



Systemizing the world of Aquaculture and Fisheries

“Projections of sea bass, sea bream and trout culture in European countries – and marketing price prediction for 2018”

Paul Steinar Valle, Kontali Analyse AS

Industriv. 18, NO-6517 Kristiansund N Norway
Tel.: +47 71 68 33 00 Fax: +47 71 68 33 01 E-mail: mail@kontali.no

Aquaculture is expected to feed the growing population

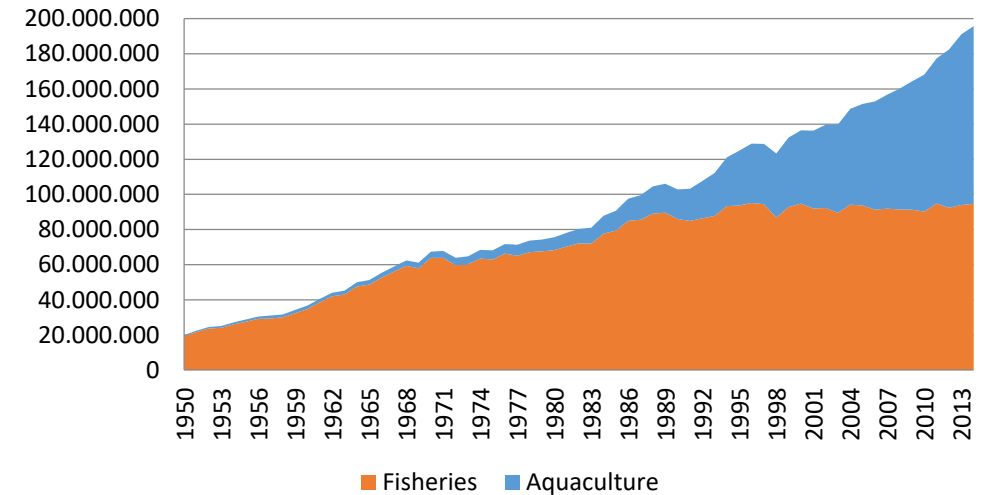
The growing population is expected in part to cover its need for energy and proteins from aquaculture. While fisheries is expected to have limited prospects for growth.

Thus, there should be growth in demand – i.e. growing markets! And yes, aquaculture is growing! However, the major growth occurs in Asia (Turkey included in the FAO figures here).

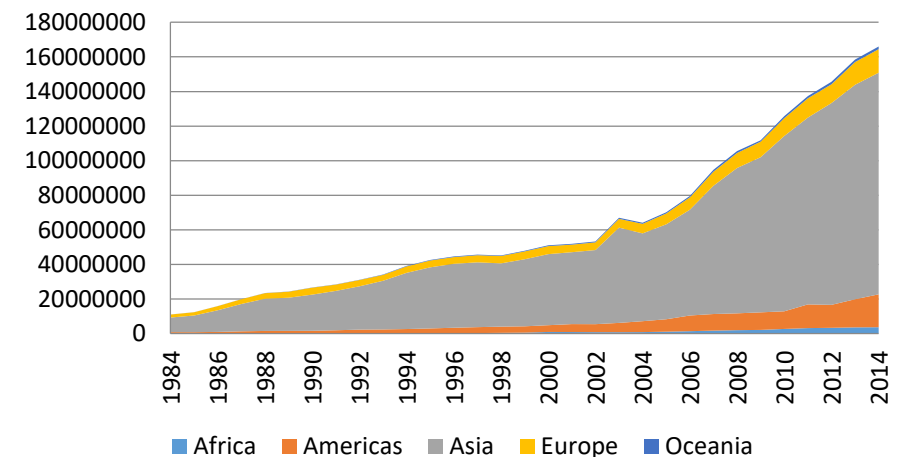
While the other continents have limited growth – i.e. contribution to the needed increased food production!

And, Europe – Turkey included – should make room for growth!

Global seafood production (volume)



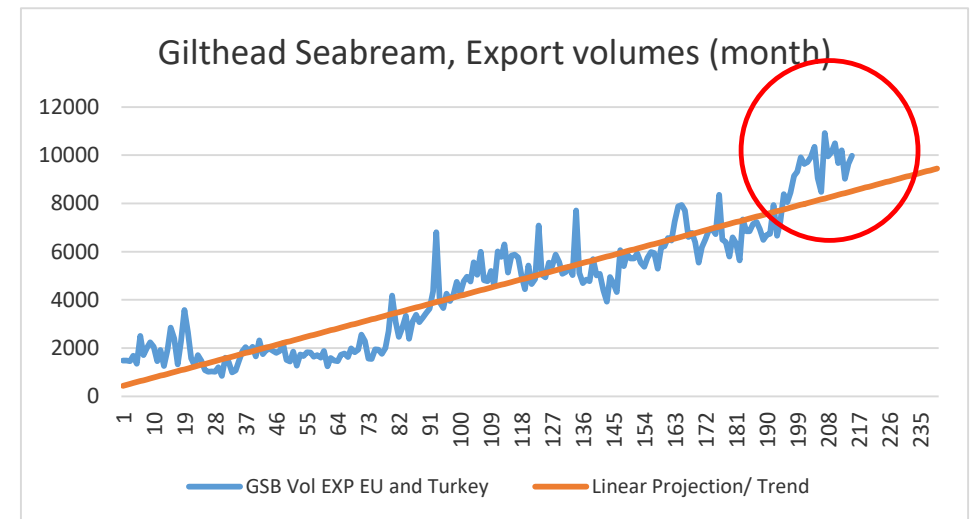
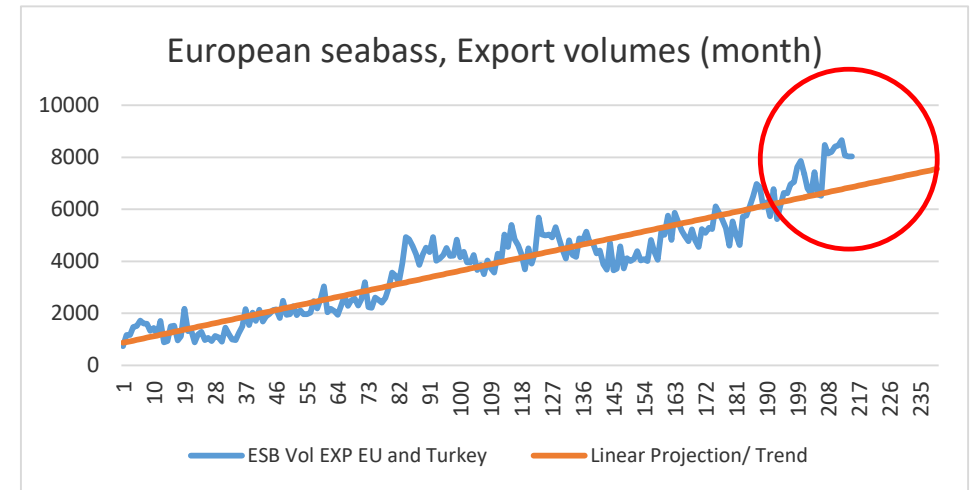
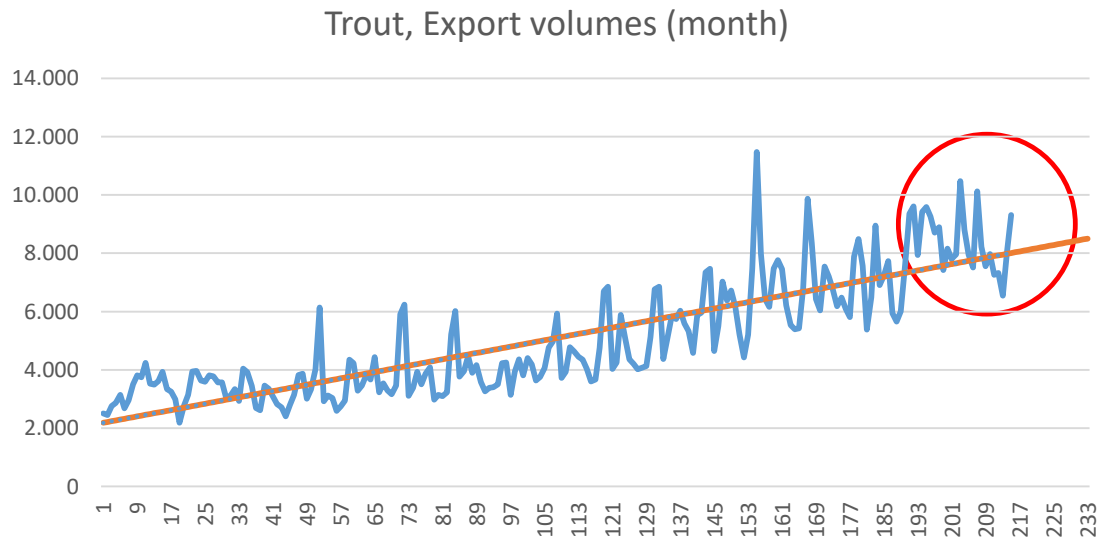
Global Aquaculture (value)



Prospects for European B&B and trout...? Let us first look at the history!

Based on monthly export volumes from EU and Turkey since 2000 one can observe that the supplies have on average had a linear increasing trend. And, in lack of other good estimates for market development the linear trend might serve as a proxy for **DEMAND**. In order to ensure a good price development, production should be in balance with – AND, preferably a little below – demand!

Based on the linear trend the export market for trout, B&B increases with 4, 5 and 6 %, respectively from 2016 to 2017, while actual supplies are down -8 % for trout and up 16 and 13 % for bass and bream, respectively. Trout was in 2017 3 % above the long term trend while both bass and bream was 18 % above the linear trend!



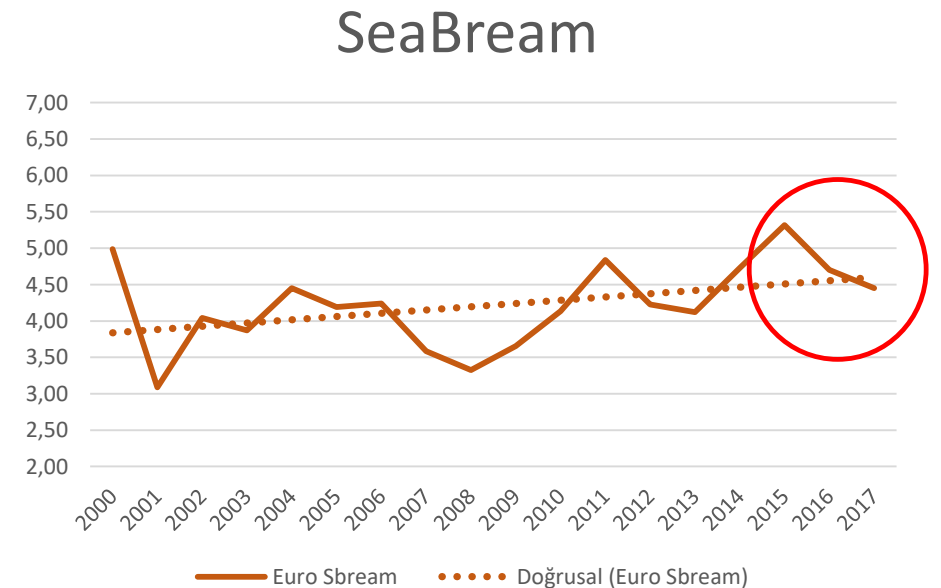
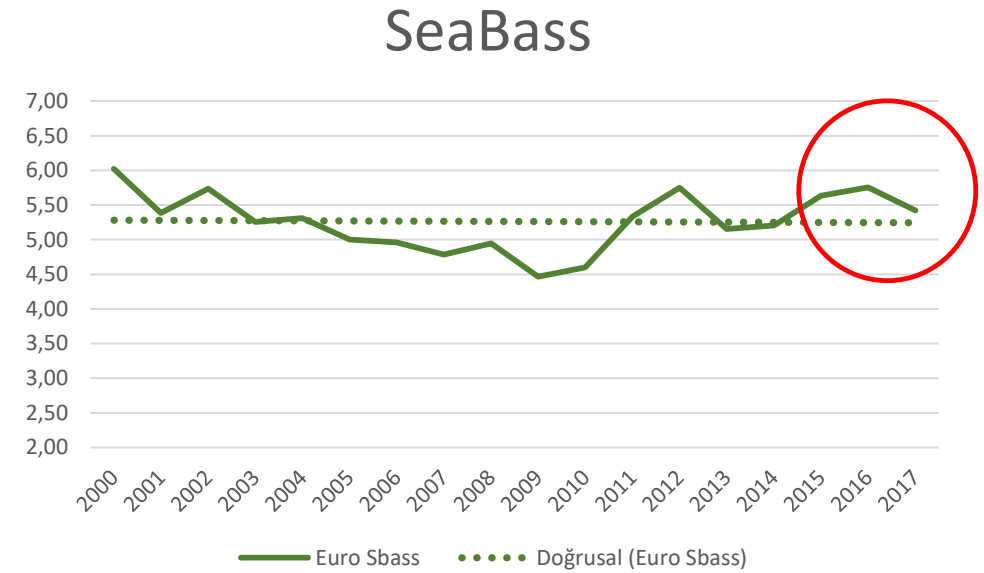
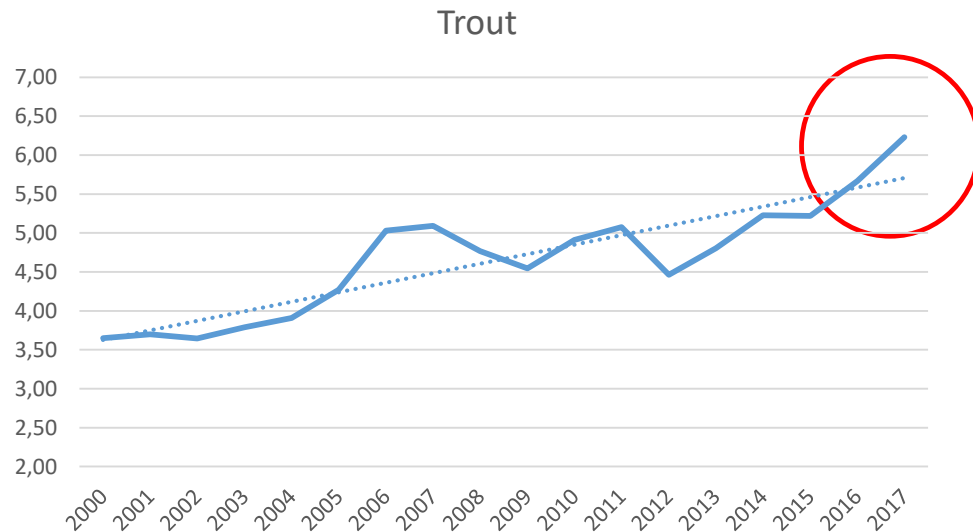
Price development

The supply – demand balance is affecting price!

Prices for bass&bream have developed relatively flat and are in 2017 **-10** and **-11 %** compared to 2000, respectively. While for trout, average price across product categories(!) are up **+70 %** since 2000.

For trout, the long term price trend is increasing, less so for bream and for bass prices have not improved much!

If comparing back to the previous slide, we observe that B&B prices are coming down from 2016 to 2017 – due to supplying significantly beyond demand. While for trout, prices are coming up – likely since supplies are more in line with demand.

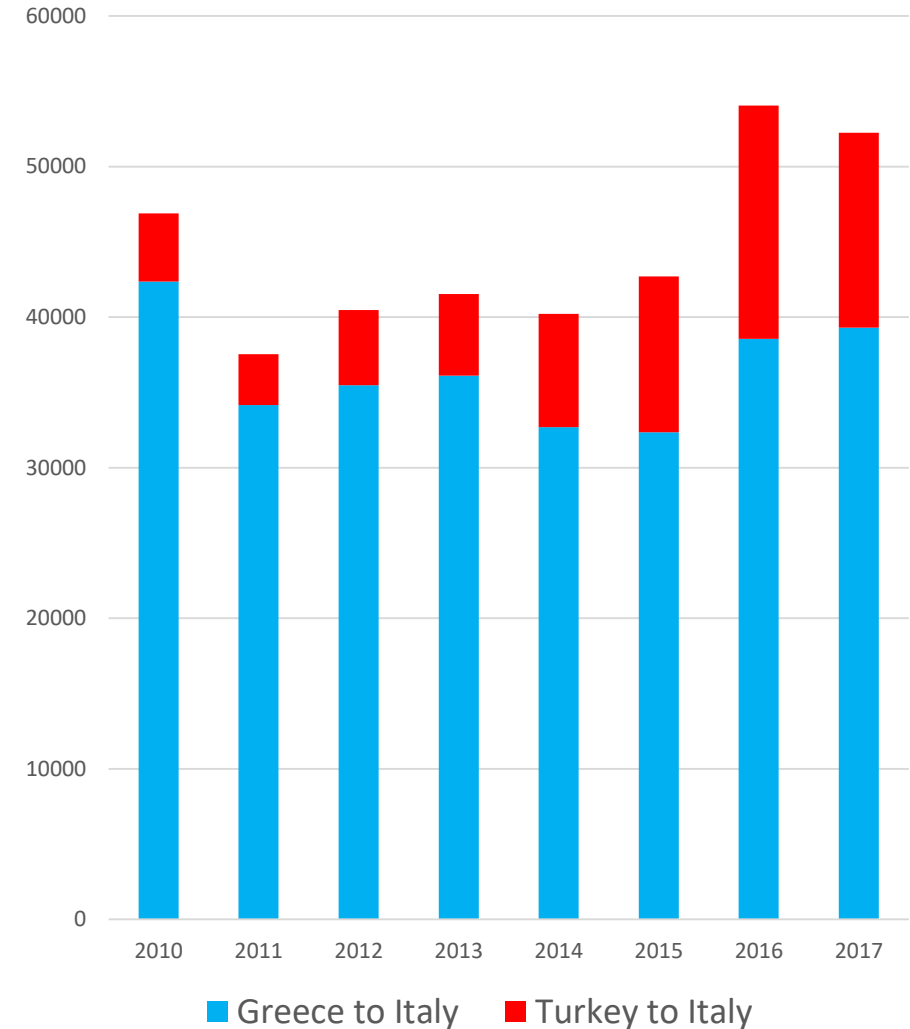


Some market observations

First; the traditional markets – (Mediterranean) exemplified by Italy

Italy is a major market for B&B, and it has been growing. And, when looking at the two main external suppliers – Greece and Turkey, Greek supplies has been relatively stable since 2010, while Turkish supplies have increased.

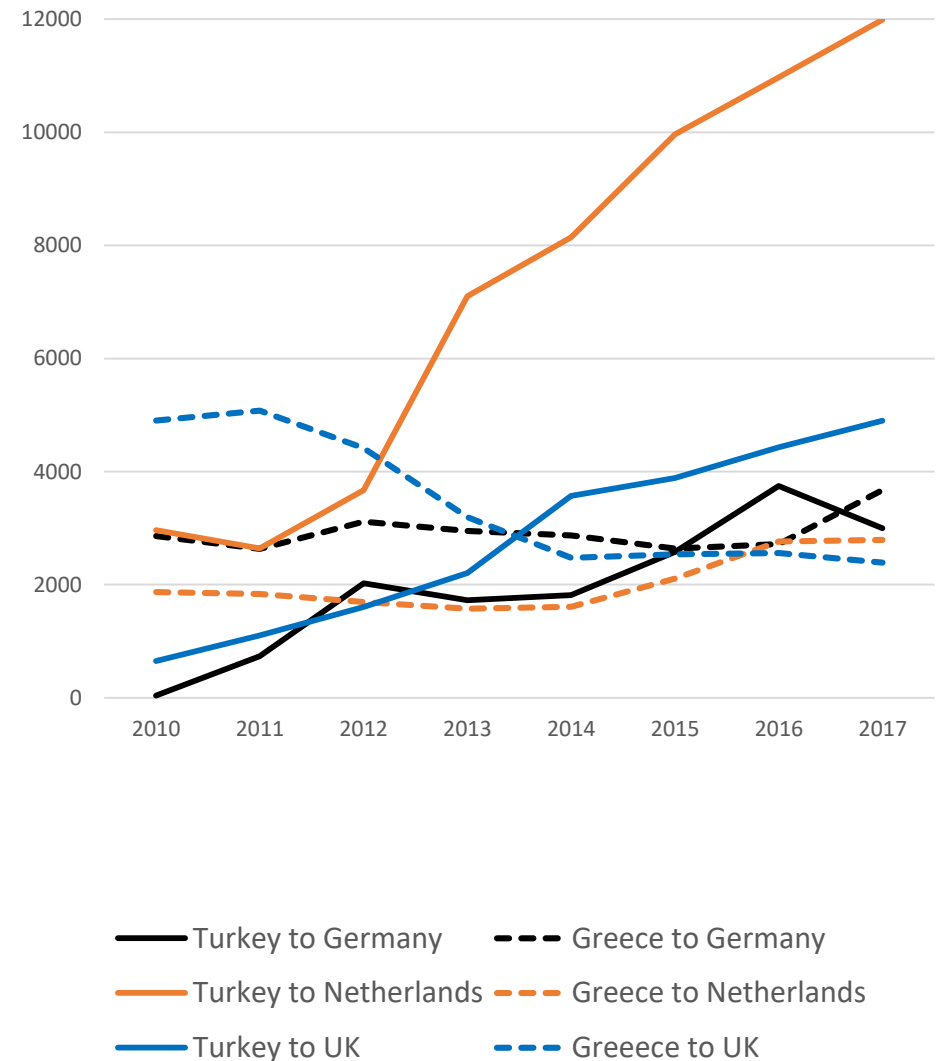
And, Greece have not had the extra production volume available for responding to an increased demand. Thus, there has been room for others. WHICH, has been responded well to by Turkey.



New/Emerging markets – like Northern Europe

North European markets for B&B can be regarded as emerging and we observe that these markets have been growing more rapidly, and once again Turkish suppliers has taken the opportunity. While greek supplies has gone stable – or even dropped.

It is to be remarked that The Netherlands should be regarded more as a hub for further distribution – all over Europe – than a market in itself.

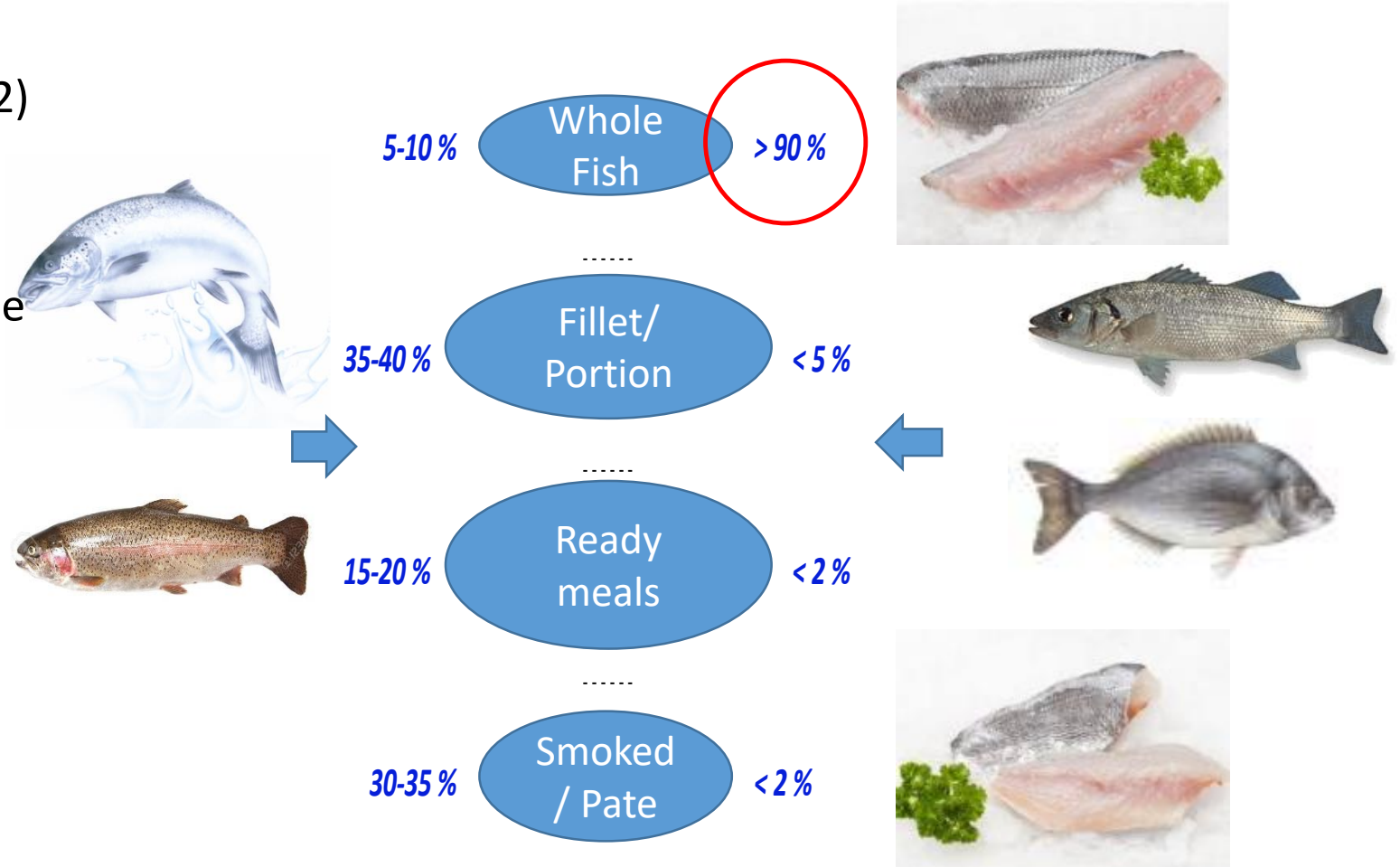


Not only market, BUT also product specter – is changing!!

B&B is traditionally a whole fresh product. However, in the recent (1-2) years there has been a significant increase in volumes of processed products mainly **fillets**(skin-on). From Turkey now around 30 % of the volume of B&B coming to the Netherlands is fillets/processed, in contrast to < 5 % historically.

Further the Northern European market is likely bringing a new kind of consumers into the B&B market, looking for more convenient products («easy/ready to cook»). AND, trout is already there!

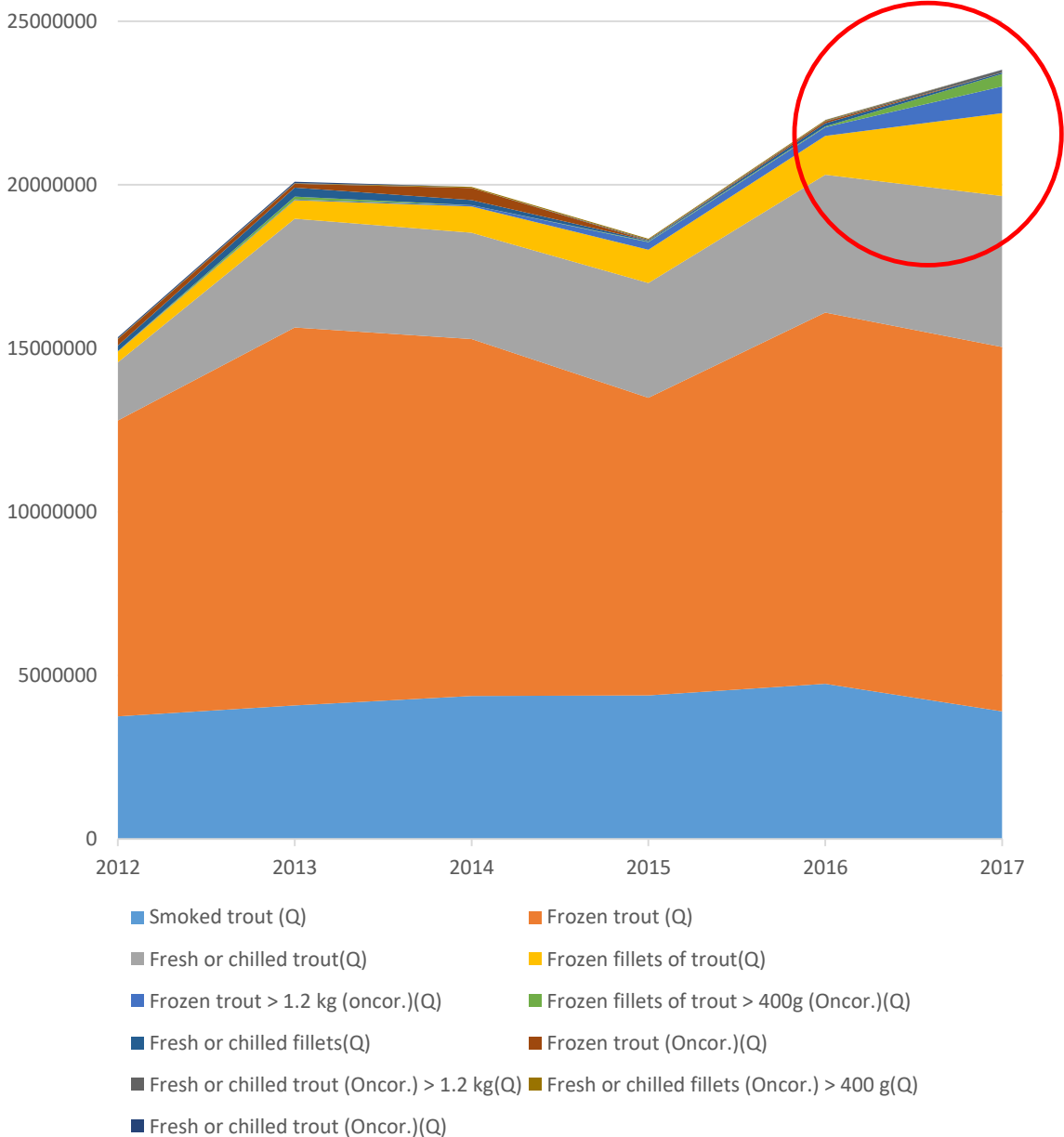
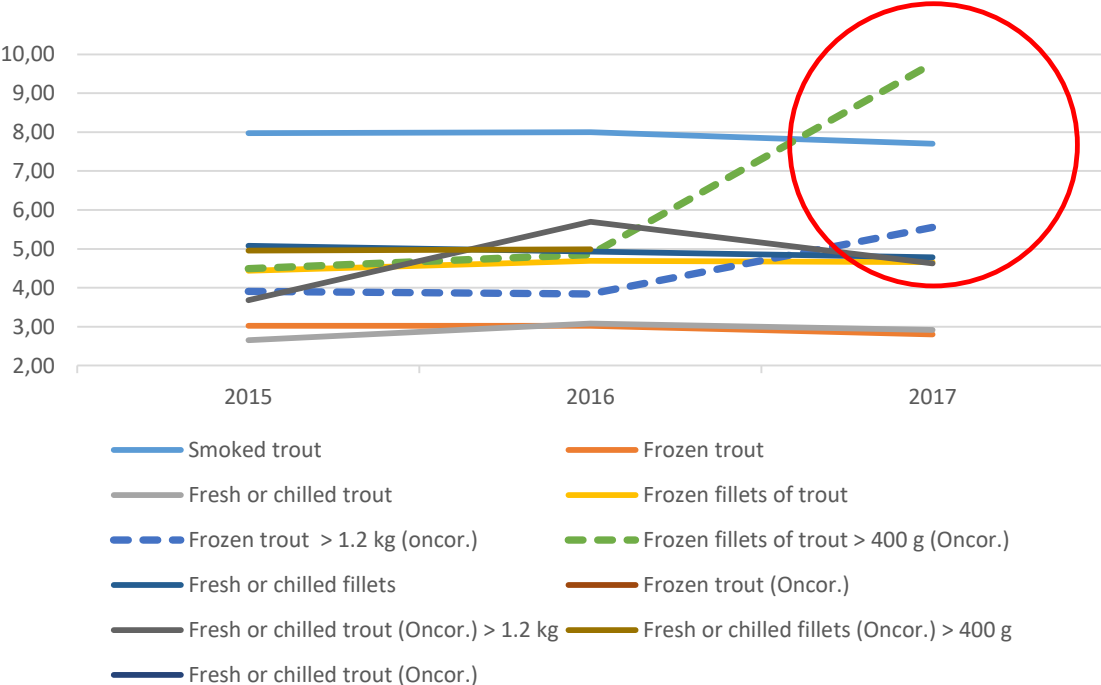
AND, the same transition is on its way in the more traditional markets in the Mediterranean.



Changing market also for trout!

Not only is the market/demand changing, but the producers/companies/traders are responding to new opportunities AND new markets, like the demand for large frozen trout and large fillets in Japan.

And, a positive price development is observed in 2017 for frozen large trout and large fillets of trout – going to Japan (i.e. without taking into account the extra costs associated with the product).



Market is expanding – and – increased demand is expected!

BUT, is there room for growth?

There are barriers for Growth in EU – in Turkey less...?

License constraints

- Limited by tourism and pressure from local on-shore populations
- Time consuming license granting procedures in EU (at least 5 years)
- Restrictive licenses based on fixed volumes

Strong financial requirement

- Lengthy cash conversion cycle
- High maintenance and fixed asset renewal costs
- Price variations requiring financial strength through low price cycles

Know-how and scale needed...?

- Large players are integrated along the value chain (hatcheries, feed, processing)
- Efficient production require long learning curve to optimize inputs formulas/gene selection/market penetration etc.
- Feed represent >50% of costs and needs to be either integrated or procured at scale to have competitive production costs
- Feed conversion ratio (FCR) for B&B can be improved – from > 2 down to e.g. 1.6
- And, there are likely other options for cost reduction ...

Turkey has advantages...? – is currently leading on in Mediterranean aquaculture

- Rapid responding businesses
- Relativity many new and modern facilities
- Large capacity for fry production
- Relatively easy access to on-growing facilities
- Good access to processing facilities
- Access to good and efficient labor for processing (filleting)
- High competence and good competence transfer in the sector
- Operates in Turkish lire
 - good for local cost like labor cost
 - a challenge with respect to fish feed (and other imported resources)
- Relatively easy/fast access to Russia and western Asia and Midle-East
- More time consuming and costly access to main European markets
- Lower price – cost of production – compared to EU producers



So what about the projections?

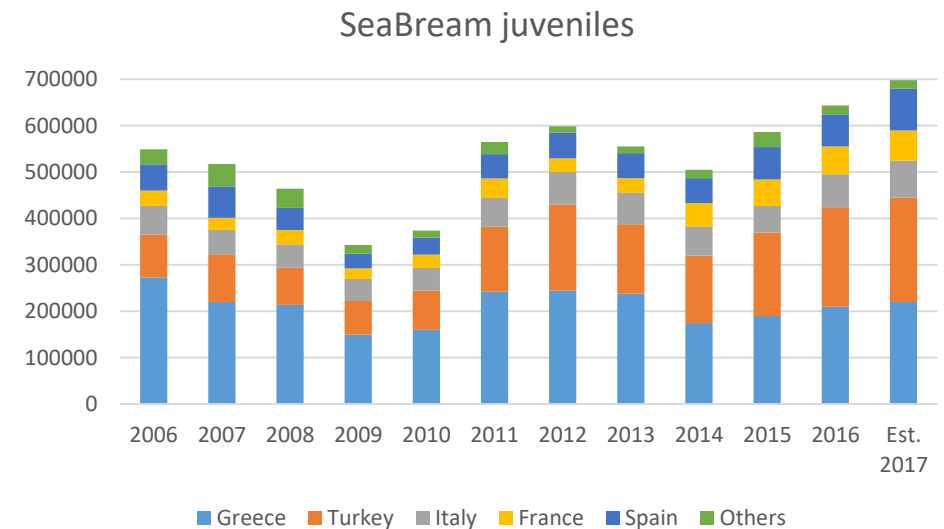
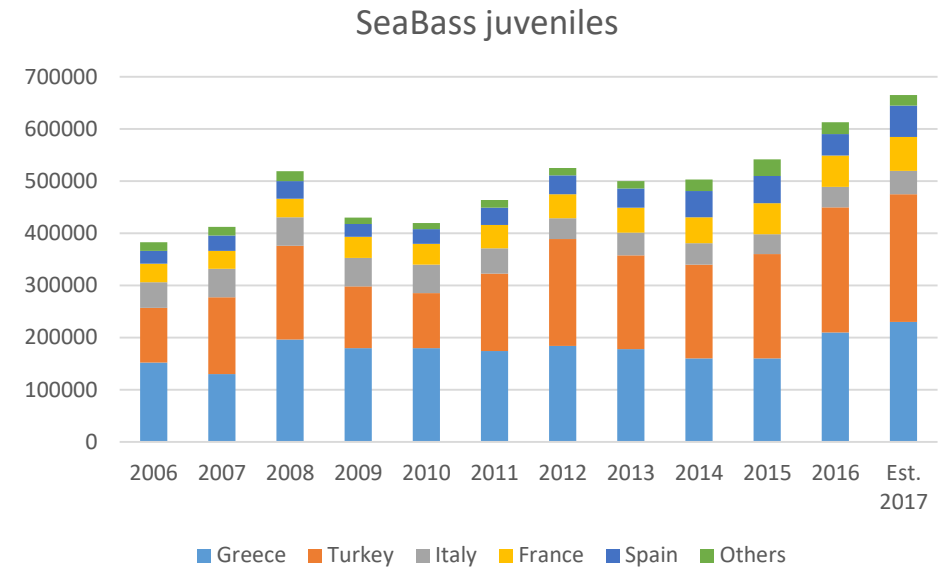
And, as always, with economics;
IT DEPENDS!

We base our projections on juvenile estimates

Kontali base our harvest estimates for B&B on expert opinions regarding juvenile stocking figures.

And, juvenile stocking increased from 2016 to 2017, thus production will continue to increase in 2018 and 2019 (at least over the summer). However, the increase from 2016 to 2017 (>+ 8 %) was not so large as from 2015 to 2016 (>+12 %). Thus, the growth will slow down.

In order to control our estimated changes in production, we follow the fish feed marked.

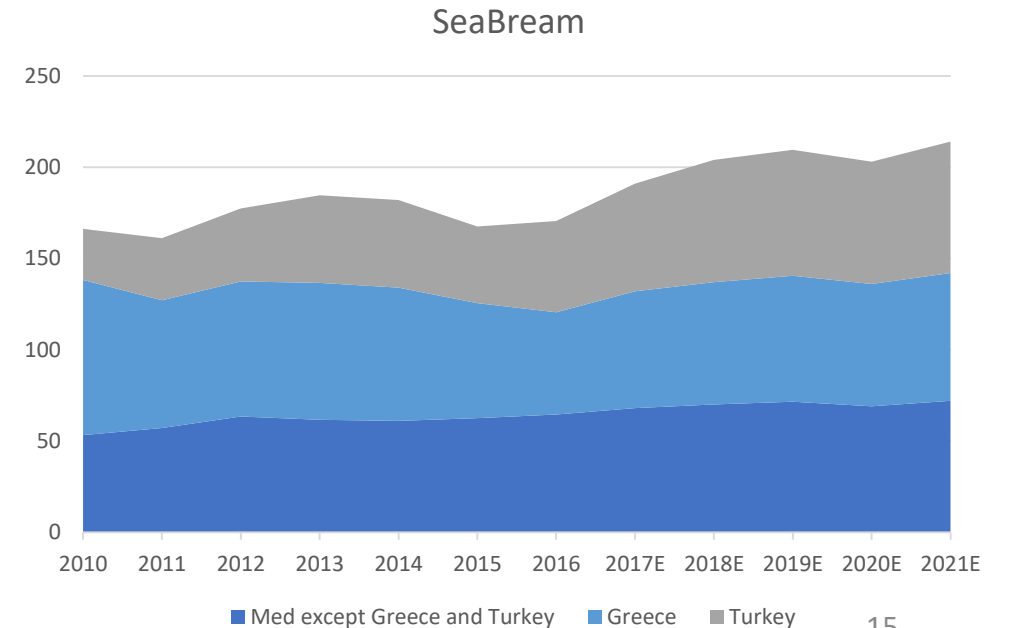
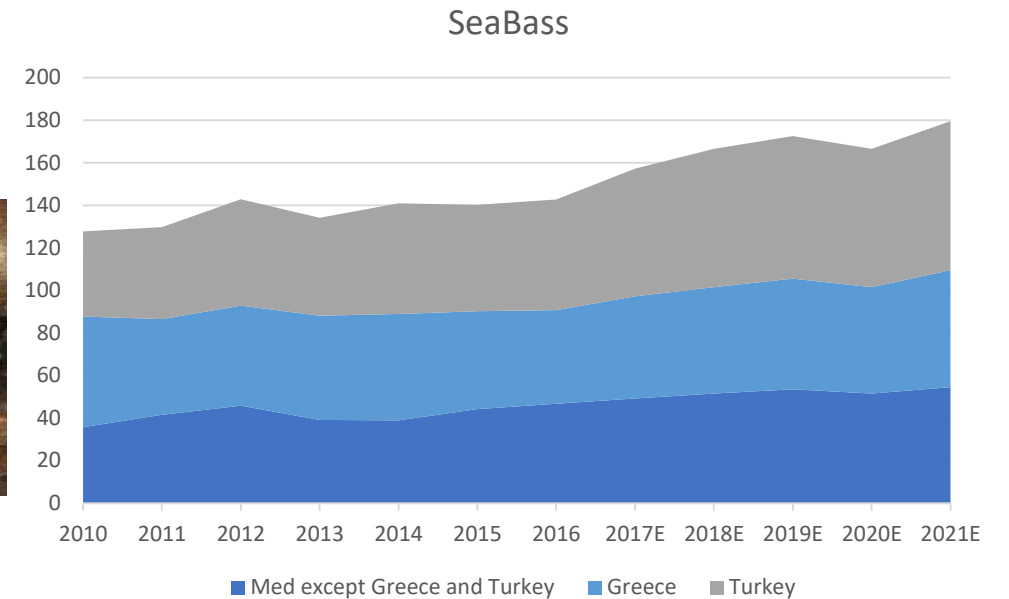


Projections for Harvest

Based on juvenile stocking figures, harvest estimates is expected to increase in 2018 and 2019, and due to expected stress on price – as we currently observe – i.e. the well known «**Boom and Bust**» cycles in the B&B sector – (fast increase in supplies followed by a drop in price) we assume reduced stocking in 2018 and 2019 leading to a drop in harvest in 2020, before it comes back up again.

– if, the history is to repeat itself?!

AND, in the meantime; ***the market has been growing!***



So to the price development for 2018 – IT doesn't look good, BUT..

Based on supplies likely beyond demand, significant stress on export prices is expected in 2018 AND, down towards break-even – or below if taking a pessimistic view.

However, **it depends** on how well the investments in

- Emerging markets
- New markets and
- New products
- Meeting new consumer needs

is able to increase the demand for B&B products.

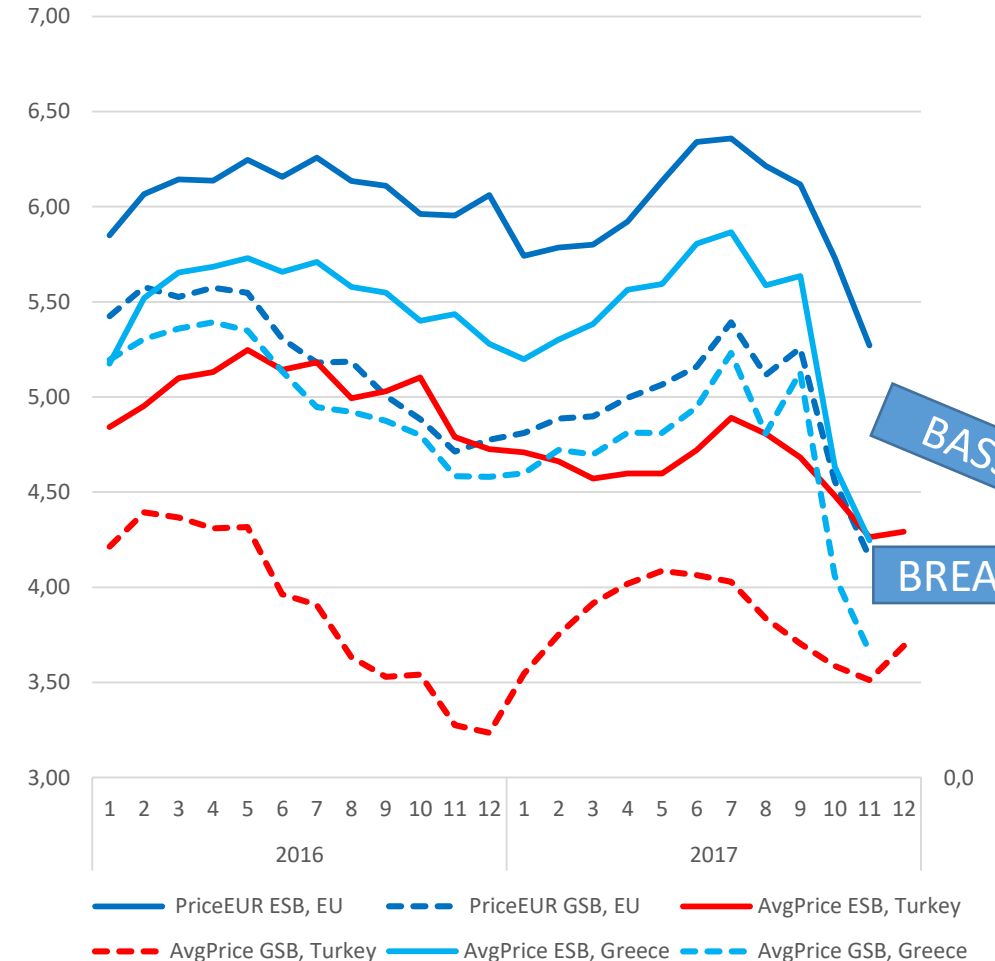
Prices will likely come significantly down from 2017 bass, and maybe go more flat for bream. A seasonal pattern is expected – i.e. higher prices during summer, but maybe weaker than normal.

Prices might stay above break-even (which of course varies with company, level of integration and production etc.), and might improve over the summer-

There are likely better prospects for bream than for bass for 2018.



Price development, 2016 - 2017

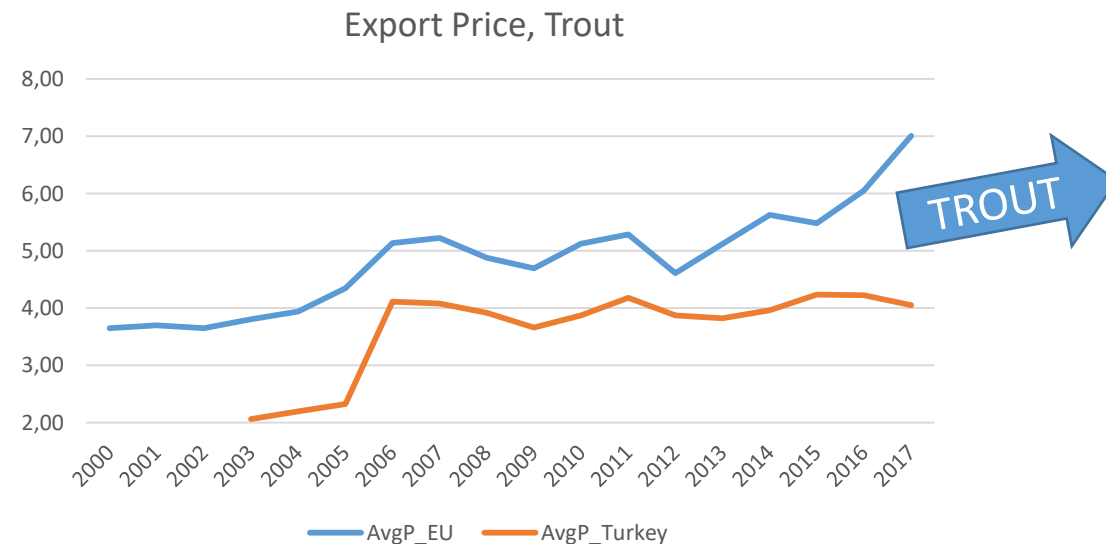
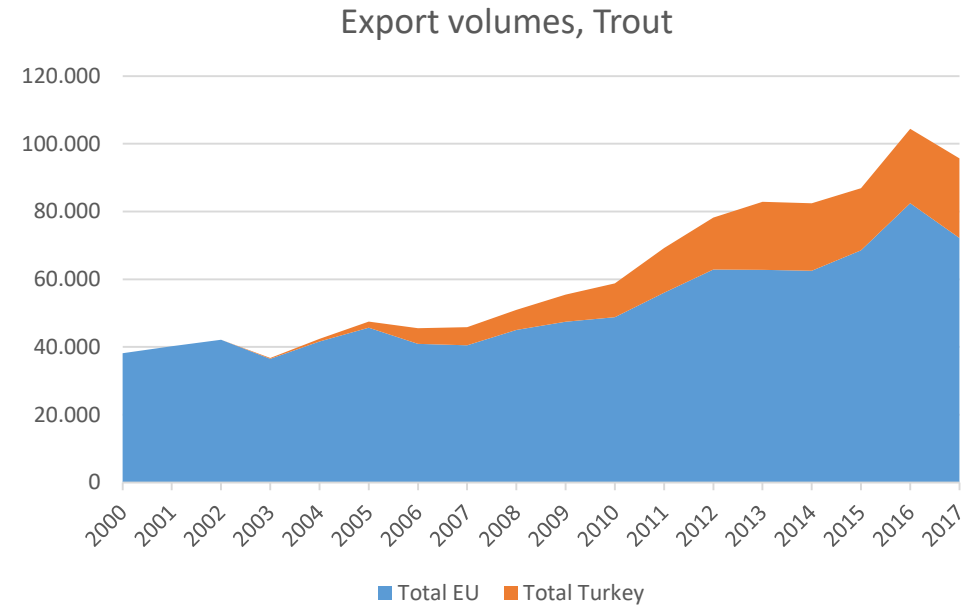


What about trout ?

Trout export volumes (all preparations) is increasing, but with a drop from EU countries in 2017. And, export volumes is expected to go relatively flat - even continue to drop in 2018(?).

AND, together with a shift in the production here in Turkey towards larger trout to new market(s), there is reason to believe that supplies will be less than the demand development in 2018.

Thus, one should expect a positive effect for trout prices!



How to improve price – in the long run!

- **We propose:**
- **Better strategic planning** – through data sharing and analysis
 - Market analysis – **demand** development
 - Estimates for juvenile stocking – and production/harvest models => **Supplies**
 - Fish feed surveillance – to verify estimated harvest/production
 - Price benchmarking – shifting more power from the buyers to sellers (producers)
 - Cost of production benchmarking – supporting increased efficiency!
- Investment in **Marketing**
 - Working on DEMAND – before production – harvest – supplies
- Investments in **Technology** and **Innovation**
 - Hatcheries, on-growing, processing, transport etc.

Thank you!

**WORK ON THE DEMAND AND
– GROW IN LINE WITH IT –**

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Thank you!

**WORK ON THE DEMAND/MARKET
– AND, GROW IN LINE WITH IT –
OR
PREFERABLY JUST BEHIND!;-)**

Some market observations

Market is expanding – *and* –
increased demand is expected!

But, is there room for growth?

So what about the projections?

**And, as always, with economics;
IT DEPENDS!**

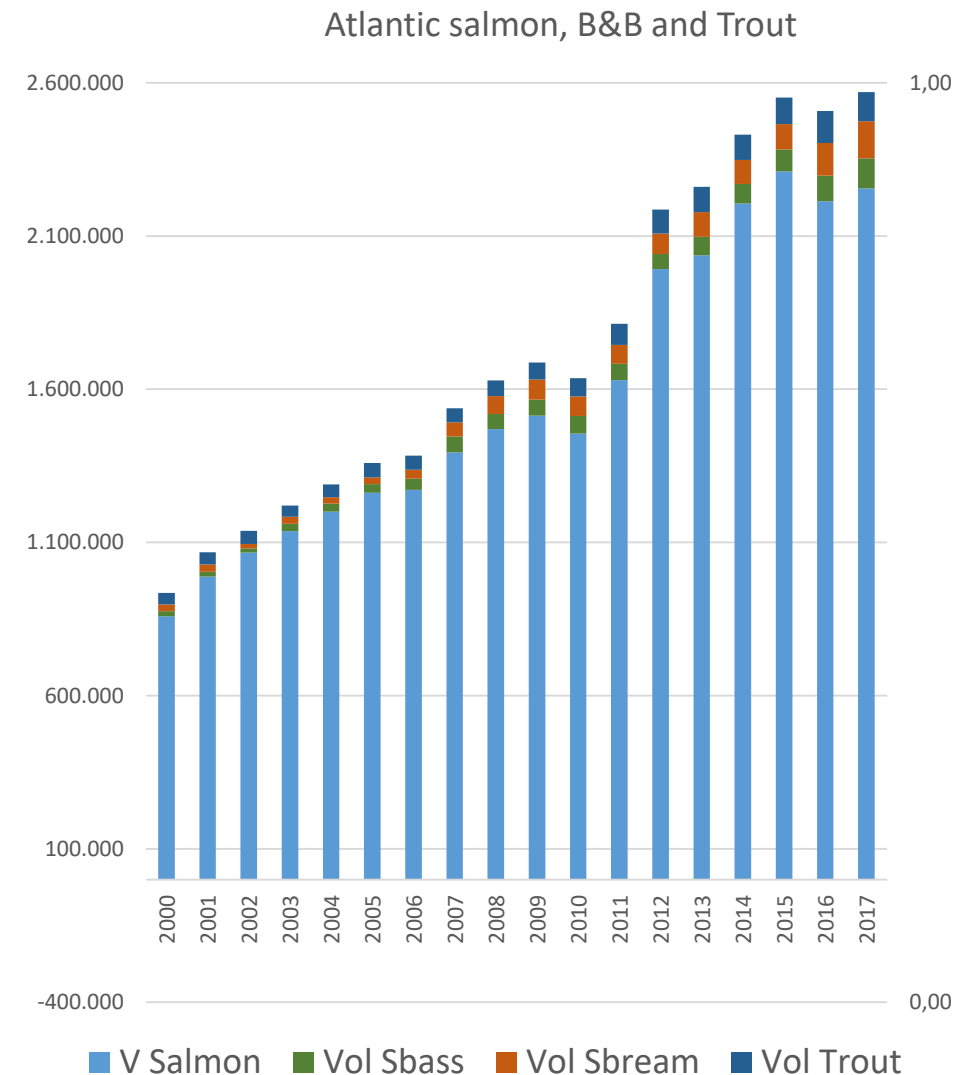
Possibly some relevant aspects
from the Salmon sector?

Salmon for comparison

The Atlantic salmon sector is global – both with respect to production and markets, and with a significant larger volume.

However, the growth of the sector is limited due to e.g. biomass restrictions in Norway.

Atlantic salmon has increased its volume 2.6 times since 2000, while trout export volumes has increased with about 2.5 times and B&B export volumes with approx. 6 times, each. Thus the B&B sector is the fastest growing sector of the four.



Salmon is supported by massive marketing

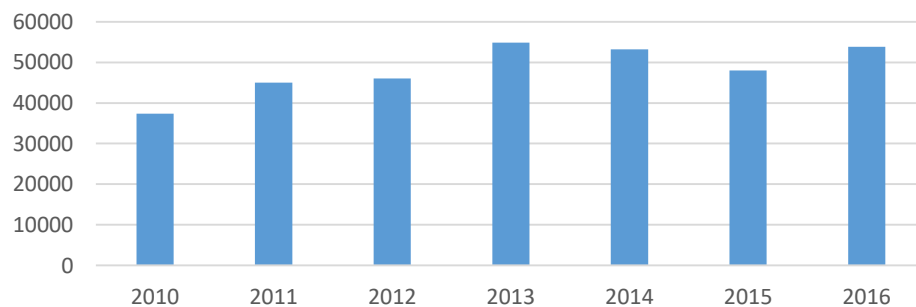
Norway produces about the half of the global Atlantic salmon.

Price has been increasing 70 %.

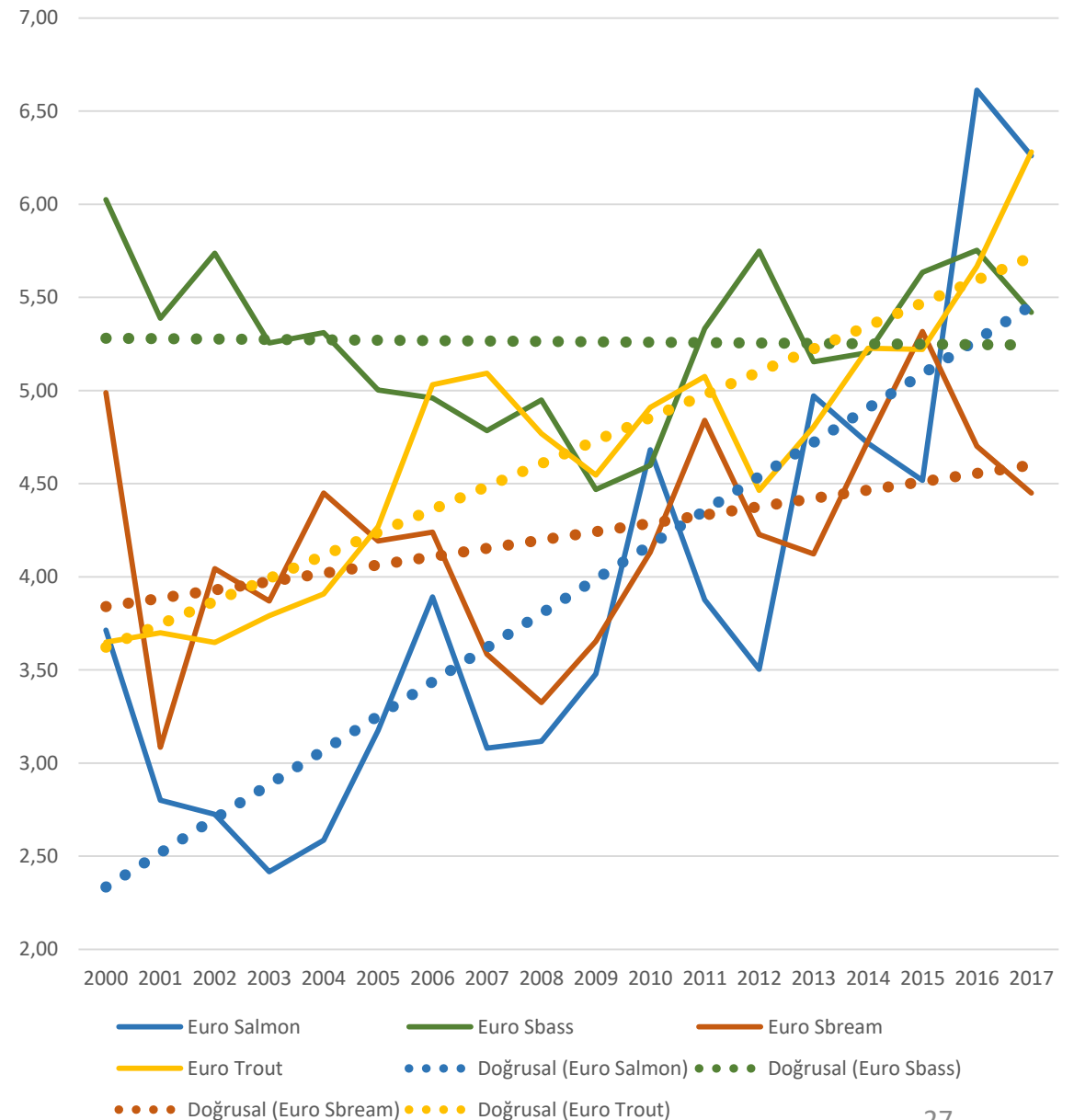
The Norwegian Seafood Council (NSC) is put in place to increase the value of ***all*** Norwegian seafood resources. It is financed through **fees levied on all exports of Norwegian seafood**.

NSC work through market insights, market development, market risk management and reputational risk management in selected markets around the world, and spent about 55 mill euro in 2016.

All operational investments (1000 euro)



Price comparison Salmon, B&B and Trout



Norwegian salmon sector - profitable since 2004

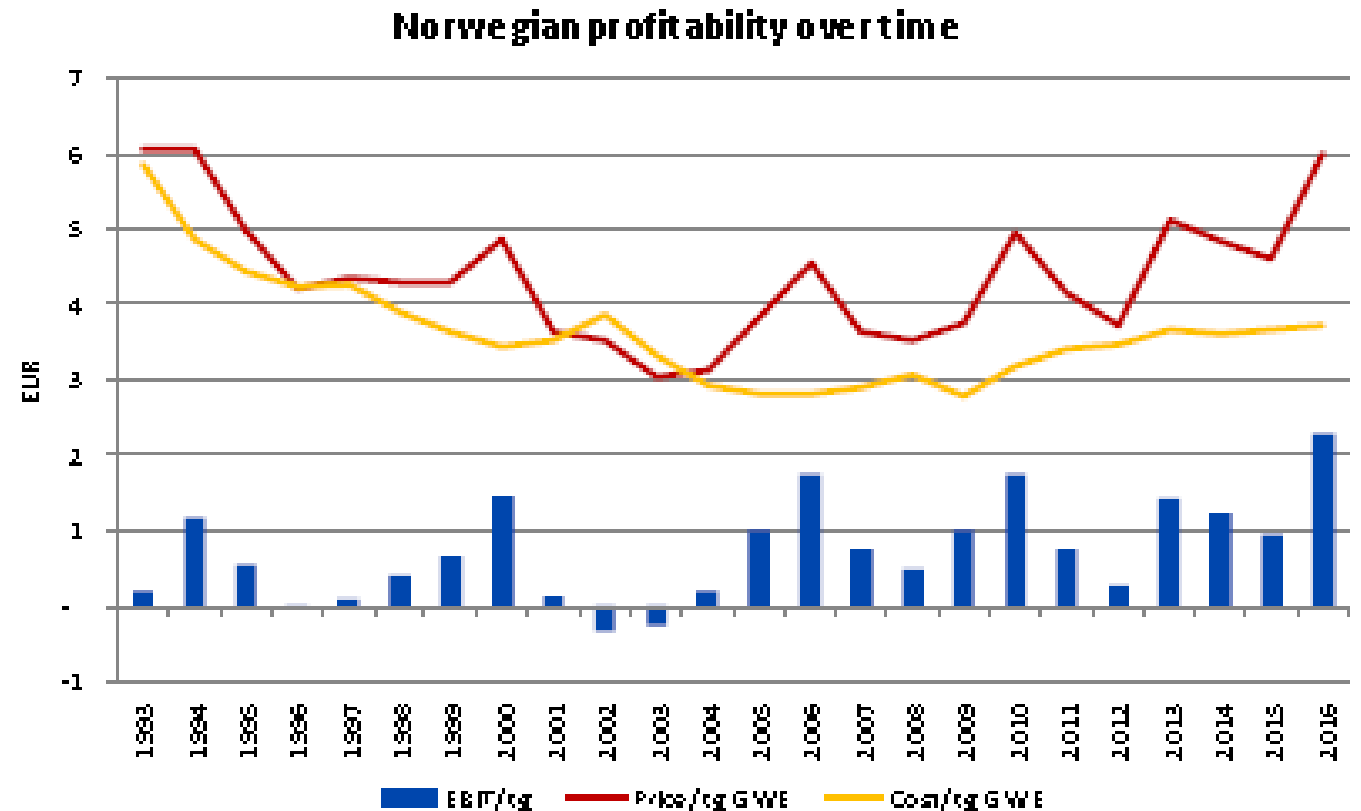
The Norwegian Salmon industry has managed to stay profitable since 2004, associated with:

- Improved price – rel. to cost

Related to

- Marketing investments
- Supply demand balance

We observe price cycles like «Boom and Bust» also for salmon with the difference from B&B that prices has not dropped below break-even (since 2004).



Sector efficiencies – B&B versus salmon and Pangasius (Vietnam)

Based on a studying accounting information from salmon, B&B and pangasius producers it is evident (despite the method being imprecise) that the European (EU countries only included) bass and bream sector stick out with a significant room for efficiency improvements.

Potential for improvement for B&B (EU)

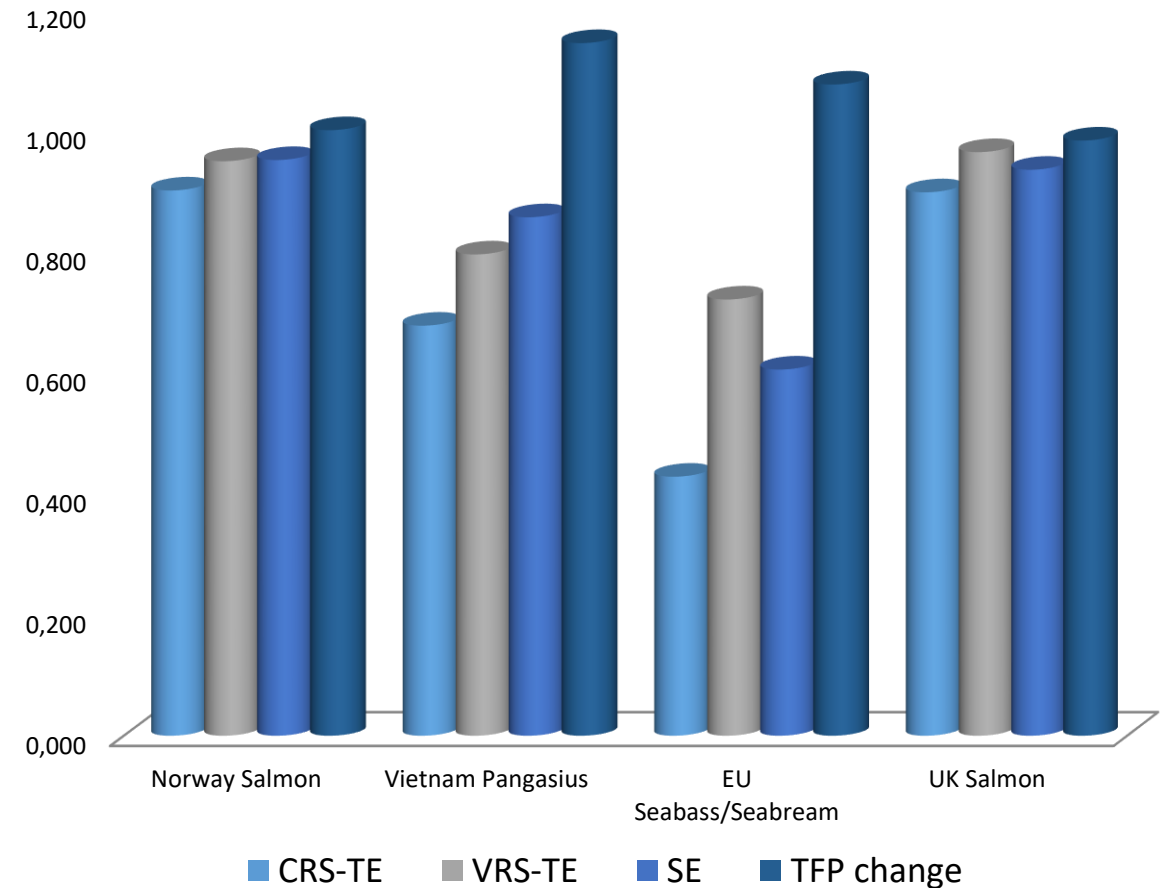
Fixed assets by 33 %

Current asset by approximately 36 %

Number of employees by 37 %

Non-current liability by 40 % and

Current liabilities by 32 %



Constant return to scale (CRS-TE)

Variable return to scale (VRS-TE)

SE – CRS/VRS, TFP– Total Factor Productivity (> 1 = productivity increase)

Industry consolidation - Salmon

Consolidation within the B&B sector is likely both positive and to some degree necessary. However, do not refer to Norway in this respect! Both Turkish and Greek B&B sectors are more consolidated than Norwegian salmon sector, where you need the production of 23 companies before having 80 % of the production.

E.g. the degree of innovation will likely be higher with more players.

