Stats NZ
Tatauranga Aotearoa

Quarterly greenhouse gas emissions

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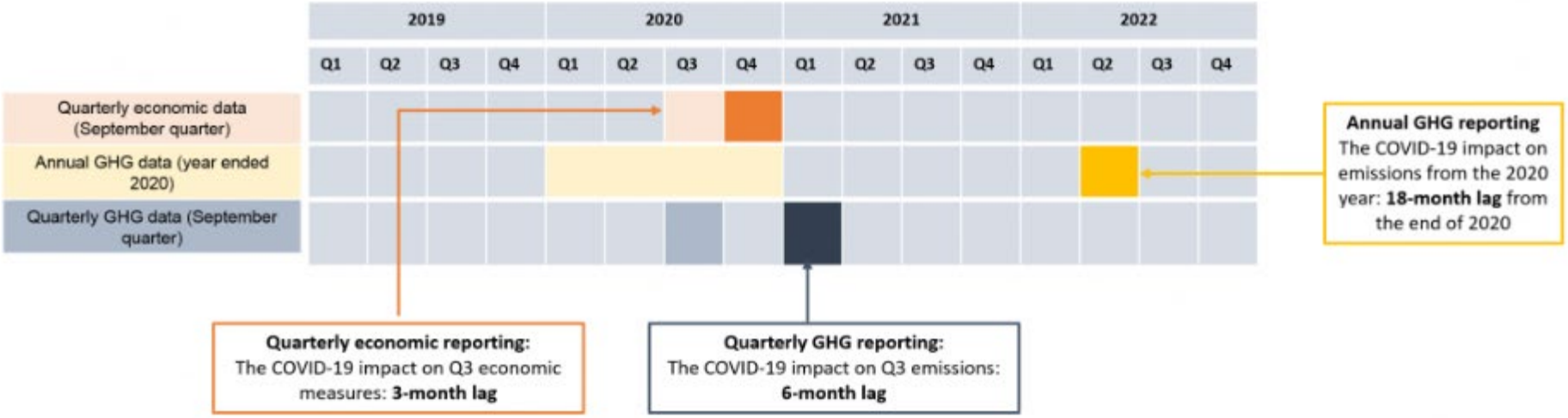
Stats NZ

The need for quarterly emissions statistics

- COVID-19 highlighted the need for timely information
- Emissions data subject to significant lags, but addressing climate change becoming increasingly important
- First official insights available 14 months before it would otherwise be reported

Understanding the importance of timely reporting of the impact of COVID-19 in the September 2020 quarter on economy and emissions data



Source: Stats NZ

Customer perspectives

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- Supports an integrated wellbeing approach to monitoring the recovery
  - Useful way of tracking the impact of recovery spending
  - Could enable more efficient operation of the NZ ETS
  - Help monitor progress towards achieving emissions budgets
  - Provide a more timely basis for ‘fine tuning’ investments and climate change policies
- Puts emissions reporting on a similar level to GDP (timing and prominence)
- Independent credibility of NSO’s strengthens the policy evidence base
- Provides new insights and better attention on decarbonisation issues

About quarterly GHG statistics

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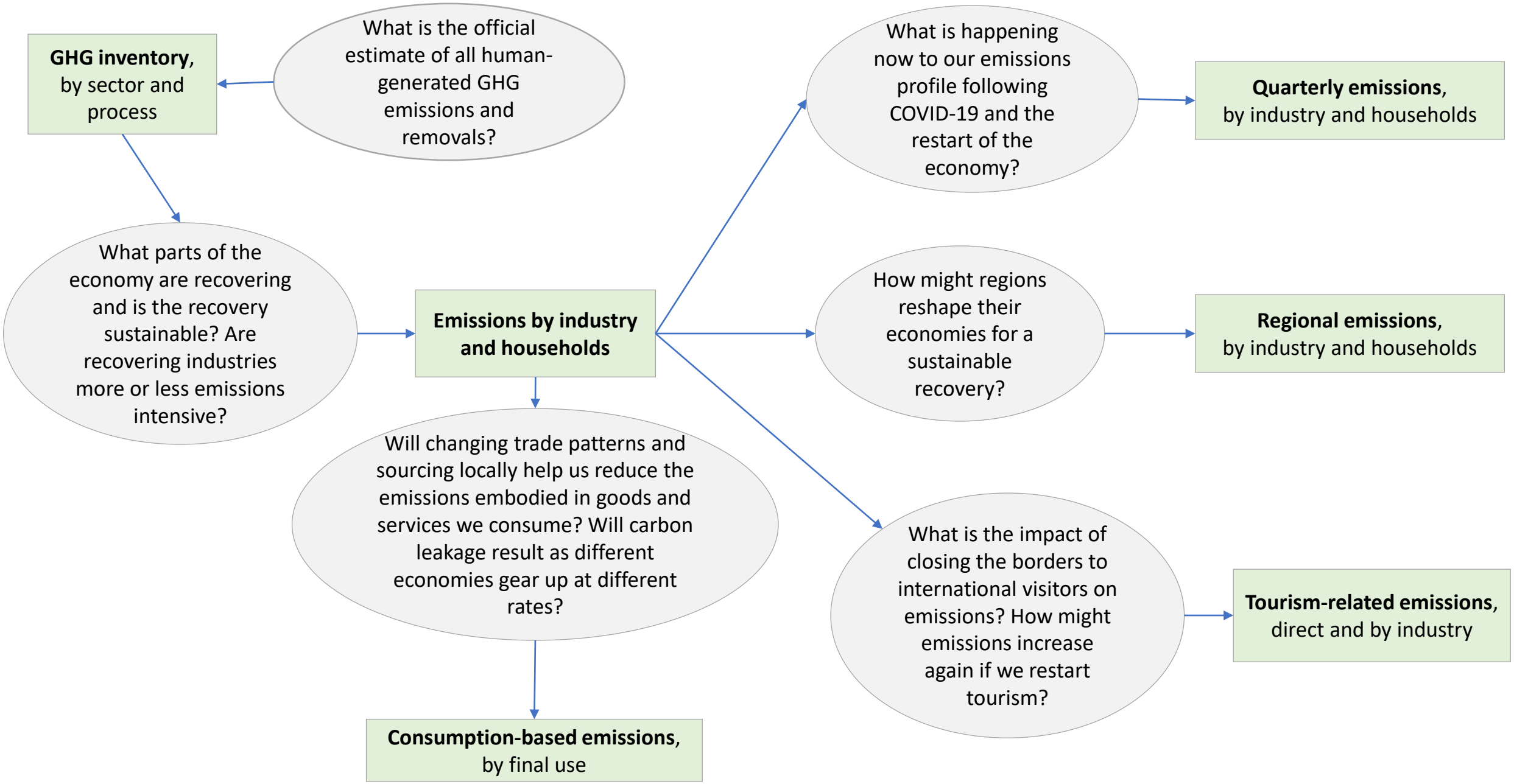
- Enables a focus on reducing GHG emissions to be made every quarter
- Educates users of environmental accounts and on the connection between environmental and economic development
  - Track emissions performance as composition of economy changes
  - Track emissions change in relation to GDP and other economic statistics
- Provides an early signal of changes in emissions and provisional annual estimates
- Initial results are experimental as quarterly GHGs not commonly measured internationally

- Aligned to, but not an estimate of, GHG inventory emissions
  - SEEA estimates 2-3% higher than GHG inventory
  - SEEA estimates expected to show different impact of COVID than GHG Inventory

Understanding the transition to the low emissions economy following COVID-19



Overview of methods and requirements

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- Uses same methodological approach as quarterly GDP
  - Combines annual benchmarks (emissions levels) and quarterly indicators (for movements) in established statistical techniques
  - Imputation to obtain complete coverage
- Seasonal adjustment
- Based on residency principle for consistency with the national accounts
- Revisions expected over time

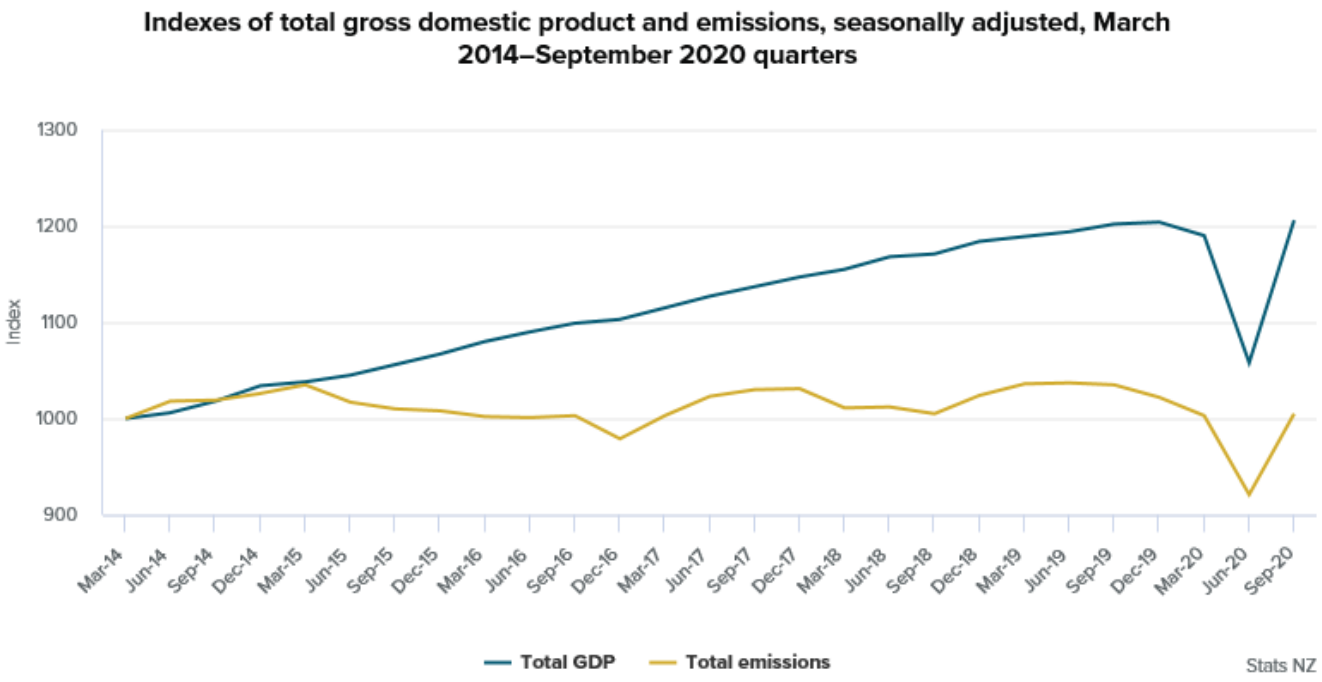
Resources

- 6 FTE, 6 months for methodological development
- 2-3 FTE ongoing
- Programming capabilities (eg SAS)
- Access to X-13 ARIMA SEATS and national accounts macros

Available data

- CO2-e by industry:
  - Agriculture, forestry, fishing
  - Mining
  - Manufacturing
  - Electricity, gas, water, and waste services
  - Construction
  - Services excluding transport, postal, and warehousing
  - Transport, postal, and warehousing
- CO2-e by households
- March 2014-September 2020
- Actual series – for provisional (SEEA) benchmarks
- Seasonally adjusted series – headline series

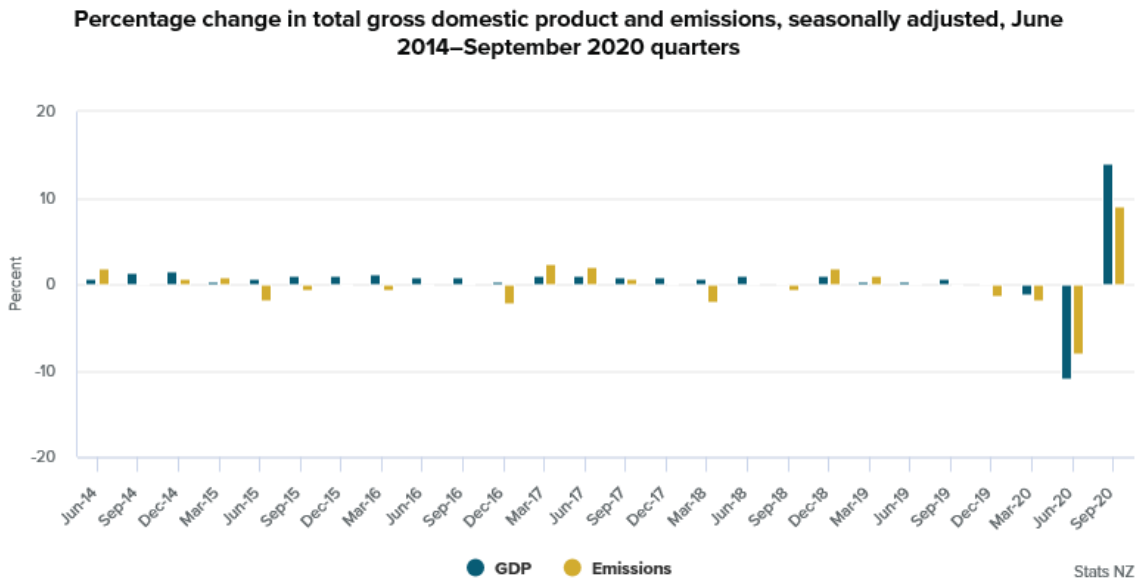
Results



- Emissions drop and rebound mirrored impact of COVID on GDP
  - June qtr: -8.1% emissions, 9% GDP
  - September qtr: 11% emissions, 14% GDP

… but GDP growth was impacted more than GHGs

- June qtr: emissions intensive industries still operating
- September qtr: economic rebound of low emissions intensive industries



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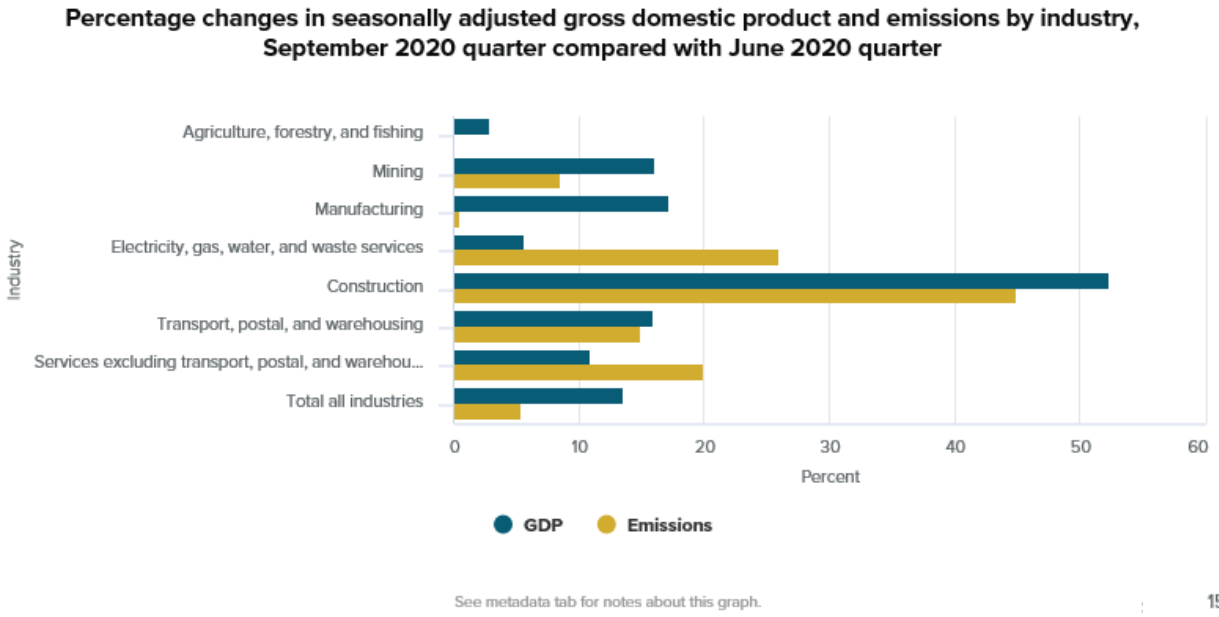
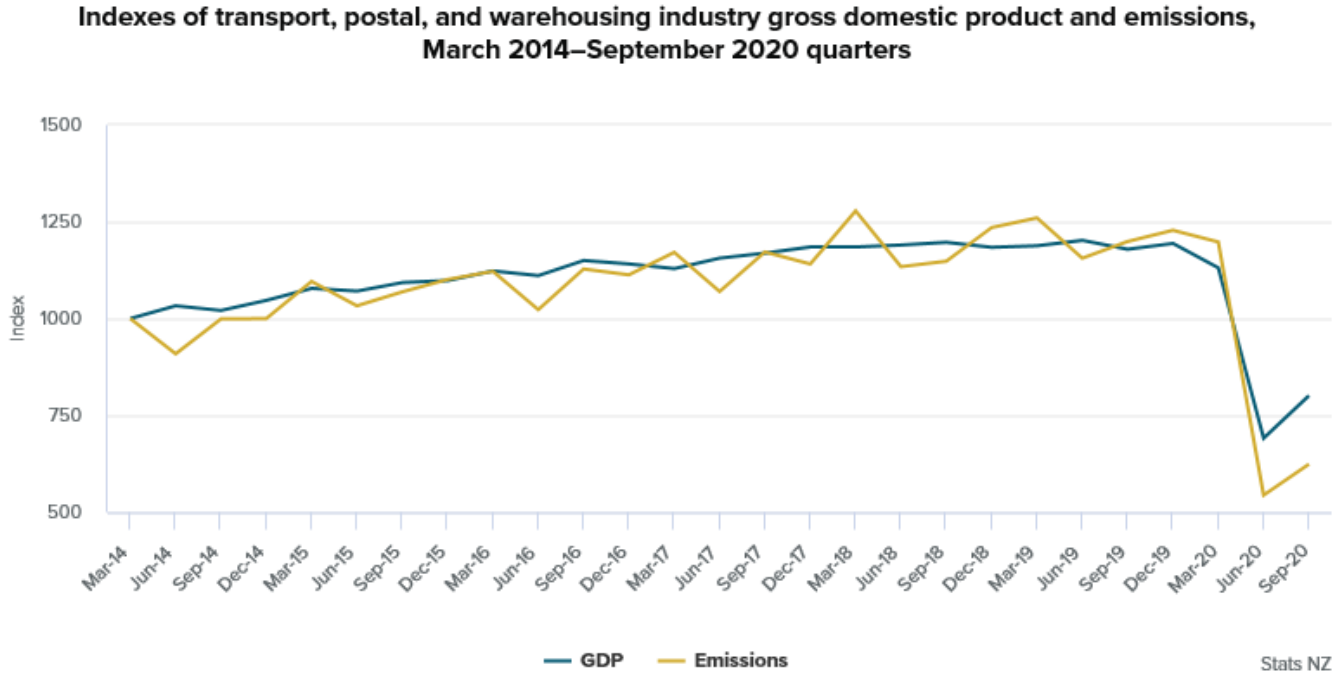


- September quarter GDP and emissions impact felt across industries differently…



….but impact on ongoing border closure impacting transport, postal, and warehousing into September 2020 quarter (SEEA effect only)

Reflections: Insights and policy relevance

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- QGHG has lead to increased awareness of Stats NZ's SEEA program and demonstrating what SEEA can do, and providing insights others can't
  - COVID-quarters illustrated how integrated economic-environmental approaches provide new insights to explaining macro movements
  - Can provide new insights into energy statistics through the seasonal adjustment process
- NZ's emissions profile (and COVID experience) means growth effects likely not reflective of other countries
- High-level industries plus households sufficient for timely insights
- Gas breakdown of interest from users as relates to targets
- But, mis-alignment of residency approach to boundary of policy targets a limitation
- Media education will be critical for realising value

Reflections: SEEA program enhancement

- Valuable as a means of quality testing the annual series and capacity building
- Gives SEEA more prominence, regularity, and establishment as a core statistical output
- More feasible than expected in early stages, and further global progress would enhance this more so