

Matching China's agricultural supply and demand data

Huanguang Qiu (Renmin University/CCAP, Beijing)

Wim van Veen (SOW-VU, Amsterdam)

with

Jikun Huang (CCAP, Beijing)

Michiel Keyzer (SOW-VU, Amsterdam)

Scott Rozelle (FSI, Stanford)

**Presentation at special session ASSA-CES
Philadelphia, January 3rd, 2014**



Overview of presentation

1. **Background and purpose**
2. **Approach**
3. **Plausibility official statistics**
4. **Setting up supply-demand balances**
5. **Consistency official statistics**
6. **Conclusions**



Background and purpose

Background:

- Growing concerns about quality of China's official food production and consumption data
- Longstanding problem: data on meat output much larger than data on meat consumption
- Recent problem: rising grain imports while output continues to rise and household consumption continues to decline

Purpose of the study:

- Review official statistics of last decade and assess their plausibility



Approach of the study

- **Compile set with official data on**
 - crop area, yield and output
 - animal numbers and meat/milk/eggs output
 - per capita food consumption (rural, urban)
 - feed 'matrix' (by product and livestock system)
 - agricultural imports and exports
- **Assess plausibility of each source on the basis of the literature and alternative data**
- **Check consistency across the sources by constructing supply-demand balances**



Views on plausibility of official statistics (1)

Crop output data NBSC/MoA:

- both sown areas and yields/ha generally accepted
- however, some researchers have doubts about recent years

Livestock output data NBSC/MoA:

- generally believed to be overstated
- still the case after realignment animal stocks with 2006 Agricultural Census?

Feed data NDRC (by livestock system):

- on the low side (leading to low feed-meat ratios)
- doubts whether grazing system and backyard systems are sufficiently represented

(furthermore, refined feed only as aggregate, not by type)



Views on plausibility of official statistics (2)

Consumption data NBSC (rural, urban):

- food away from home (FAFH) hardly covered
- upward scaling necessary for both urban and rural households
- several research groups have made estimates of FAFH (and corrections for processed food)

Agricultural import and export data:

- published by NBSC/MoA but originating from Administration of Customs (hence, only one source)
- generally accepted (but cross-checking with data partner countries would be useful)

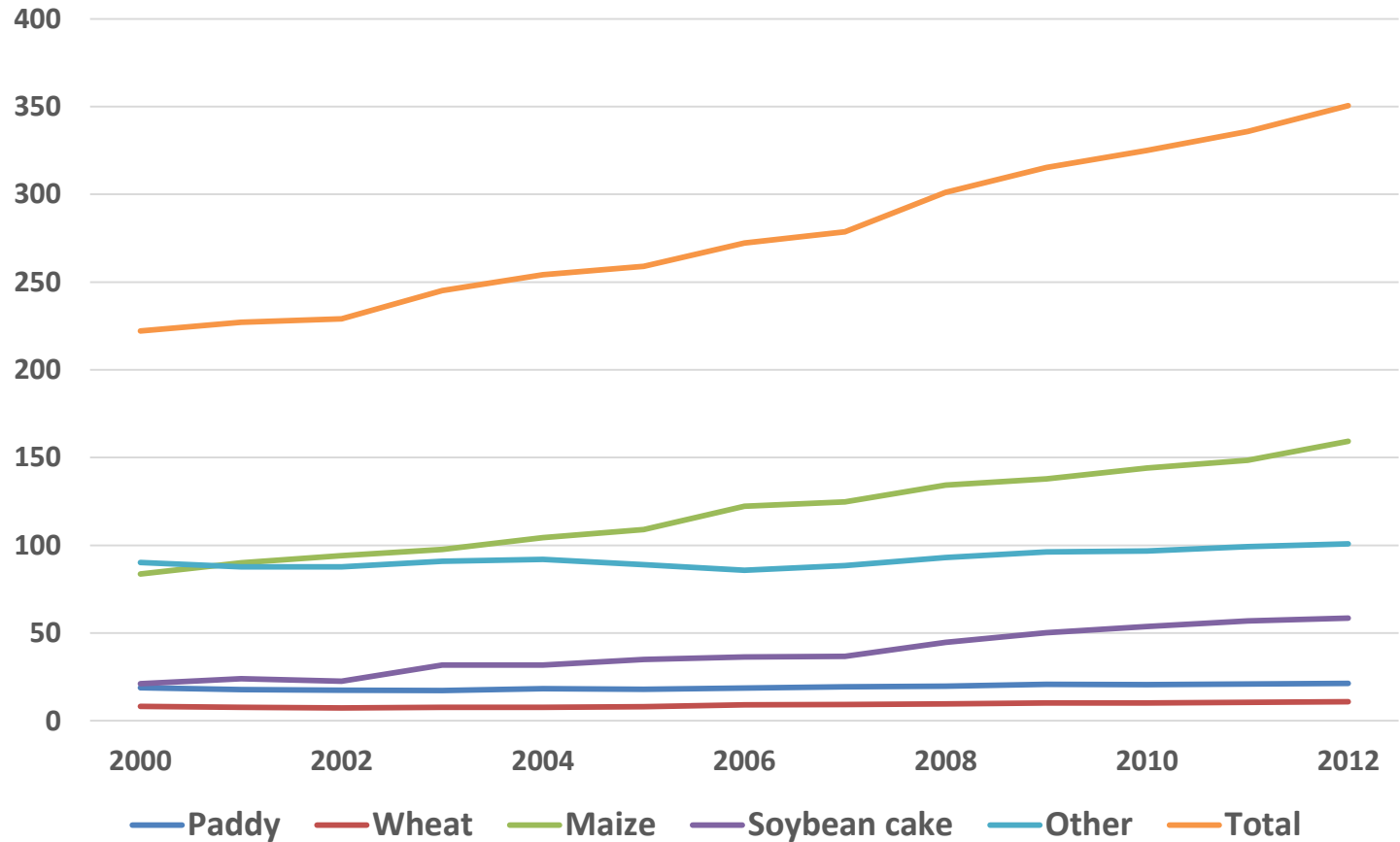


Setting up supply-demand balances

- **Official statistics are applied for:**
 - crop output
 - livestock output
 - consumption at home
 - net import
- **Two elements are added:**
 - use of refined feed by product
 - upward scaling factors household consumption
- **Item 'other use' is calculated residually, covering:**
 - for meat: waste and net stock changes
 - for grains: seed, waste, net stock changes and industrial use (non-food, non-feed)

Imputed feed data set (for lack of adequate official data)

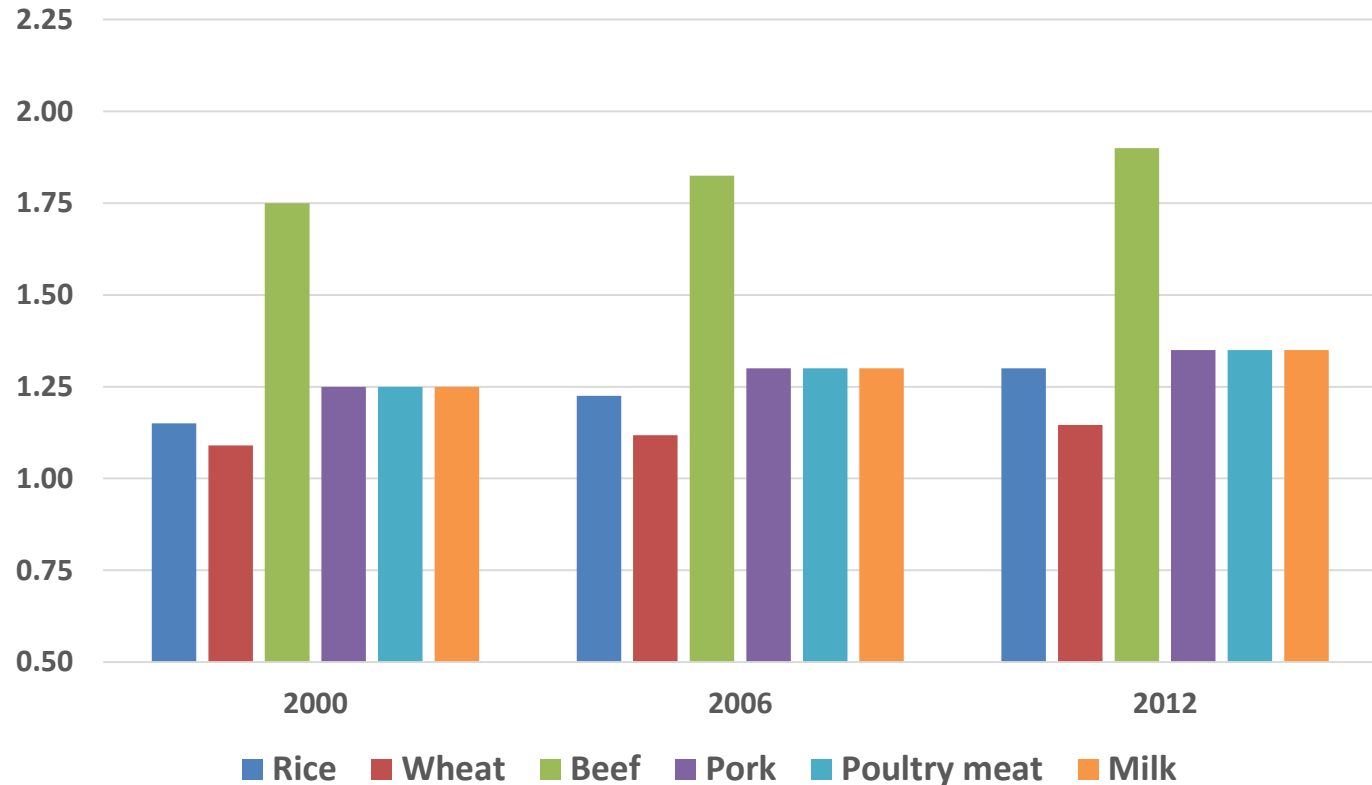
Refined feed by type, 2000-2012, in million ton



Source: combined evidence various studies

Adjustment of official household consumption (1)

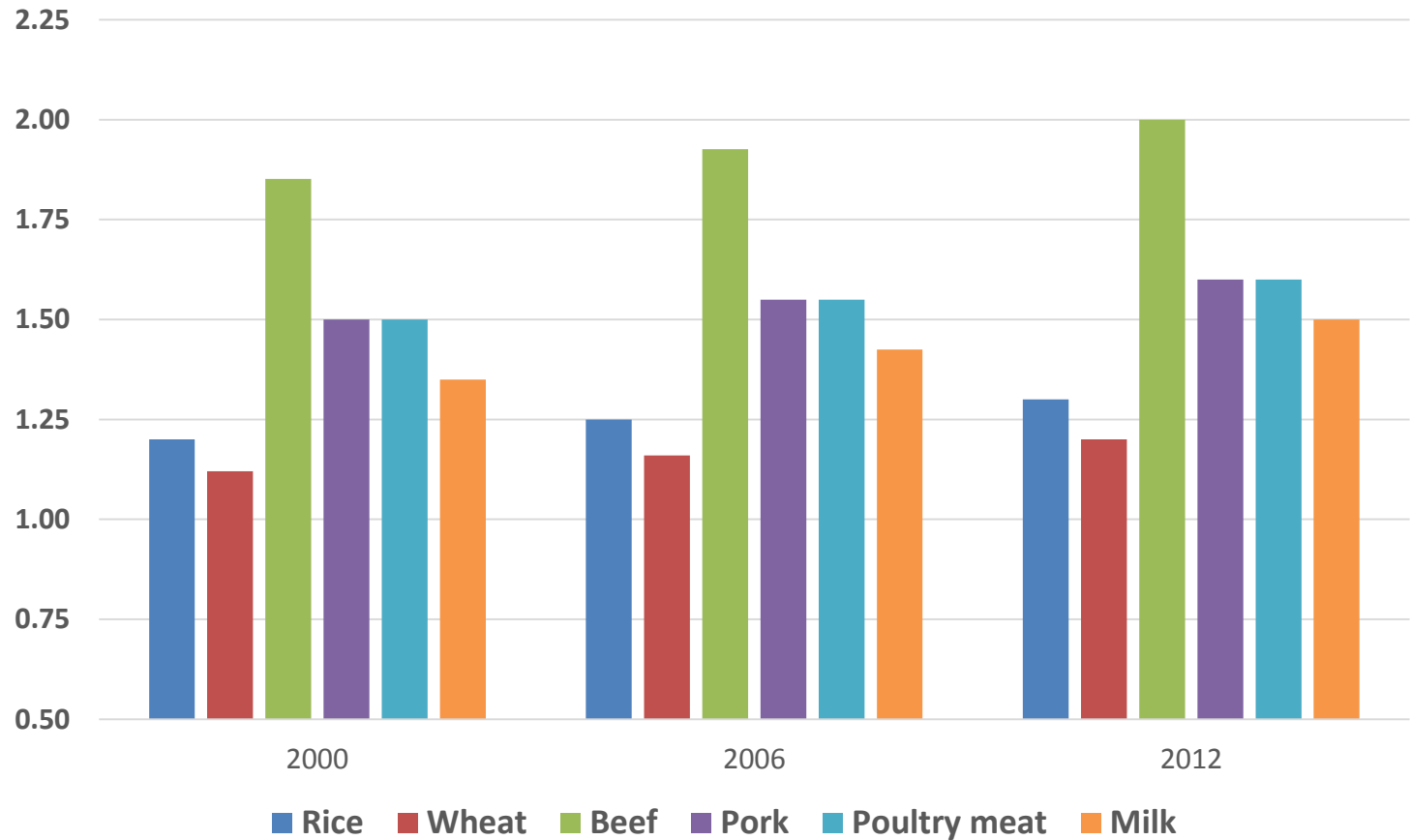
Scaling factors rural consumption



Source: combined evidence various studies

Adjustment of official household consumption (2)

Scaling factors urban consumption



Source: combined evidence various studies



Consistency of statistical evidence

'Other use' will be shown for:

Grains:

rice

wheat

maize

Livestock products:

beef

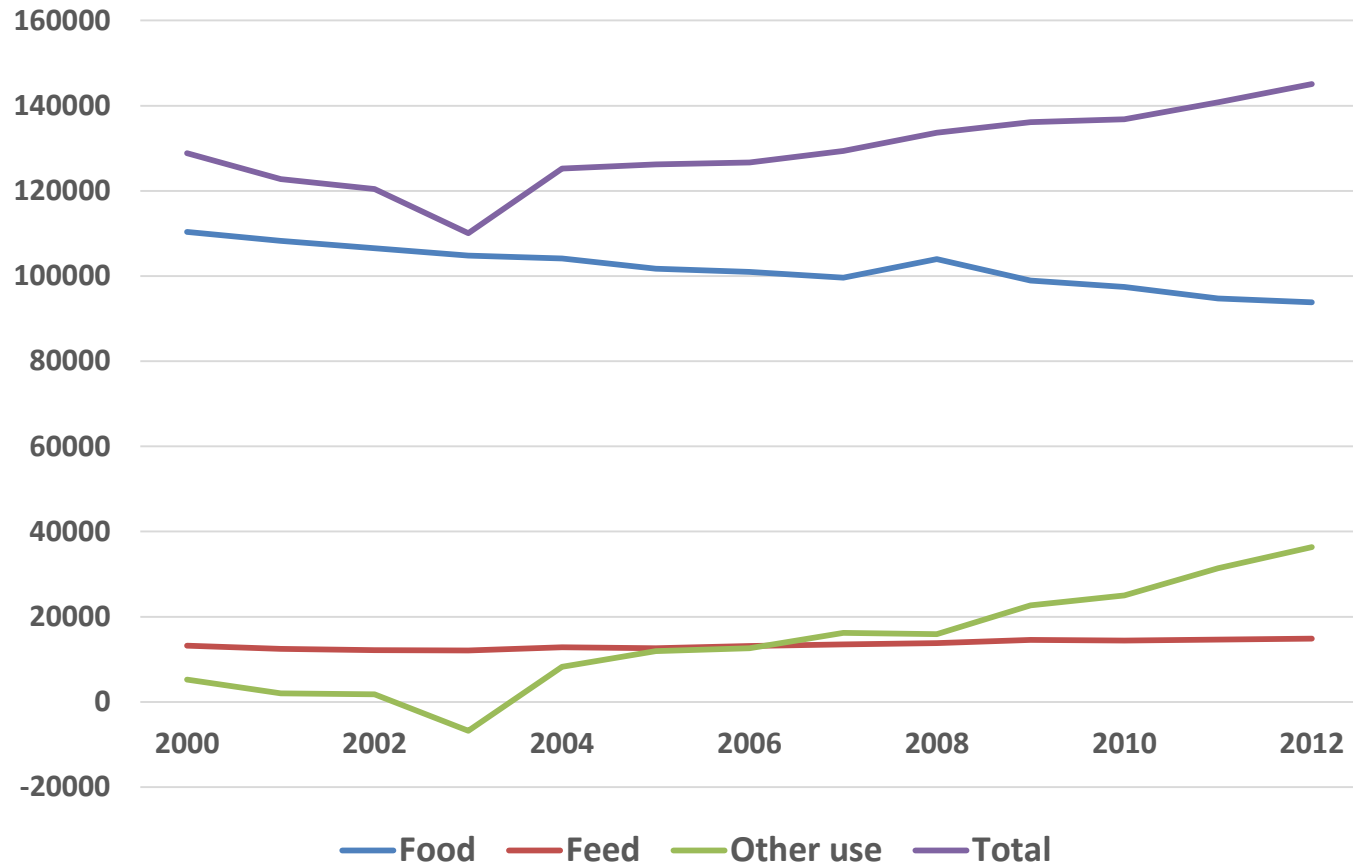
pork

poultry meat

milk

Data consistency: rice

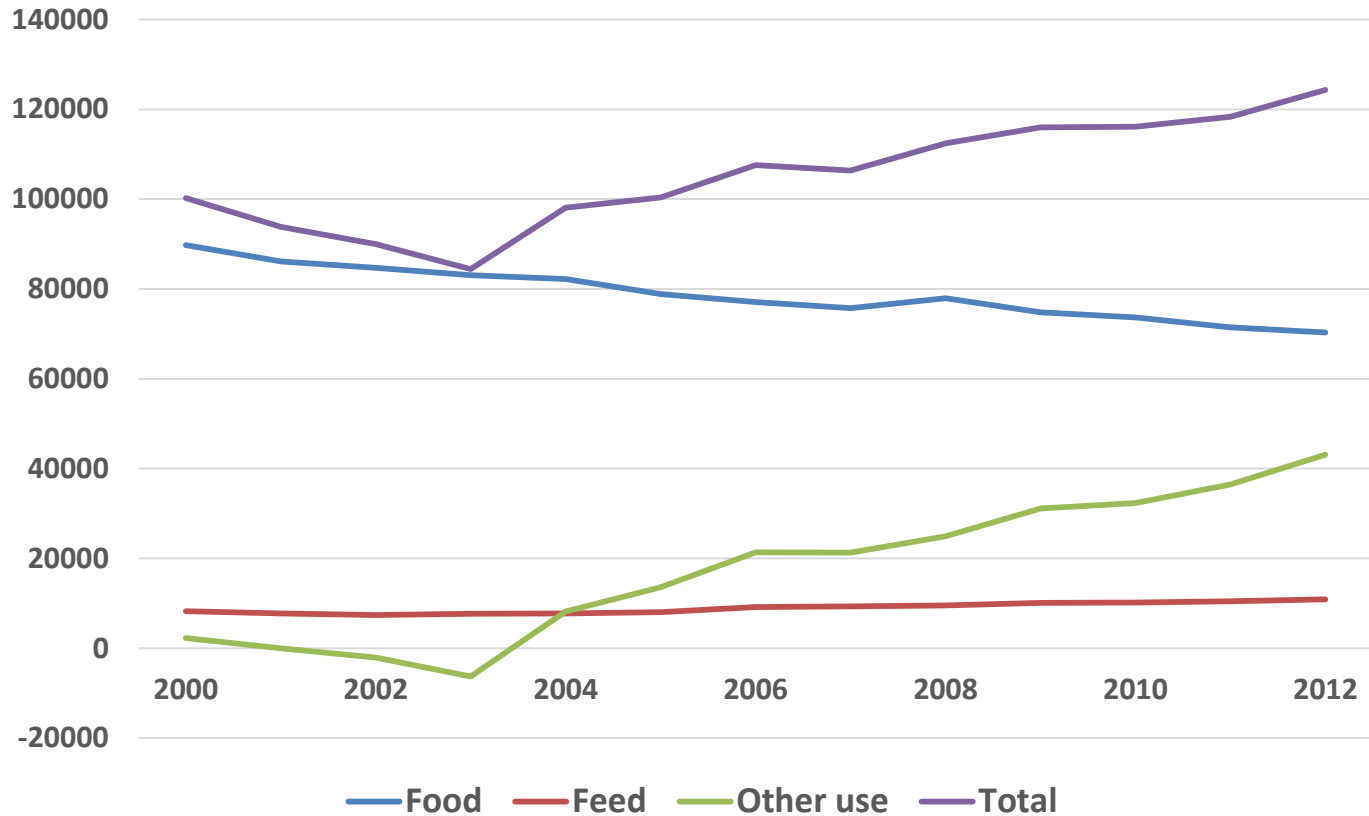
Utilization of rice, 2000-2012, in 1000 ton



Other use becomes too large after 2008: explanation?

Data consistency: wheat

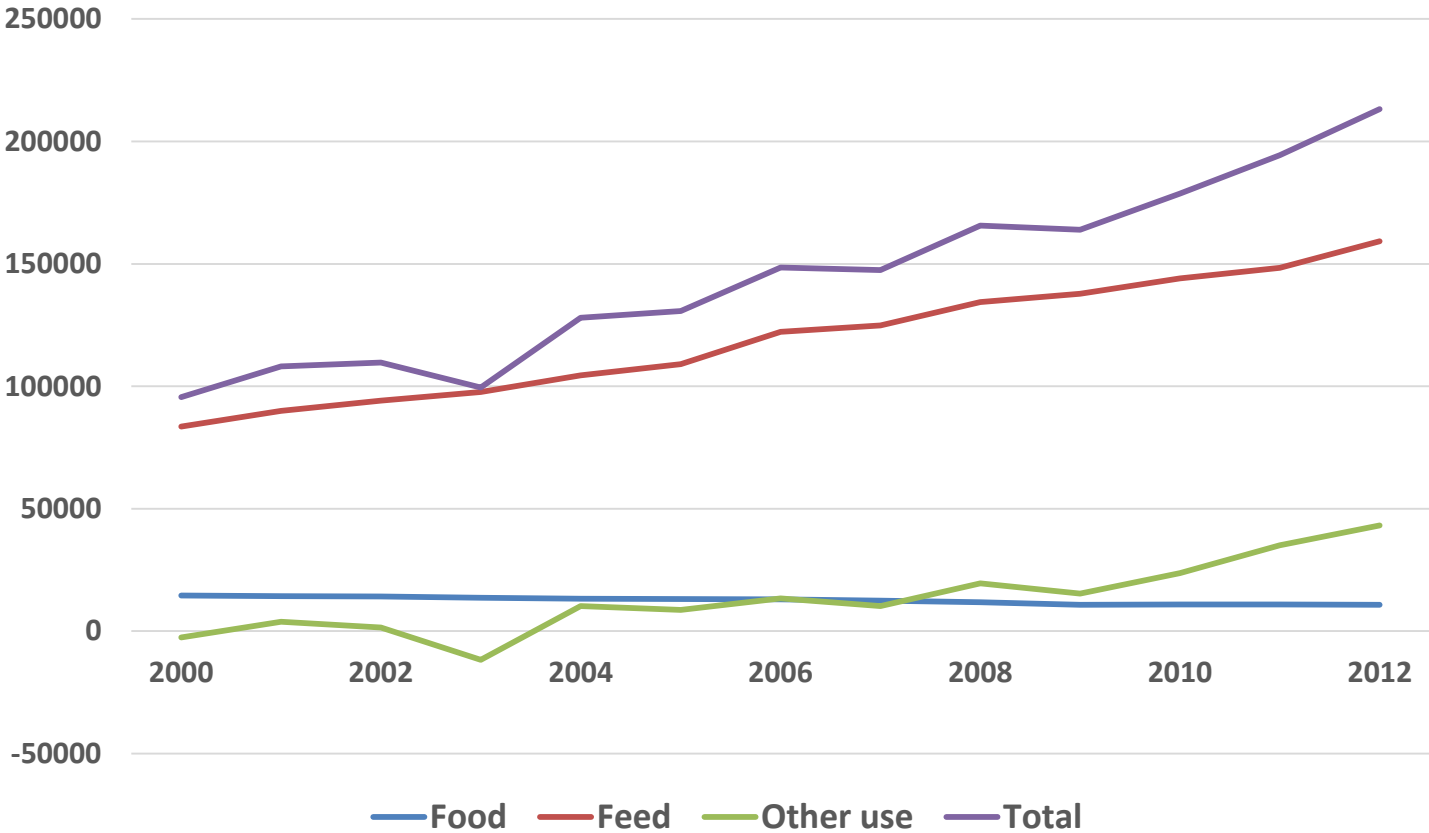
Utilization of wheat, 2000-2012, in 1000 ton



Other use becomes too large after 2008: explanation?

Data consistency: maize

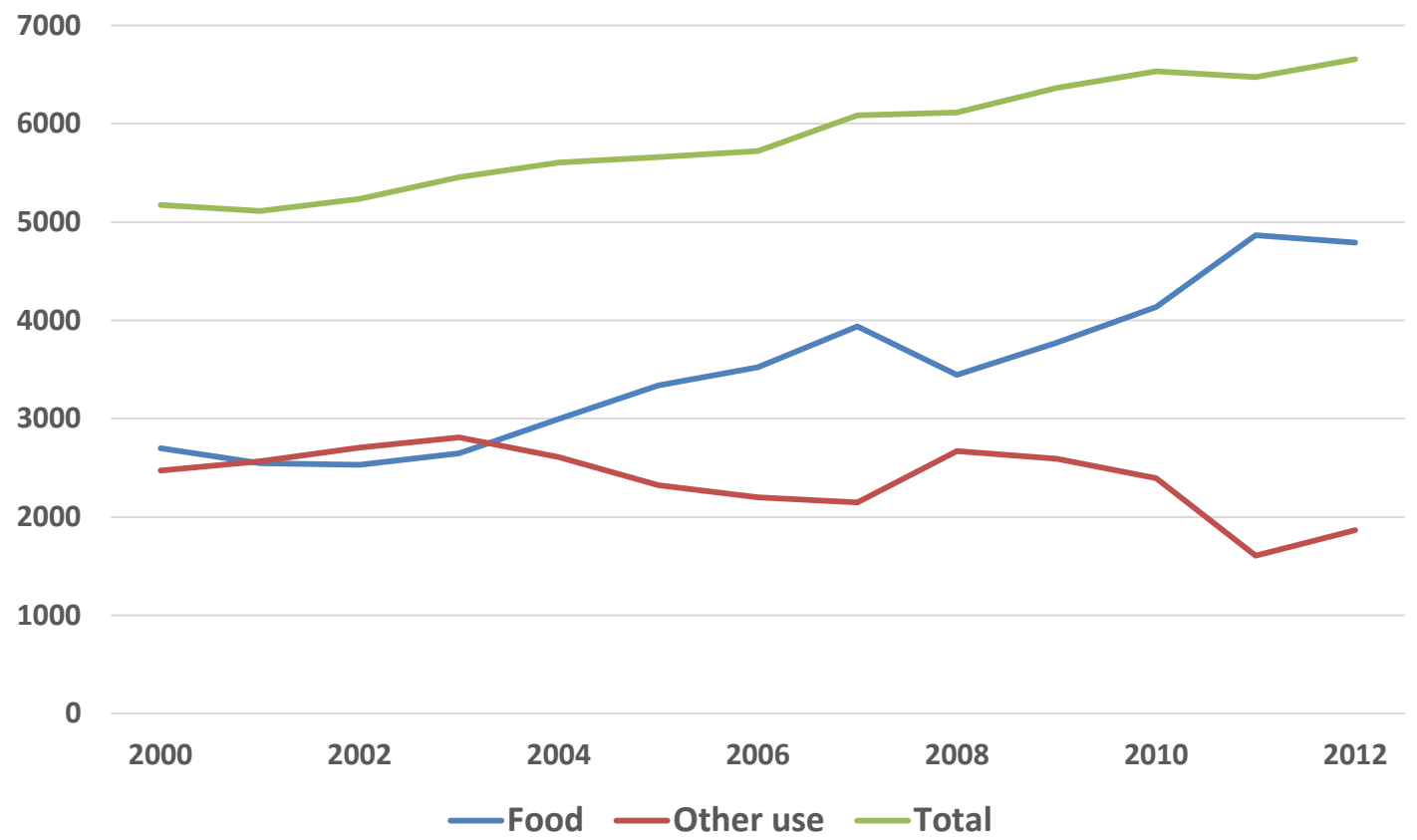
Utilization of maize, 2000-2012, in 1000 ton



Other use becomes large: can be explained from industrial use

Data consistency: beef

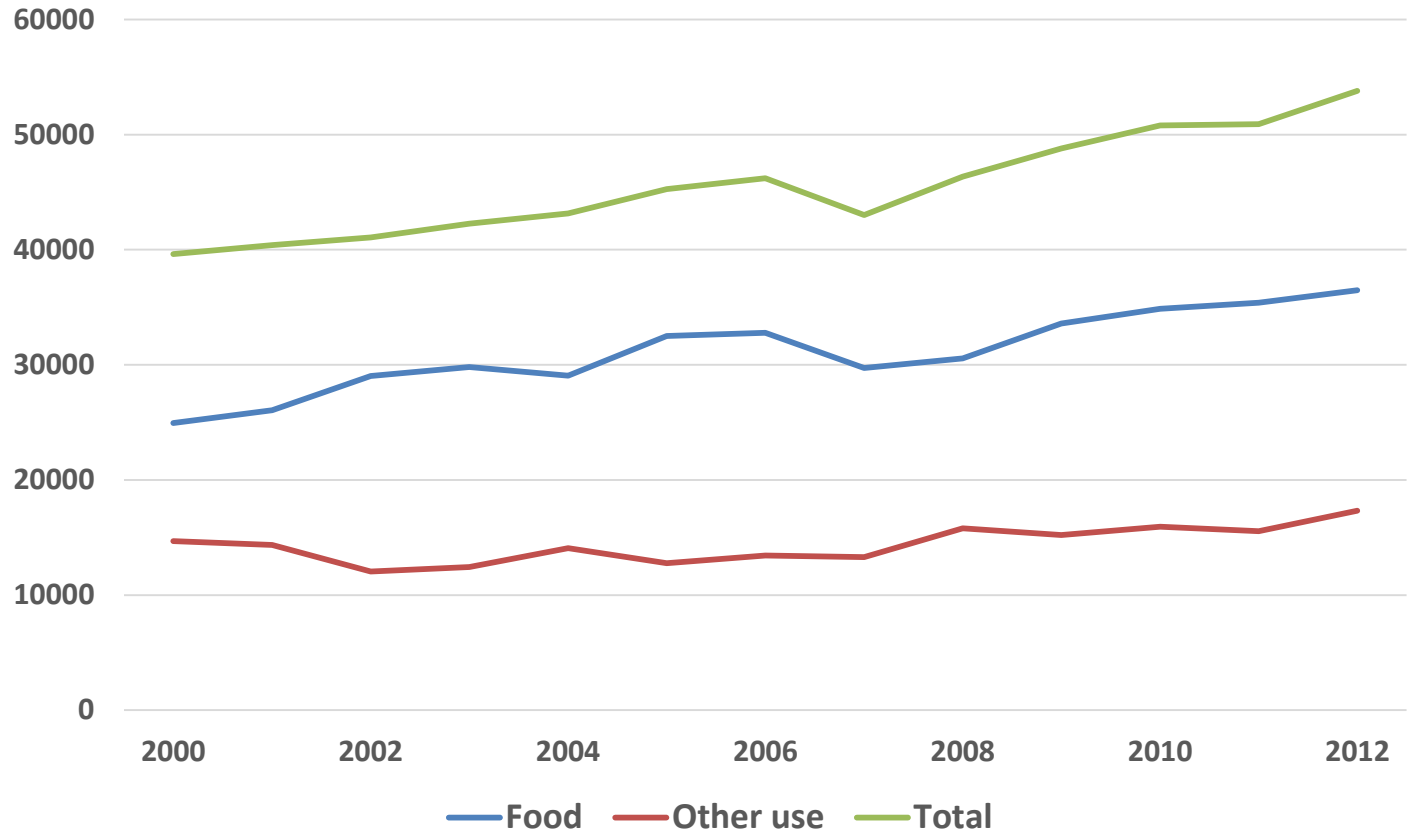
Utilization of beef, 1000 ton



Other use is too high: output must be overstated

Data consistency: pork

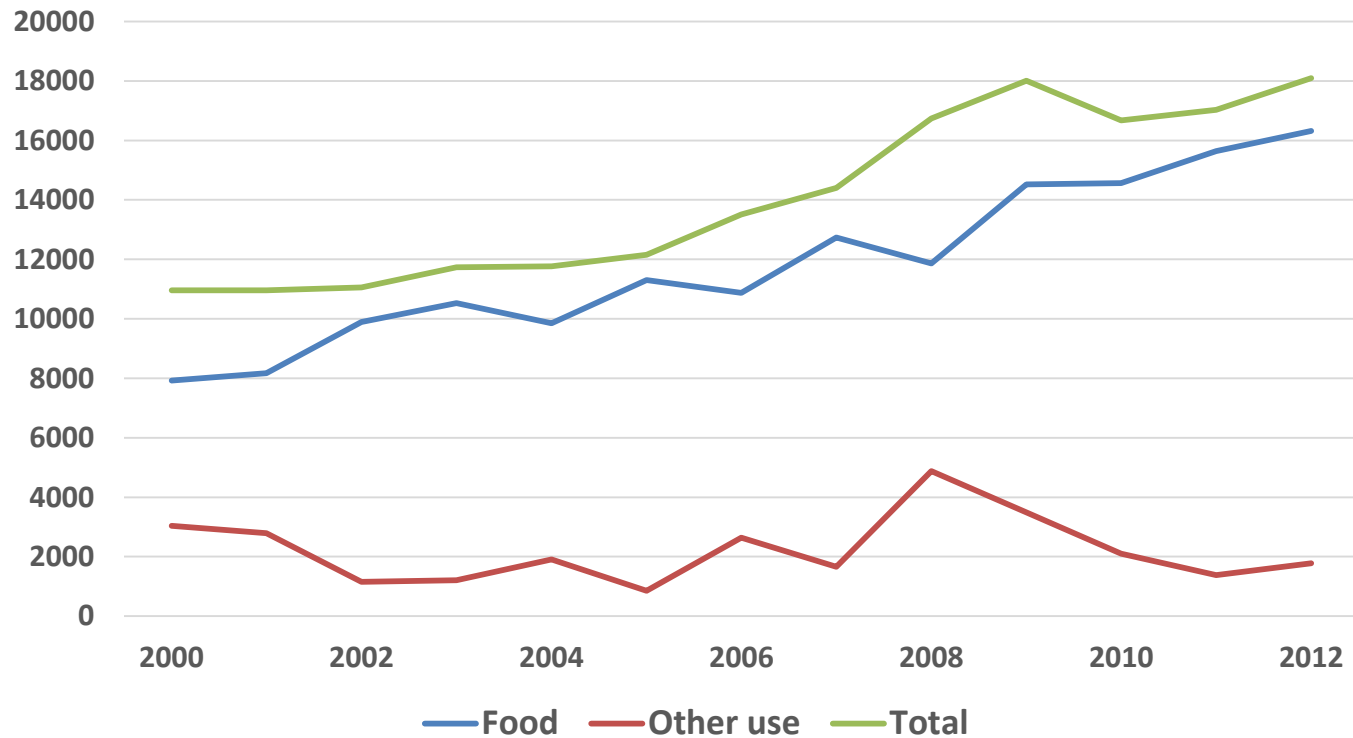
Utilization of pork, 2000-2012, in 1000 ton



Other use is structurally much too high: output must be overstated

Data consistency: poultry meat

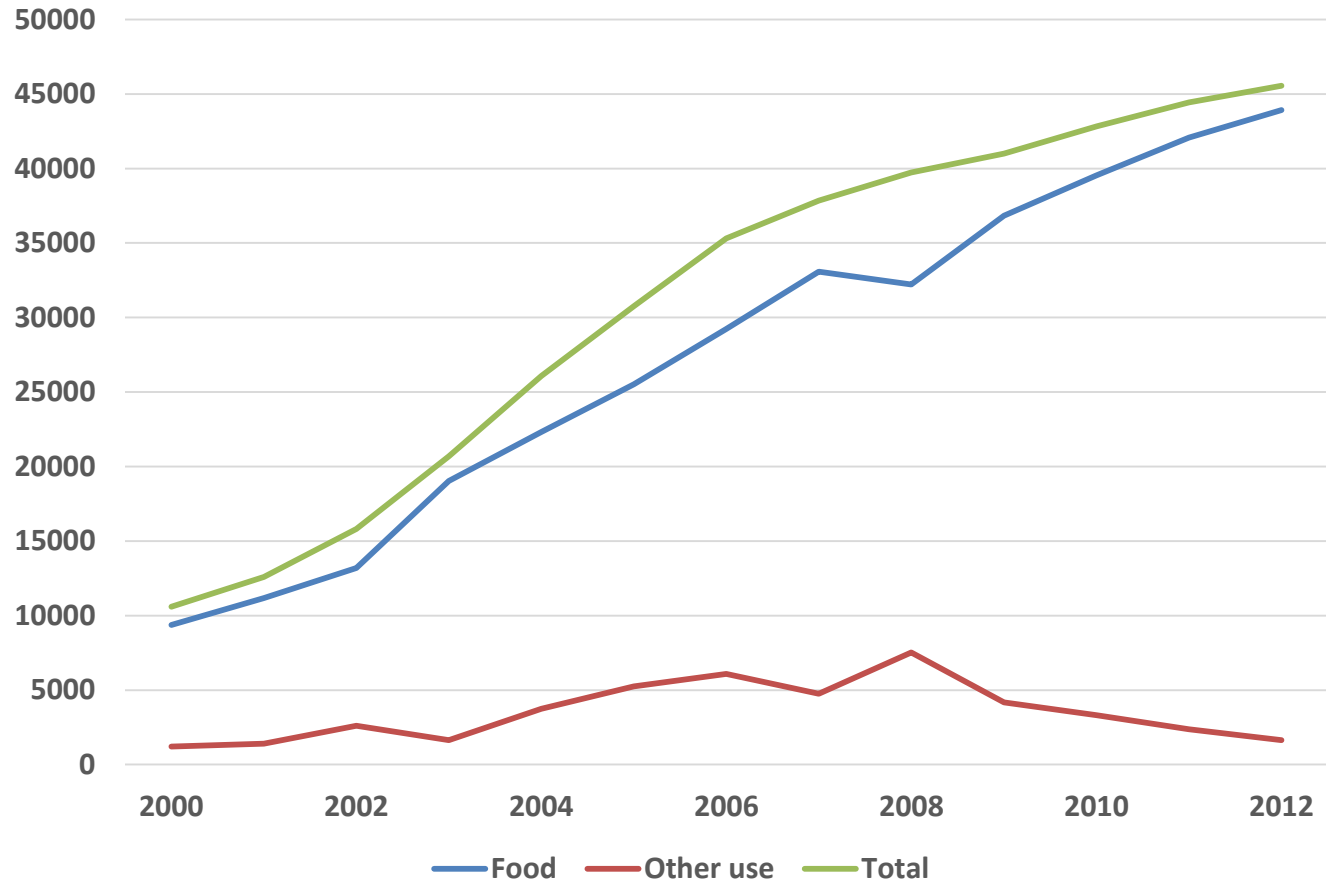
Utilization poultry meat, 2000-2012, in 1000 ton



Overall, other use is too high but it becomes better: explanation?

Data consistency: milk

Utilization of milk, 2000-2012, in 1000 ton



Other use seems quite OK, apart from period 2004-2009



Concluding remarks

Statistical findings:

- output livestock products still considerably overestimated (even if one would raise household consumption more)
- explanation for increased gaps wheat and rice in recent years not yet clear: feed underestimated, food underestimated, or production overestimated?

Institutional remarks:

- official statistics on feed use are very limited in coverage: improvement is necessary
- NBSC should not leave estimating FAFH completely to individual research initiatives
- strict urban-rural dichotomy may exaggerate food changes over time