Macro-Economic Impact Analysis of the South African Broiler industry applying the South African INFORUM Model (SAFRIM).

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The structure of the presentation is as follows:

- Overview of the Broiler industry in South Africa
- Challenges and sustainability in the Broiler industry – Import protection debate
- Description of the Case Study – The impact of relaxing import restrictions
- Methodology
- Preliminary Results of the Case Study
- Conclusions
Overview of the Broiler industry in South Africa: Integrated Food System

Source: Own compilation
Overview of the Broiler industry in South Africa: Detailed value chain

**Inputs**
- Soya bean production: 760 Kt produced
- Domestic soya oilcake production: 450 Kt produced
- Other raw feed materials

**Domestic Production:**
- 1.7 Mt produced
  - Commercial production: 1.55 Mt
  - Informal production: 65 Kt
  - Depletion of layer flock: 55 Kt

**Broiler grow out operations**
- Integrated firms: Broiler Grower Farms
- Integrated firms: Contract Grower Farms
- Independent broiler producers

**Abbatoir**
- High throughput: 42 + Low throughput: 187
- Rural: 12
- Other: 55

**Distribution**
- Retail: 52%
- Wholesale: 35%
- Quick Service Restaurants: 7%
- Other domestic, including institutional: 6%

**2013**
- Genetic material imported: Cobb 500, Ross 308, Arbor Acres and CobbAvian 48
- Day old grandparent chicks
- Grandparent operations: Cobb 500, Ross 308, Arbor Acres, CobbAvian 48
- Day old Chick supply
- Parent Rearing Farm
- Breeder House
- Hatcheries

**Further Processing**

**Exports**
- 1.4% of domestic production

**Imports**
- 355 Kt (incl MDM) 17.8% of consumption

**Domestic Consumption**
(2 million tons in 2013 – 39kg per capita)

Source: Davids 2014 & NAMC 2014
Overview of the Broiler industry in South Africa: Production, consumption and imports

[Bar chart showing trends in chicken production, consumption, and imports from 2002 to 2012.]

- Chicken production (gray bars)
- Chicken consumption (blue bars)
- Chicken imports (right axis, orange line)

Thousand Tons


0 50 100 150 200 250 300 350 400 450

Thousand tons
Overview of the Broiler industry in South Africa: Global trade

**Major Exporters**
- USA
- Brazil

**Products**
- Whole bird frozen products
- Raw products (IQF cuts)
- Processed meat

**Major Importers**
- Asia
- Middle East
- Russia
- Africa
- EU

**Global Trade**
USD$ 17,9
Challenges and sustainability in the Broiler industry – Import protection debate: Total imports

Source: Lovell, 2014
Challenges and sustainability in the Broiler industry – Import protection debate: Imports

Source: Lovell, 2014
### Challenges and sustainability in the Broiler industry – Import protection debate: Tariffs

<table>
<thead>
<tr>
<th>HS Classification Code</th>
<th>Description</th>
<th>General Tariff</th>
<th>EU Tariff</th>
<th>SADC Tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>02071100</td>
<td>Fowls, not cut in pieces, fresh or chilled</td>
<td>0 %</td>
<td>0 %</td>
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<tr>
<td>02071210</td>
<td>Fowls, not cut in pieces, frozen, mechanically deboned</td>
<td>0 %</td>
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<td>02071220</td>
<td>Fowls, not cut in pieces, frozen, carcass with cuts removed</td>
<td>31 %</td>
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<td>0 %</td>
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<td>02071290</td>
<td>Fowls, not cut in pieces, frozen, other</td>
<td>82 %</td>
<td>0 %</td>
<td>0 %</td>
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<td>02071300</td>
<td>Fowls, cuts and offal, fresh or chilled</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
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<tr>
<td>02071410</td>
<td>Fowls, cuts and offal, frozen, boneless cuts</td>
<td>12 %</td>
<td>0 %</td>
<td>0 %</td>
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<tr>
<td>02071420</td>
<td>Fowls, cuts and offal, frozen, offal</td>
<td>30 %</td>
<td>0 %</td>
<td>0 %</td>
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<tr>
<td>02071490</td>
<td>Fowls, cuts and offal, frozen, other</td>
<td>37 %</td>
<td>0 %</td>
<td>0 %</td>
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<tr>
<td>02071490</td>
<td>Fowls, cuts and offal, frozen, other originating and imported from USA</td>
<td>Anti-dumping tariffs on products originating from the USA: 940 c/kg</td>
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</table>

**Source:** SARS (2014)
Current average import tariff for the various broiler meat cuts is about 25%.
The current production of broiler is 1667 million tons.
Phasing the tariff out will have an impact of 10% in the 2013 production.
Meaning local production will decrease by about 166 700 tons and that imports will increase by the same amount.
Dynamic and inter-related workings of the SAFRIM Model
* There should be an acceptable measure (not exceeding ±4% of the GDP) of balance on the current account of the balance of payments;

* No fundamental obstructions to obtain foreign capital;

* Positive growth of the world economy; and

* South Africa’s population growth by taking into account the negative effects of HIV/AIDS.
Methodology

- **Backward Linkages**
  - A. Construction phase (investment impact)
  - B. Operational impact
  - C. Changes in the production structure

- **Forward Linkages**
  - D. Price impact

- Balancing constraints
Methodology

A. Construction phase (investment impact)

\[ fdc = pcec + invc + govc + exc - imc + fdrc + trcc + capex\_tot \]

Where:
- \( fdc \) = total final demand
- \( pcec \) = private consumption expenditure
- \( invc \) = investment (investment excluding investment in the mitigation measures)
- \( govc \) = government
- \( exc \) = exports
- \( imc \) = imports
- \( fdrc \) = residual
- \( trcc \) = transfer costs
- \( capex\_tot \) = total net investment of the various mitigation measures
Methodology

B. Operational impact

\[
\text{outc} = (!I-AMC) \times fdc + \text{oper}_\text{imp} \quad (2)
\]

Where:

- \text{outc} = \text{total output (production)}
- ! (I-AMC) = \text{inverse matrix}
- fdc = \text{total final demand}
- \text{oper}_\text{imp} = \text{total net operational impact of the various mitigation measures}
The identity below explains where additional cost or savings are added in the model.

\[ fdc = pcec + invc + govc + exc - imc + fdrc + trcc + price_b \]  \hspace{1cm} (3)

**Where:**
- \( fdc \) = total final demand
- \( pcec \) = private consumption expenditure
- \( invc \) = investment (investment excluding investment in the mitigation measures)
- \( govc \) = government
- \( exc \) = exports
- \( imc \) = imports
- \( fdrc \) = residual
- \( trcc \) = transfer costs
- \( Price_b \) = increase in consumer spending power from relaxing the tariffs

**Methodology**

C. Personal disposable income/consumption expenditure
Technical adjustment to compare scenario with base case.

The deficit on the current account of balance of payments as a percentage of the country’s overall economic activity (GDP), was taken as a controlling measure demonstrating the ability of the economy to financially carry the burden of a particular mitigation option.

Balance was achieved by changing the interest rate.
Preliminary Results of case study
- Average GDP and employment Impact over the period (2013-2033)

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<tbody>
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<td>GDP</td>
<td>2 531 810</td>
<td>2 531 041</td>
<td>2 531 694</td>
<td>2 535 602</td>
<td>2 533 738</td>
<td>2 532 438</td>
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<td>Baseline</td>
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<tr>
<td>Difference</td>
<td>-629</td>
<td>-1 397</td>
<td>-744</td>
<td>3 164</td>
<td>393</td>
<td>1 300</td>
<td>-6 977</td>
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<td>Employmnet</td>
<td>16 220 620</td>
<td>16 206 239</td>
<td>16 218 691</td>
<td>16 247 496</td>
<td>16 220 784</td>
<td>16 175 904</td>
<td>16 226 233</td>
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<tr>
<td>Difference</td>
<td>-5 613</td>
<td>-19 994</td>
<td>-7 542</td>
<td>21 263</td>
<td>-11 887</td>
<td>-5 449</td>
<td>-50 329</td>
</tr>
</tbody>
</table>
Summary and conclusions

- The objective of the analysis was to estimate the macro-economic impact of the relaxing of import restrictions on the broiler industry for the period 2013 to 2033.
- The results of the scenario show clearly that the positive effects that the consumers will receive due to cheaper broiler prices will be overwhelmed by the negative effects which relate to the effects that the broiler industry has to bear.
Thank You