

Master thesis

Agricultural production and food security The case of Turkey

Programme: Social and Human Ecology

Birgit Strasser
(a1008198)

Supervisor: Mag.Dr. Anke Schaffartzik, B.Sc.
April 5th, 2018

Agricultural production and food security

The case of Turkey

Birgit Strasser
(a1008198)

Research guided by the following hypothesis

- 1) Agricultural production in Turkey is characterized by intensification where fossil fuel energy represents an important input.
- 2) Agricultural production patterns in Turkey are inefficient. They are characterized by a shift away from staple crops (e.g. cereals, roots and tubers) to crops and products related to richer diets (e.g. vegetables, fruits, meat and dairy products).
- 3) Inefficient production patterns are reinforced by foreign demand
- 4) As Turkey is a fossil fuel importer, and in the wake of limits of land, water and energy, the current agricultural development of Turkey does not ensure food security for the Turkish population.

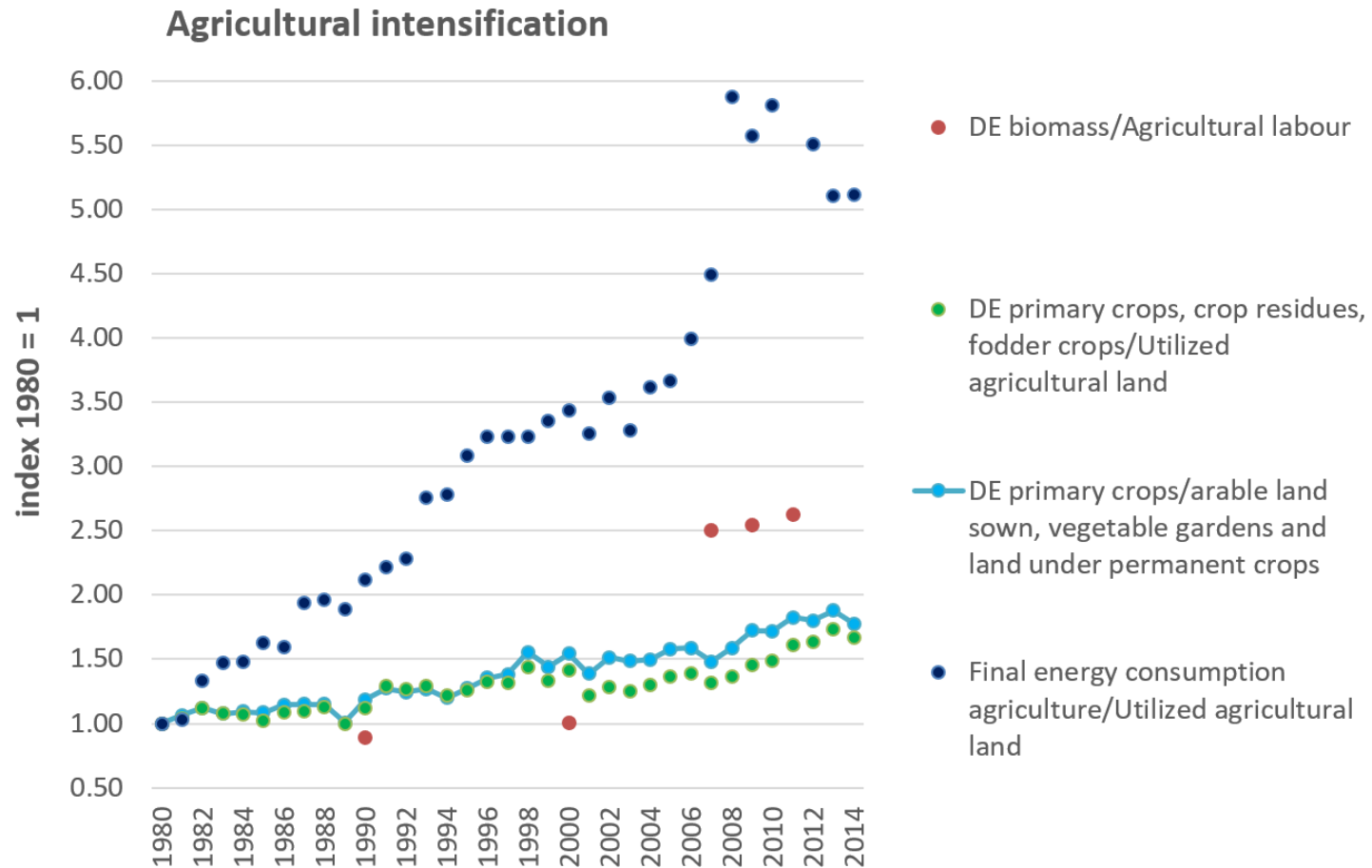
Methodology

- Material Flow Accounting (MFA) between 1980 to 2014
- Data on agricultural inputs: agricultural land, labour, energy, irrigation
- 3-month research stay at the Department of Economics/Boğaziçi University: analysis/discussion of results in regard to reliability, socio-economic and ecological implications

Supervisor: Mag.Dr. Anke Schaffartzik, B.Sc.
April 5th, 2018

Agricultural production and food security

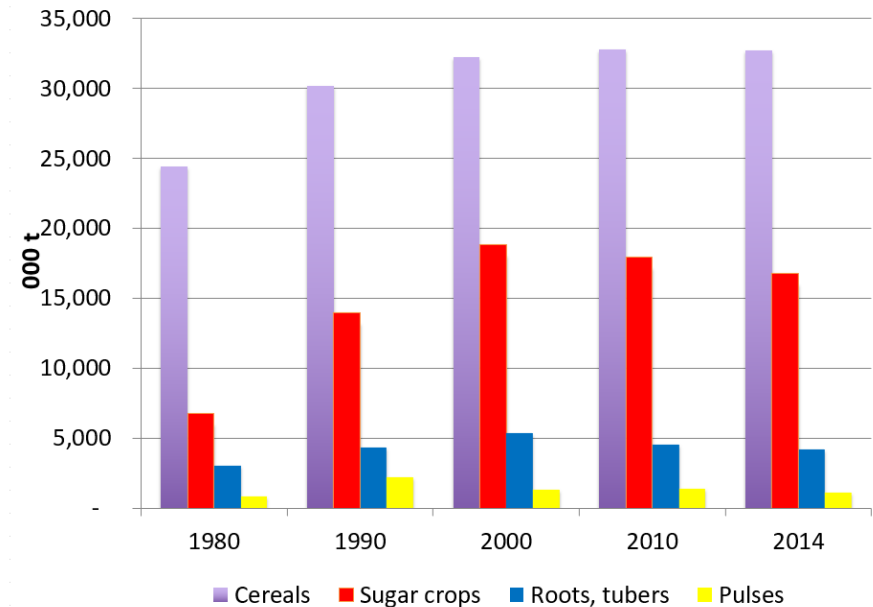
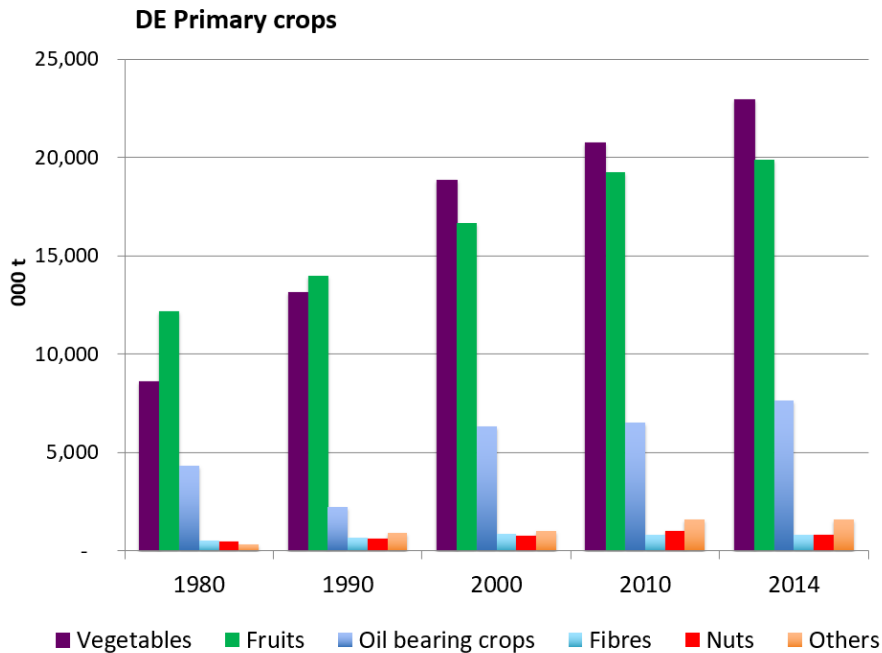
The case of Turkey



Source: own calculation

Agricultural production and food security

The case of Turkey



Source: own calculation

▪ Agricultural land

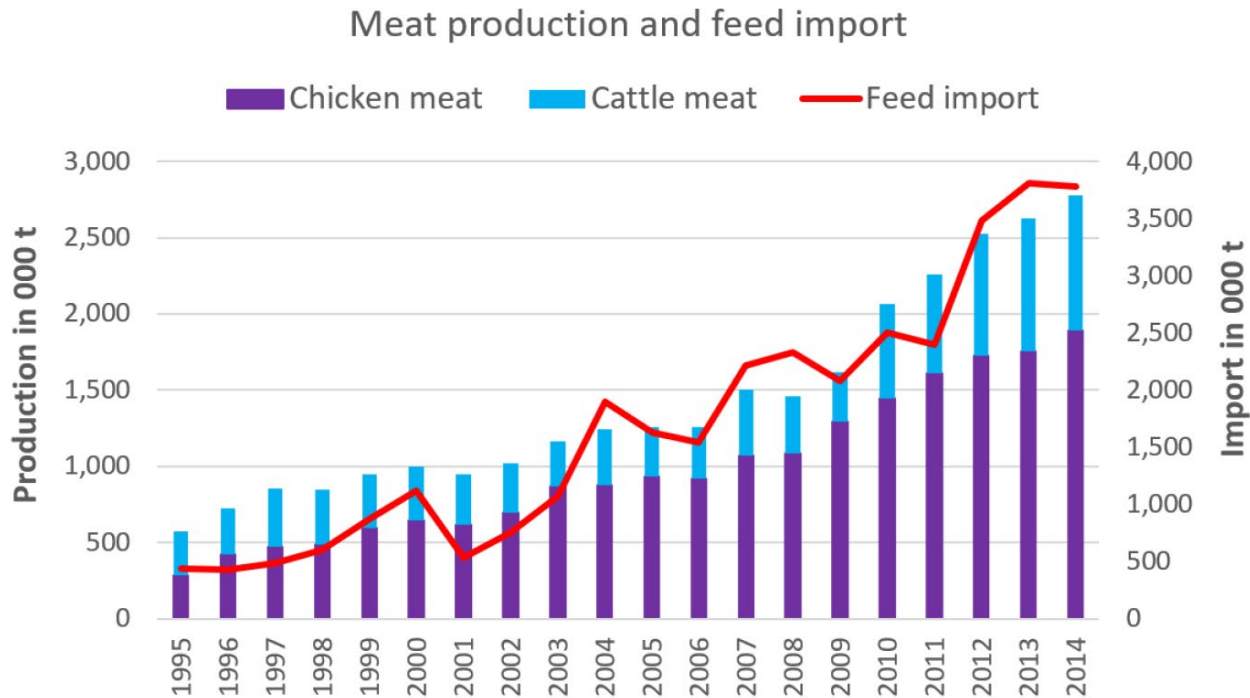
1980 to 2014: reduction of 3.8 million hectares → exclusively of arable land → fruit & vegetable area increasing

▪ **Imports:** Turkey transitioned to a net importer of primary crops (PTB: + 4.1 million tonnes)

▪ **Exports:** Net exporter only in the category of fruit, vegetables & other crops

Agricultural production and food security

The case of Turkey



Source: own calculation

- **Agricultural land**
Meadows & pastures constant since 2001
- **Import/Export**
Transition to a net exporter since 2012 (chicken & hen-egg)

Agricultural production and food security

The case of Turkey

Birgit Strasser
(a1008198)

Findings and Discussion

- 1) Agricultural production characterized by intensification
 - Increase of land use intensity
 - Fossil fuel energy represents an important input

- 2) Specialization in fruit and vegetable production at the expense of staples, increase livestock production
 - Import of fossil fuel energy and embodied land
 - Country under water stress
 - Land expansion highly dependent on irrigation

- 3) Increase exports of fruit, vegetable and livestock products
 - High competitiveness in global markets increases the need for high-input-high-output production systems

- 4) Risk factors for food security
 - Dependency on global market mechanism due to fossil fuel energy imports and net-import of food
 - Food security on the national-level: threatened by financial instability
 - Food security on the household level: threatened by persistent inequality

Supervisor: Mag.Dr. Anke Schaffartzik, B.Sc.

April 5th, 2018