliers to APM Terminals and in companies supplying consumer goods to APM Terminals employees and its suppliers' employees.

APM Terminals has supported nearly

35,000

direct, indirect and induced jobs per year in Nigeria in the period from 2013 to 2016.



	2013	2014	2015	2016	Average
Direct	1,330	1,377	1, 138	939	1,196
Indirect	5,873	5,565	4,533	3,080	4,763
Induced	32, 711	31, 830	30,190	20,065	28,699
Total	39,914	38,772	35,861	24, 084	34,658

Direct jobs:
Persons directly employed by APM Terminals

Indirect jobs:
Employees of Nigerian companies from which APM Terminals procures goods and services

Induced jobs:
Employees of the companies from which the direct and indirect employees spend their wages and salaries on food, housing, transportation, etc.

Source: QBIS based on input-output tables for the Nigerian economy and financial data from APM Terminals in Nigeria.


MAERSK
PIL

Trade Impacts

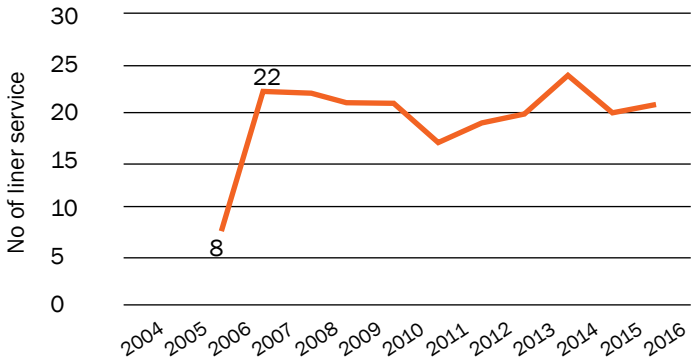
The Nigerian Liner Shipping Connectivity Index (LSCI) improved by 50% between 2006 and 2009

When APM Terminals was awarded the concession to manage, operate, and develop the Apapa container terminal in 2006, the average ship waiting time before berthing was 21 days, vessel turnaround time was nearly 5 days while dwell time for import was as high as over 30 days (Deloitte, 2017). Within a year of the award of the concession, delays for berthing space dwindled significantly while other terminal performance have consistently improved since the concession.

When container terminals invest in more capacity and higher productivity, it induces shipping lines to respond with more services, more port calls per service, bigger vessels, which in turn – together with more competition – increases a country's ability to move cargo from one country to another with due cost, due time and due services as measured by the LSCI.

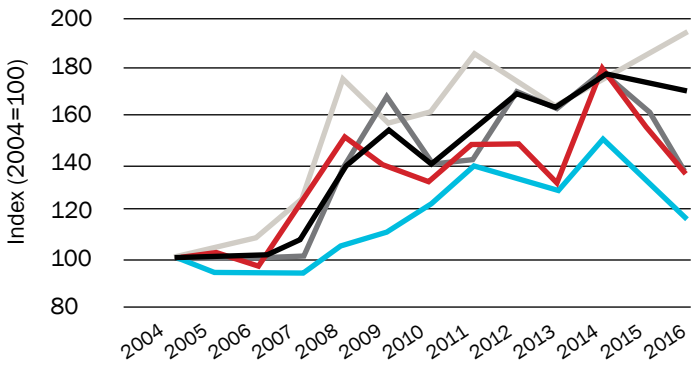
Overall, Nigeria's LSCI has thus experienced significant improvements since APM Terminals was handed over the concession of Apapa in 2006. To what extend these improvements can be attributed to APM Terminals can be assessed by considering APM Terminals' share of total container throughput in Nigeria.

Apapa



Source: APM Terminals in Nigeria

Nigeria



- (1) No of Vessels
- (2) Max Vessel Size
- (3) No of Liner Services
- (4) No of Shipping Lines
- Nigeria LSCI

Source: UNCTAD

What do improvements in the LSCI mean for the transport & logistic costs and trade?

A higher LSCI is associated with economies of scale, higher frequencies of services, and more competition among shipping lines, which in turn should generate lower Total Transport & Logistic Cost (TTLC) for local importers and exporters, while at the same time improving Nigerian companies' access to new and as well as existing markets.

All this should ideally make Nigerian importers and exporters more competitive, increase Nigeria's foreign trade, both in terms of volume and value, and finally help boost Nigeria's GDP and employment.

Two different econometric models have been used to help examine the wider economic impacts of improved liner shipping connectivity on Nigeria's foreign trade. The first model estimates the isolated impact of LSCI on TTLC, while the second model estimates the impacts of LSCI on foreign trade implicitly taking into consideration impacts on TTLC and impacts from access to new markets.

The potential impacts of Apapa, 2006-2009 – LSCI-TTLC-trade models

APM Terminals **Operates Apapa**	▶	LSCI **Up 50%**	▶	T&L costs **down 8%-15%**	▶	Export **Up 5%-12%**	▶	Jobs **84,000-203,000** GDP **USD 0.5-1.3 billion**

The potential impacts of Apapa, 2006-2009 – LSCI-trade models

APM Terminals **Operates Apapa**	▶	LSCI **Up 50%**	▶	Lower TTLC Access to new markets	▶	Export **Up 15%**	▶	Jobs **255,000** GDP **USD 1.6 billion**

The econometric models suggest up to 15% more trade from APM Terminals' induced improvement of Nigeria's connectivity, 2006-2009

Actual development in connectivity factors, TTLC, import and export support this conclusion.

After 2009, the impacts of APM Terminals are less significant. This, however, is not due to APM Terminals not performing, but due to other factors in the supply chain and general framework conditions.

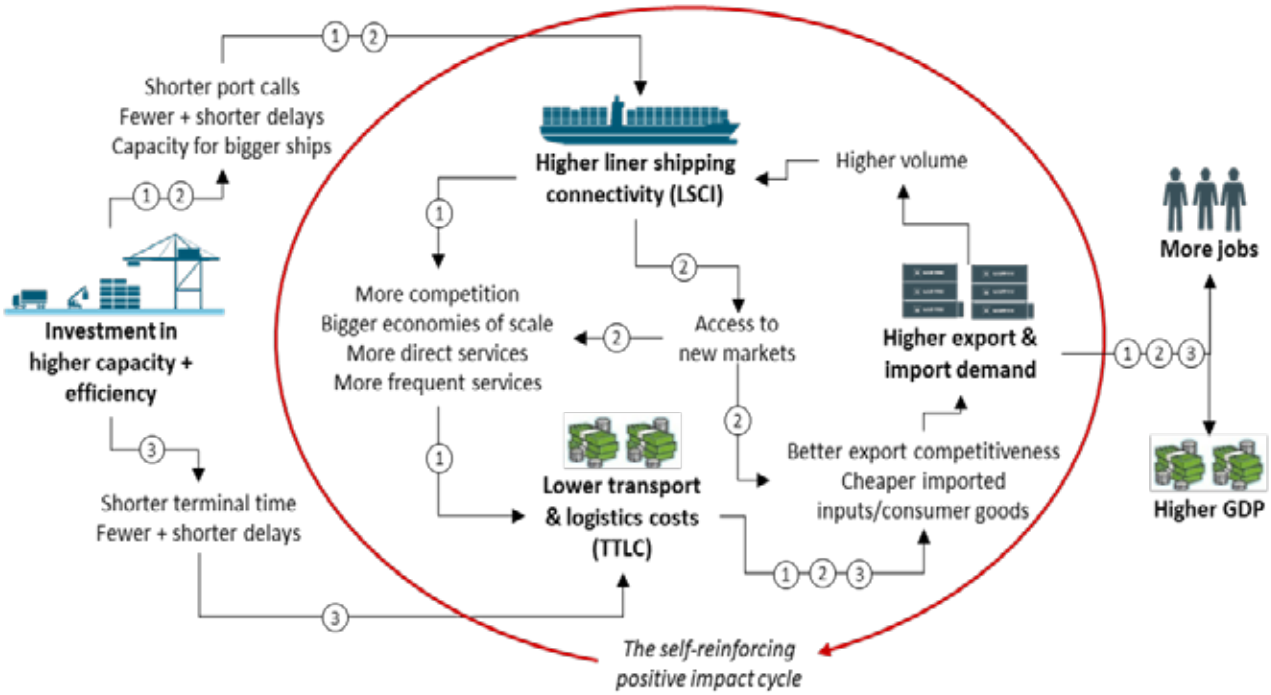
Estimated impacts of APM Terminals' from 2006 to 2009

APM Terminals **Operates Apapa**	LSCI **Up 50%**	Lower TTLC Access to new markets	Export **Up 15%**	Jobs **255,000** GDP **USD 1.6 billion**

Estimated impacts of APM Terminals' from 2010 to 2016

APM Terminals **Operates Apapa & WACT**	LSCI **Up 50%**	Lower TTLC Access to new markets	Export **Up 1.6%**	Jobs **27,000** GDP **USD 0.2 billion**

This study explores three ways in which APM Terminals potentially can have impacted Nigeria's trade, jobs and GDP



Has APM Terminals truly economy?

As documented, the potential impacts on trade, jobs and GDP of Nigeria by APM Terminals in the period from 2006 to 2009 are significant. The question is of course whether it is plausible that these potential impacts have materialized and benefitted Nigeria and, importantly, if such impacts have been sustained over time.

Econometric models like the ones presented can be powerful tools to assess impacts because they can isolate the influence of each individual factor and thereby provide a more credible and robust impact evaluation. In this study, the models have been applied to isolate the impact of LSCI on transport costs and foreign trade from all other potential factors. In this way, the analysis has demonstrated that APM Terminals' potentially has had a significant impact on trade, jobs and GDP in Nigeria due to its contribution to improving Nigeria's connectivity.

Does Nigeria have better access to new markets?

When more shipping lines provide more services, and make more calls to a country's ports, it provides access to new markets that can potentially offer better prices for export goods as well as cheaper and better types of import goods.

Detailed trading data from UNCOMTRADE confirms that this has happened, at least for Nigerian export. In the same period as the number of shipping line services increased, the number of export countries rose from 82 to 144.

The increase in the number of exporting countries is important because Nigeria is dependent on expanding its non-oil export to further grow and diversify its economy beyond oil which despite the high growth-rates of the past decade has been largely non-inclusive. The better access to new markets and the increase in

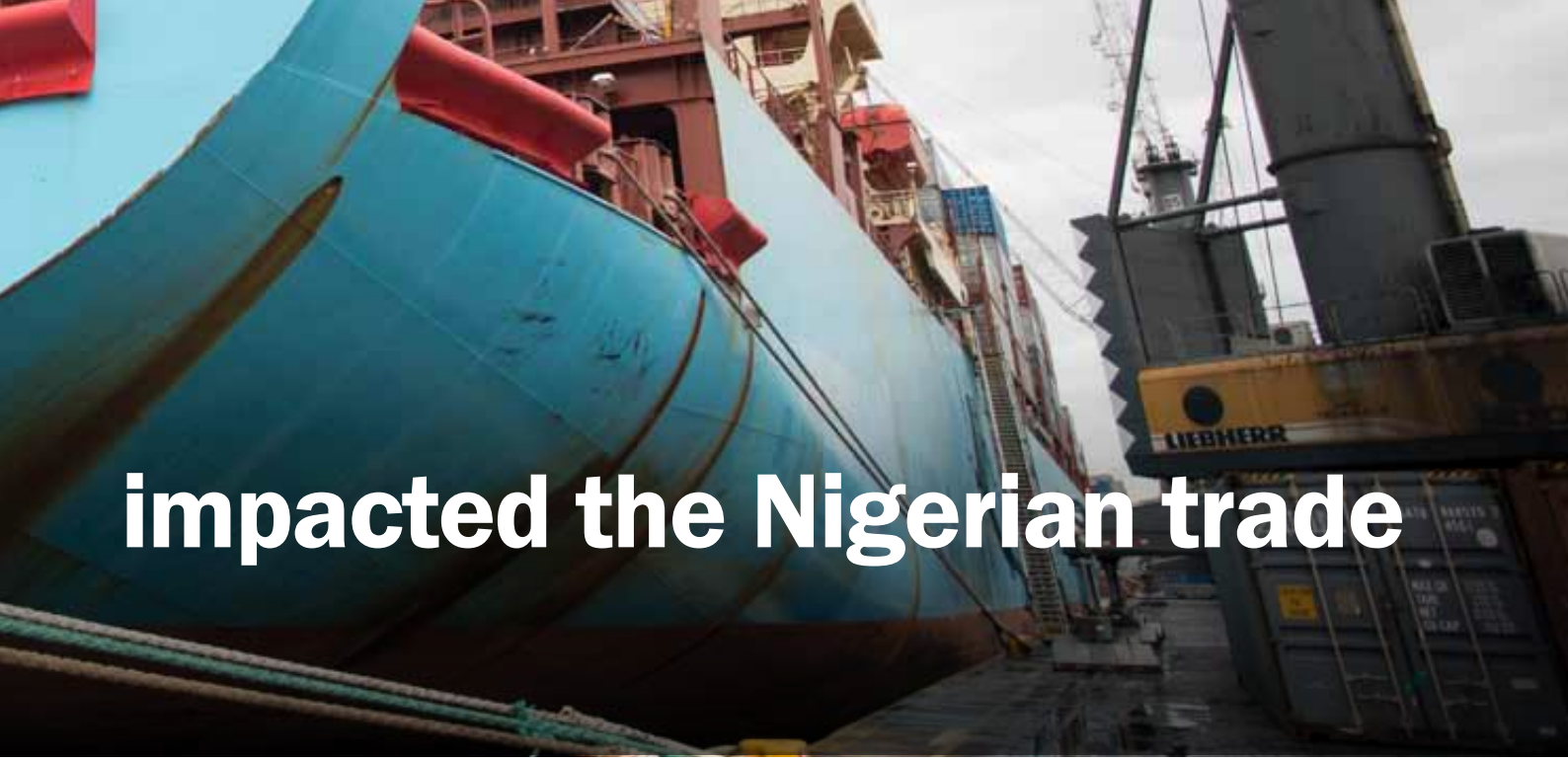
the number of export countries is a crucial step towards this goal. Based on the results from the econometric analysis and the growth in trading partners that have taken place since 2006, it is likely that APM Terminals' investment in and operation of Apapa has helped Nigerian companies get better access to new markets.

Has Nigeria's trade increased?

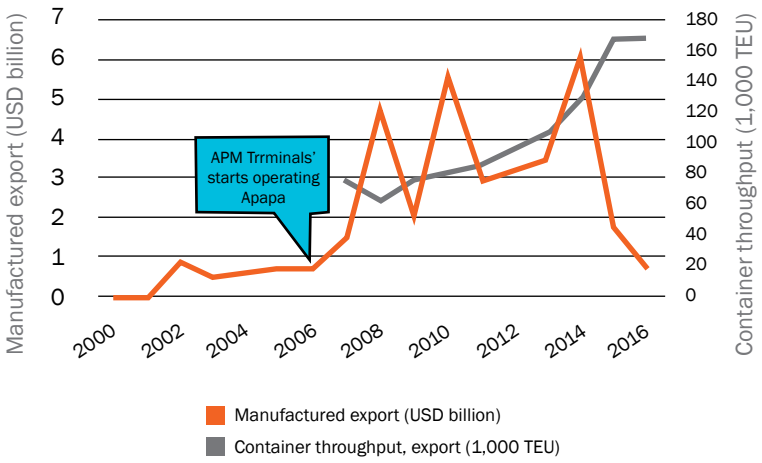
The next question is whether the higher number of export partners as well as other connectivity improvements have manifested themselves in higher exports of particularly non-oil goods which is the type of goods that needs to grow to help Nigeria diversify its economy. Data from the World Bank on manufactured exports seems to answer this affirmatively.

Following APM Terminals' takeover of the Apapa, growth in Nigerian manufactured export soared first from 2007 to 2009 and then from 2010 to 2015.

However, despite additional investments by APM Terminals, including new gantry cranes tripling the terminal's capacity, Apapa was clogged by uncollected containers leading to temporary suspension of ship entry in 2009 and subsequent drop in export as well import. However, after this temporary drop,



impacted the Nigerian trade



Nigeria's trade continued to trade until 2015-2016, where new logistical challenges have slowed down Nigeria's trade.

The increased growth rate in particularly Nigeria's manufactured export and partly in Nigeria's import following APM Terminals' takeover of Apapa in 2006 further supports the results of the econometric models that up to 15% of the growth in Nigeria's trade in the period from 2006 to 2009 could be attributed to APM Terminals and its impact on Nigeria's connectivity.

Has Nigeria's transport & logistics cost decreased?

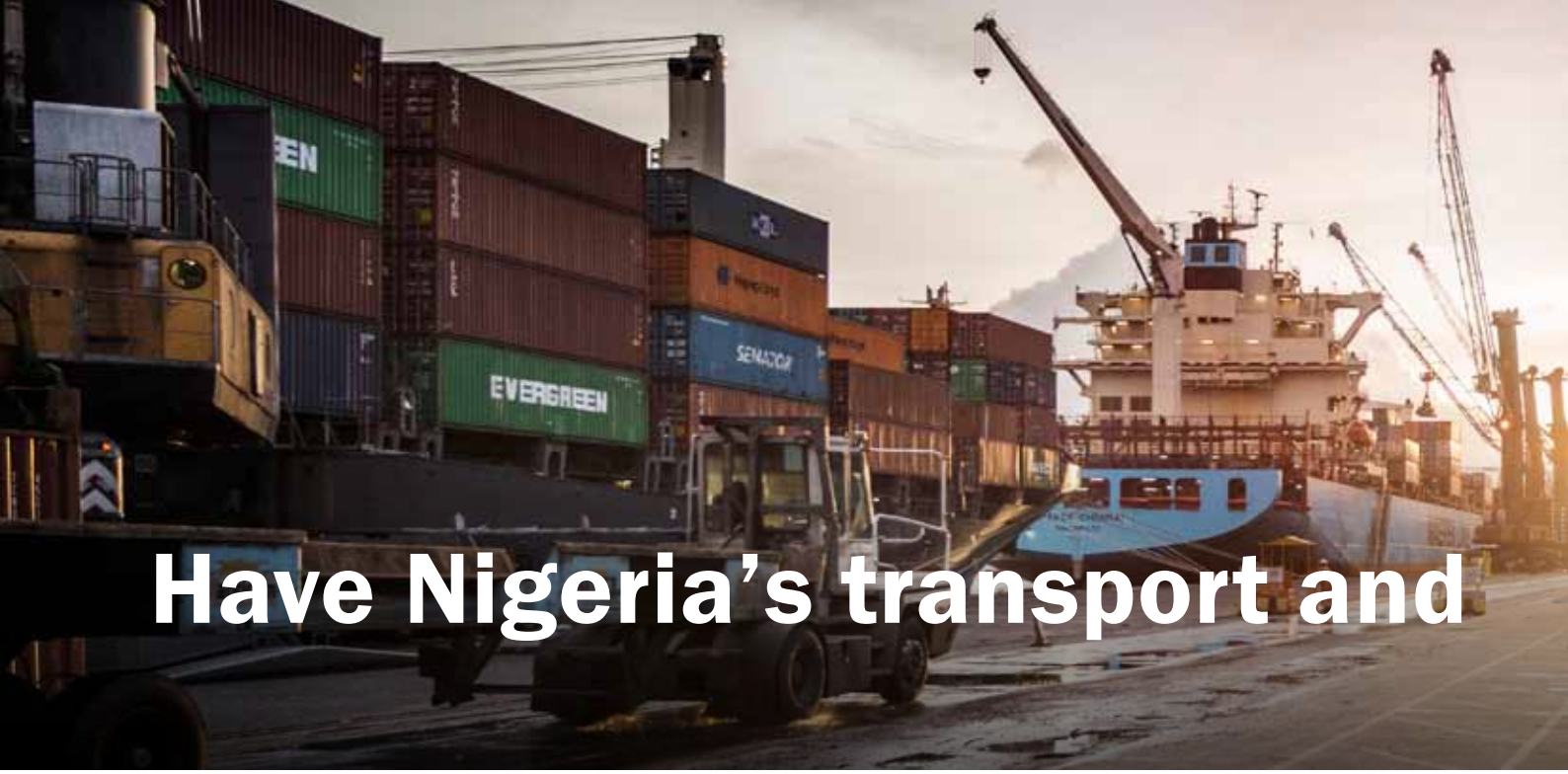
The results of the econometric model indicated that the APM Terminals' induced improvements to Nigeria's connectivity should have reduced maritime transport costs of Nigerian importers and exporters by 5% to 15% in the period from 2006 to 2009. In addition, lower TTLC should emerge from more efficient and faster terminal handling services which reduce delays and lead times in the container terminal and thereby various time-induced costs such as demurrage and storage charges, higher inventory costs, idle capital and human resources costs and various penalty charges for late delivery. Therefore, it is interesting to investigate how Nigeria's TTLC has developed in the same period.

Within months of APM Terminals being awarded the concession of Apapa, delays before berthing dwindled significantly, and shipping lines reduced their congestion surcharge from 740 USD/40ft to 105 USD/40ft and then to zero.

Dwell days also dwindled steadily since APM Terminals' takeover of Apapa from 30 days per container in 2006 to 15 days per container in 2016.

With the lower number of dwell days, estimated storage costs per container in the Apapa terminal were also reduced, while estimated demurrage costs stayed constant until a reduction from around 600 USD/40ft to around 400 USD/40ft occurred in 2016, where also storage costs were reduced further.
In total, congestion, storage and demurrage costs have reduced from around 2,200 USD/40ft in 2006 to around 650 USD/40ft in 2016, with the strongest reduction taking place in the period from 2006 to 2010 in the first years after APM Terminals taking over Apapa.

However, congestion surcharges, storage costs and demurrage only constitute a part of TTLC, in this case so-called indirect TTLC costs. Other indirect costs include higher inventory costs, idle capital and human resources costs as well as various penalty charges for late delivery.



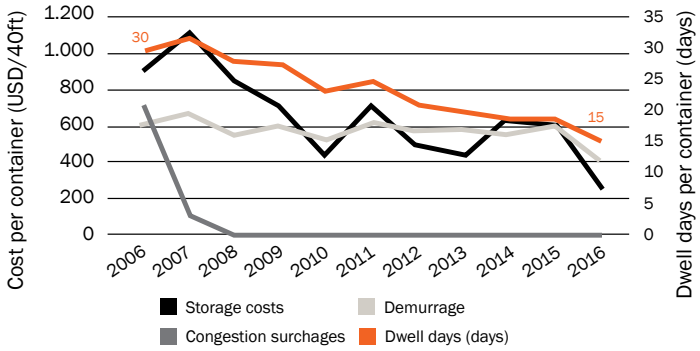
Have Nigeria's transport and

The first econometric model indicated that the APM Terminals' induced improvements to Nigeria's connectivity should have reduced maritime transport costs of Nigerian importers and exporters by 5% to 15% in the period from 2006 to 2009.

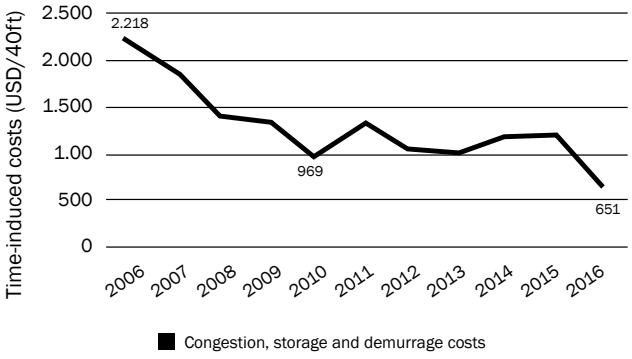
In addition, lower TTLC should emerge from more efficient and faster terminal handling services which reduce delays and lead times in the container terminal and thereby various time-induced costs such as demurrage and storage charges, higher inventory costs, idle capital and human resources costs and various penalty charges for late delivery.

And yes, T&L costs have been reduced adding further support to the results of the econometric models conceivable.

Dwell days and storage, demurrage and congestion costs



Total congestion, storage and demurrage costs



logistics costs decreased?

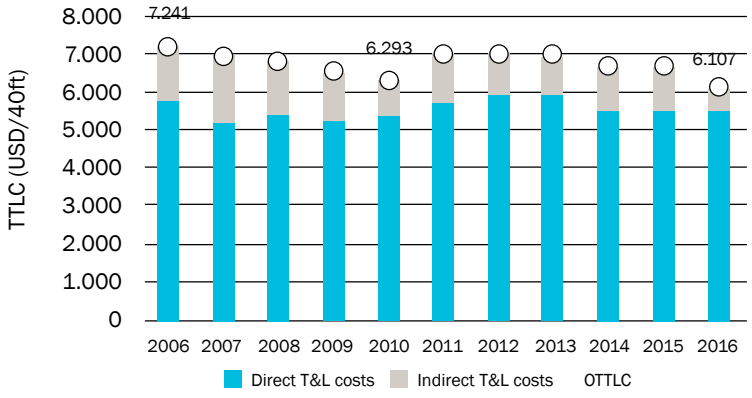
Congestion surcharges, storage costs and demurrage only constitute a part of TTLC. Other indirect costs include higher inventory costs, idle capital and human resources costs as well as various penalty charges for late delivery.

TTLC has been estimated for import to Apapa from 2006 to 2016, cf. top figure. Due to lack of data, this estimate is not complete. Subject to this limitation, it indicates that TTLC for importers has fallen from around 7,200 TEU/40ft in 2006 to around 6,300 USD/40ft in 2010.

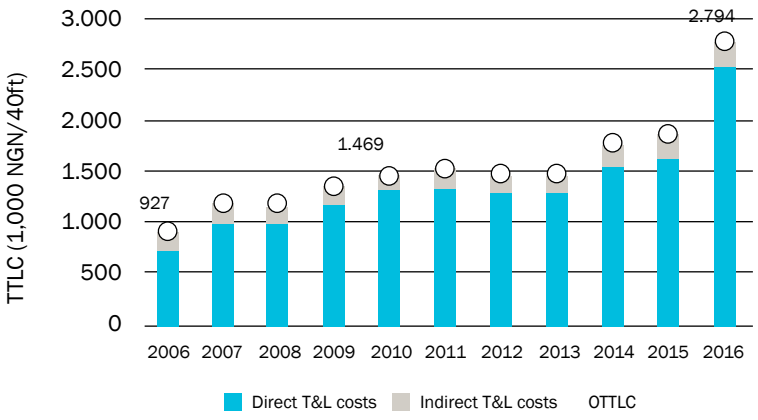
This, again, supports the econometric estimates of APM Terminals' role in reducing the TTLC of Nigerian importers and exporters in the period from 2006 to 2009 due to improved connectivity and terminal productivity.

But, measured in Naira, the picture changes completely, cf. bottom figure.

Estimated TTLC, 2006-2016, nominal USD



Estimated T&L costs, 2006-2016, nominal NGN



Sustainability Impacts

The APM Terminals difference
Sustainability highlights

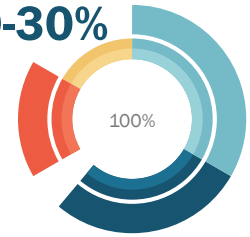
x8

the difference between the lowest paid worker in APMT (Apapa) and the highly criticized national minimum wage

700-1,000 USD

the average training expense per learner in Apapa from 2013-2016 putting APMT's Nigerian employees at par with average US employees

20-30%



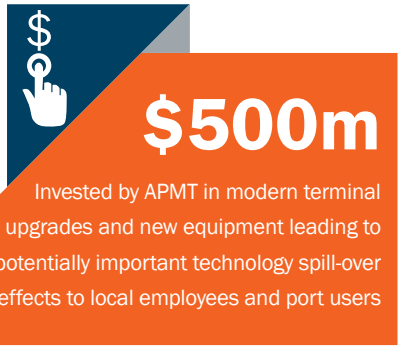
reduction in human interface in APMT's invoicing processes due to investments in new automated invoicing, thereby reducing the risk of corruption

3 Lagos families

can be supported by the average APMT salary in Apapa with the lowest paid employee being able to support 1.7 typical families

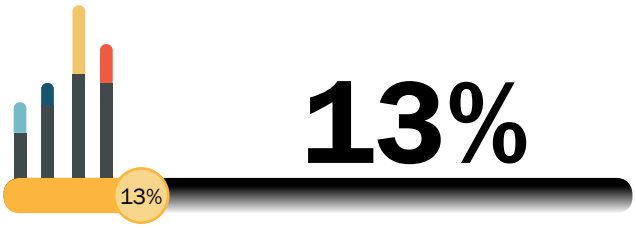
75-100%

the share of targeted APMT employees in Apapa who have completed anti-corruption e-learning



$500m

Invested by APMT in modern terminal upgrades and new equipment leading to potentially important technology spill-over effects to local employees and port users



average CO2 improvement per container moved from 2013-2017 in Apapa

<25%

of total port emissions (NOx and PM) come from terminal operations with trucks and vessels being vast majority

Five-fold

reduction in the LTIF rate in Apapa over 10 years


05
07
MAERSK
MAERSK
MAERSK

Contact:

APM Terminals Apapa Limited
Nigeria.

Website:
www.apmterminals.com/apapa