Rebuilding the Backbone: The State of Infrastructure and Logistics in South Africa and the Road Ahead

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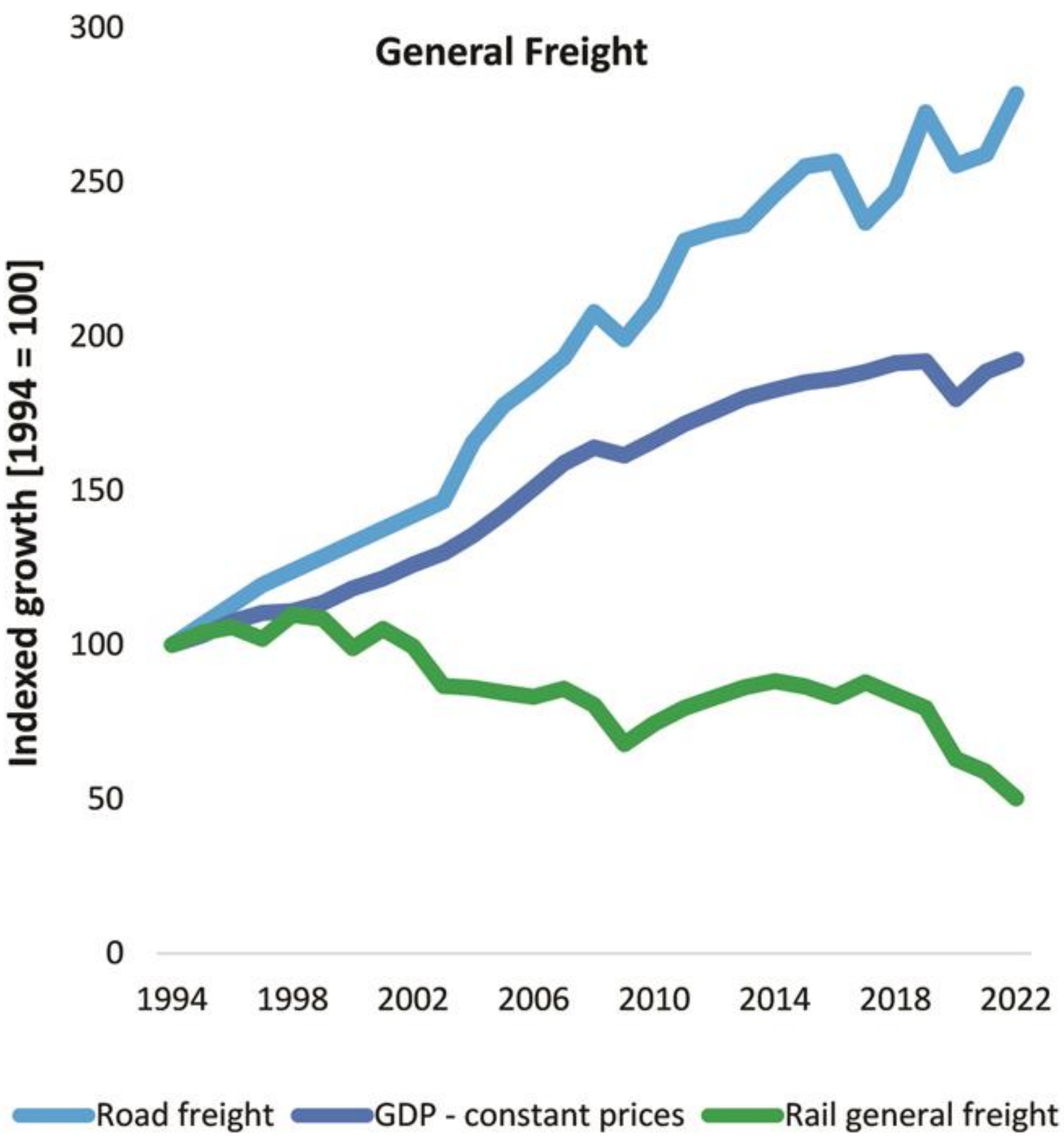
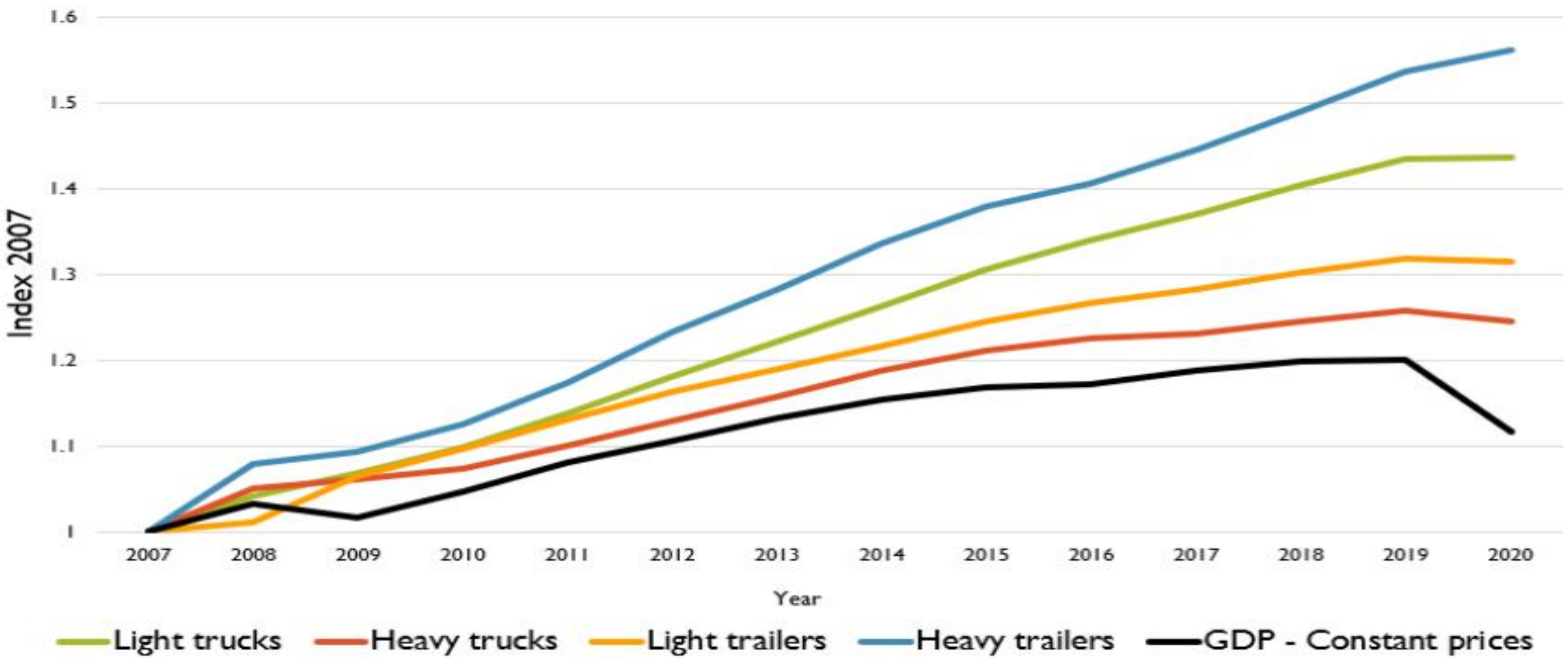
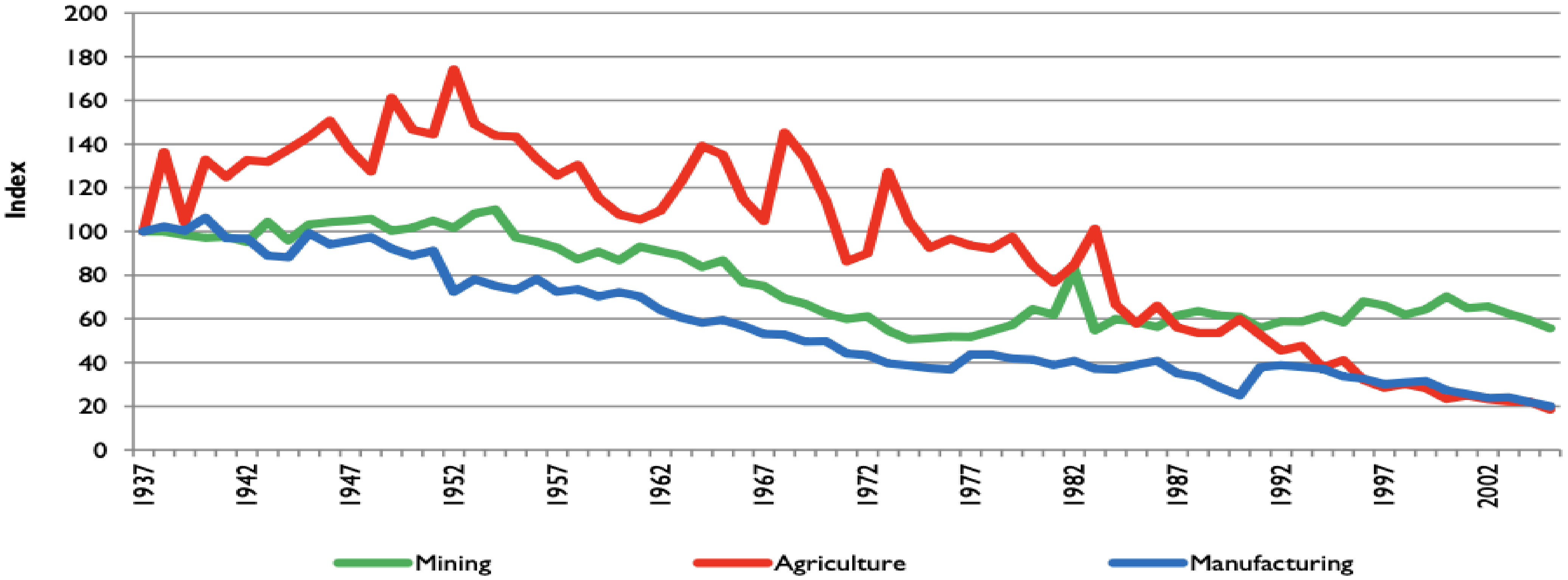

General Freight
Indexed growth [1994 = 100]
300
250
200
150
100
50
0
1994
1998
2002
2006
2010
2014
2018
2022
Road freight
GDP - constant prices
Rail general freight

Figure 5: Growth in South Africa's road truck fleet



Source: vehicle data from eNatis; GDP data from StatsSA.

Figure 4: Indexed correlation of the relationship between freight rail transport and physical production in the economy



Note: transportable GDP.

Source: rail data from Transnet Freight Rail; GDP data from StatsSA.

Overloaded Roads, Underutilised Rail

- Interlink trucks cause **125,000x** more road wear than passenger vehicles.
- Rail is **11- 44% cheaper** than road, but remains underused.
- **External costs of road freight** are **11 times higher** than those of rail.
- Agriculture bears the brunt through inflated logistics costs and market access constraints.
- Road is more competitive due to reach, flexibility, turnaround (path dependency – tragedy of commons)
- Even when viable, rail loses out to road - with long-term costs to infrastructure, climate, and competitiveness.

Road Wear, Rising Costs, and Unsustainable Logistics

- **76%** of national roads have exceeded their 20-year design life; provincial roads are worse.
- **Road maintenance backlog** estimated at **R78 billion**.
- Total road upkeep needs escalated from **R197bn (2014)** to **R410bn (2018)**.
- Heavy vehicles cause **R67bn/year** in road damage - yet **30% of freight costs** are cross-subsidised by passenger vehicle taxes.
- **Transport = 57%** of SA's logistics costs (global average: 39%).
- **Road freight = 86%** of tonne-kilometres on long corridors - accelerating infrastructure wear.
- Volatile fuel prices and energy insecurity add further pressure to road-based freight models.

Freight Rail Recovery: Momentum, Capacity, Bottlenecks

- Peak: **220 Mt (2017/18)** → Decline to **140 Mt (2023)** → Recovery to **160–161 Mt (2024)**
- Target: **180 Mt (2025)** and **250 Mt (2029/30)**
- **+90 Mt** required above current levels (≈ +56%)
- Achieving target requires **R70bn infrastructure**, **R14bn annual corridor maintenance**, and **R300bn in track + rolling stock** investments.
- **Third-party access (2026/27)** expected to add **20 Mt** and unlock **R100bn private investment**.
- **Network availability down 52%** since 2017; **reliability down 24%.**
- **600 idle locomotives** could be leased to private operators.
- In 2021/22, TFR needed **R5.57bn** for maintenance but could only allocate **R2.6bn**.
- Freight volumes fell from **215.1m tonnes (2018/19)** to **173.1m tonnes (2021/22)**.
- **Full rail network revitalisation:** Estimated at **R200bn**, incl. **R75bn** for new locomotives and rolling stock.

Freight Balance and Modal Shift Potential

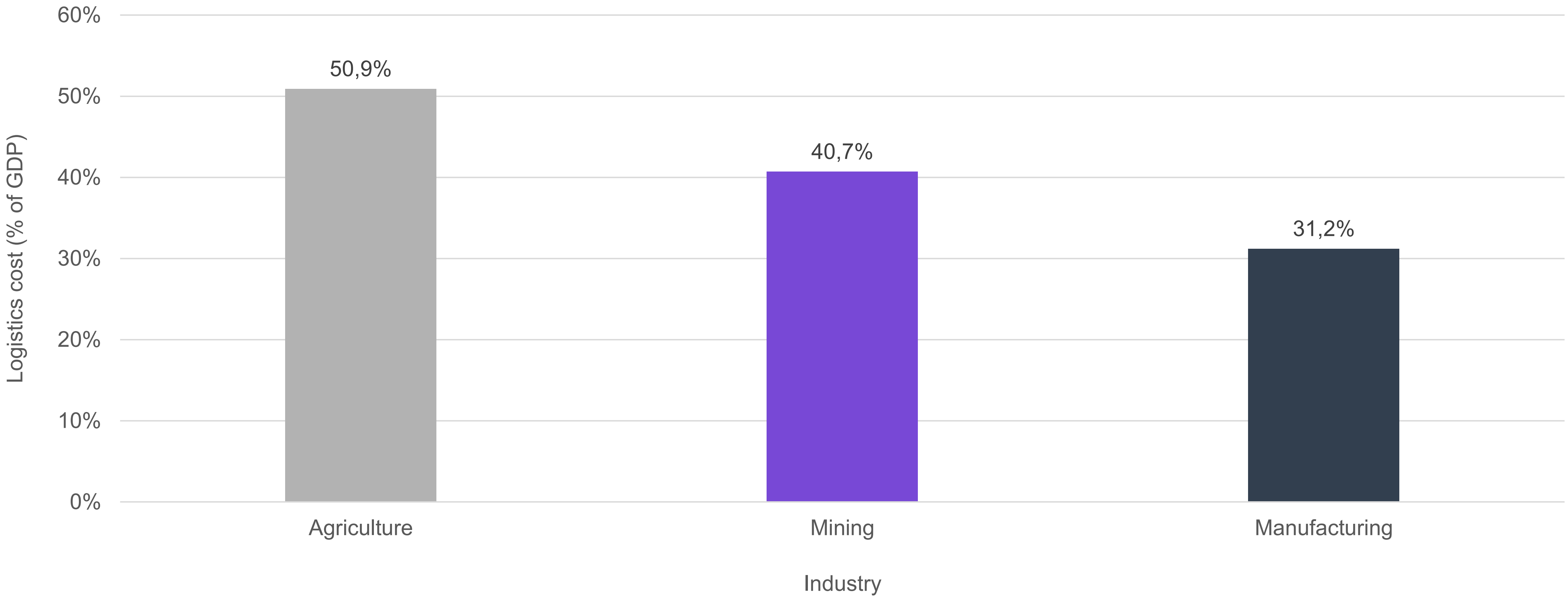
Metric	Value (2023)
Rail freight	**160.3 Mt**
Road freight	**862.5 Mt**
Total freight	**1 022.8 Mt**
Rail share (2023)	**15.7%**
Rail target (2029/30)	**250 Mt (≈ 24–25%)**
Required increase	**+89.7 Mt (+56%)**

Rail vs Road: Cost and Externalities

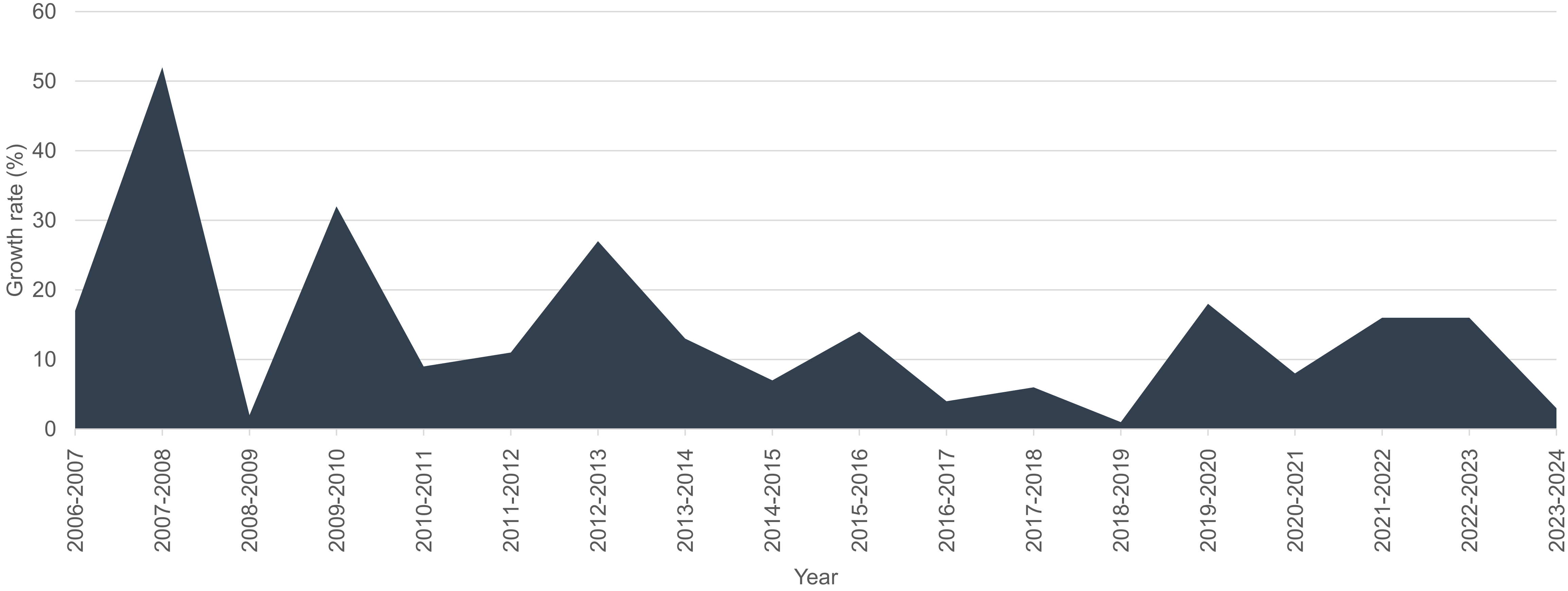
Cost Category	Road (c/tonne-km)	Rail (c/tonne-km)	Rail Advantage
Direct Cost	94	61-72	20-33c (25-35%)
Including Externalities	117	63-74	35-46%

•Externalities per tonne-km: **Road = 23.1 c**, **Rail = 1.7 c** (JTSCM).
•Rail advantage widens with **distance and bulk density**.
•Road remains dominant due to **flexibility**, **path dependency**, and **service gaps** in rail.

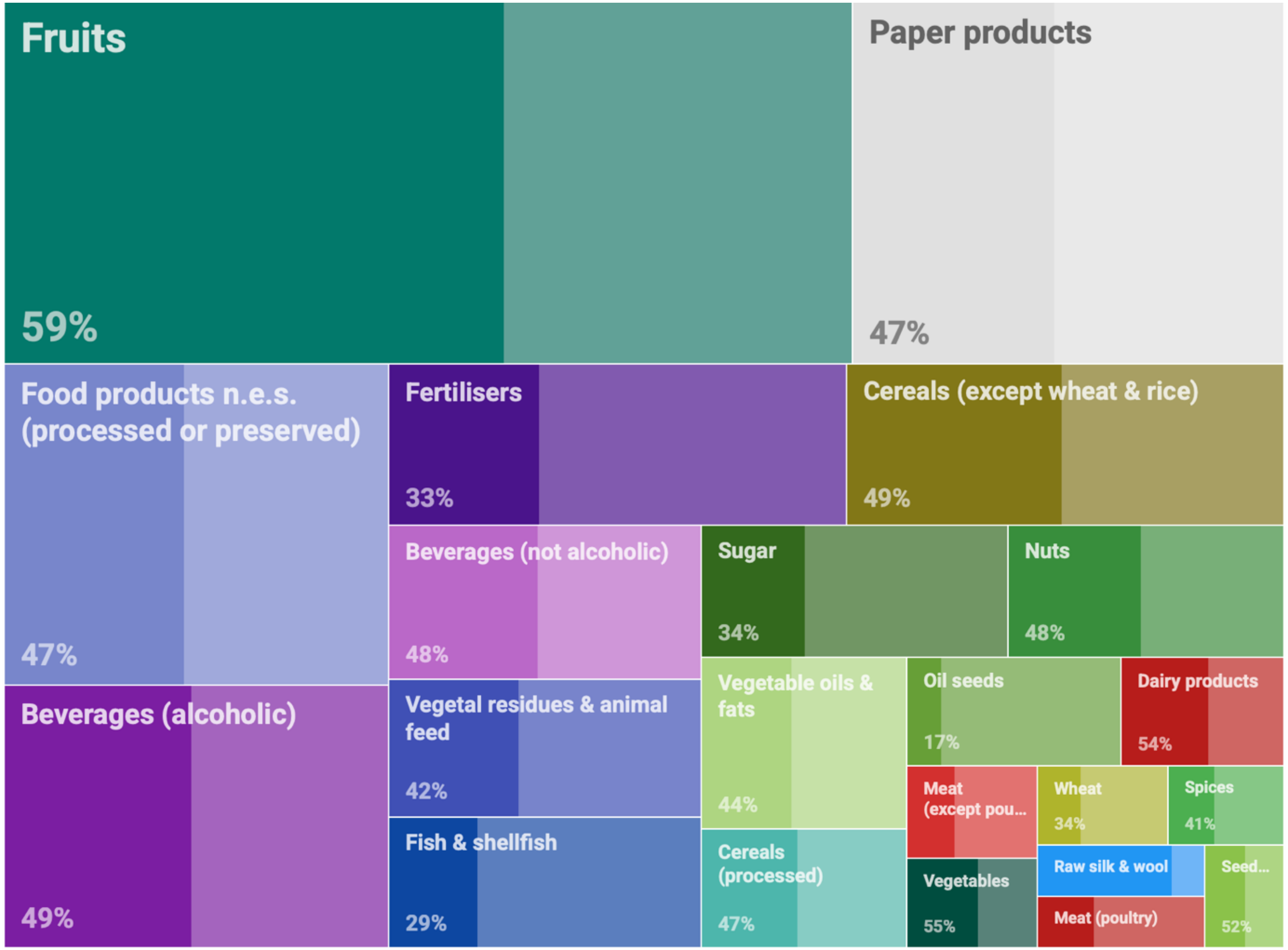
Logistics Cost – Economic Industry



Trade Map – Agricultural Exports



ITC - Export Potential (Unrealised)



Road Conditions and Investment

Conditions - 2 Systems, 2 Realities:

- SANRAL-managed roads (22,000 km): 92% in fair+ condition
- Provincial/rural roads (>750,000 km): Over 60% in poor or very poor state
- Major concern for access to mills, silos, and production nodes

Current Investment:

- N2 Wild Coast Highway (EC): R20 billion
- N3 Durban-Pietermaritzburg corridor: R25-30 billion
- National resurfacing up 291% between 2021 and 2023

Path Forward - From Fragmentation to Coordination

- There is a call for **rationalization** of branch lines (government intent over access vs privatization and liability)
- Current infrastructure upgrades (signaling systems will take time, single tracks still used)
- **New port supporting infrastructure** has been secured, recently allocated
- Minor issues such as **conveyor belts, plug points** yield major economic outcomes
- **Theft and vandalism** still a concern (lack of decent line density)
- **Public-private partnerships** (initial investment to handover), next phase of RFI
- National accounts **fail** to capture in-house transport = **current models fail**
- World Bank Logistics Accountability Score vs hard infrastructure vs AAMP vs fragmentation

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