

DCF Workshop “On the implementation of activity thresholds for small-scale fisheries”

The Hague, The Netherlands 25 - 29 September 2017

Contents

Executive summary.....	3
Introduction.....	6
Background.....	6
Terms of Reference	6
Workshop process.....	7
Structure of the report.....	8
TOR 1. Provide an overview of the technique to adjust reporting thresholds that could be used to ensure comparability of the resulting economic data from different MS (FADN, PPP, etc) and define a number of possible thresholds for testing and TOR 2. Address the regional adjustment for member states.....	9
Recommendations	12
TOR 3. Test the effects of implementation of different levels of thresholds for the aggregated economic data for the Baltic and North Sea region.....	13
Outcome national cases	13
Bulgaria.....	13
Cyprus.....	13
Finland.....	14
Germany.....	14
Italy.....	14
Latvia.....	15
Lithuania.....	15
Poland.....	16
Portugal.....	16
The Netherlands.....	16
United Kingdom.....	17
Other considerations.....	20
The enterprise versus vessel issue	20
Sample survey data collection and implications in thresholds application	20
Confidentiality issues	21
Recommendations	21
TOR 4. Develop a time frame for implementation of further stratification on activity levels and reporting thresholds on a regional basis.....	22
Recommendations	22
Conclusions and recommendations	23

Literature	25
Annex 1. List of participants	26
Annex 2. Defining thresholds for activity levels of the EU fishing fleets	26
Annex 3. IMPLICATIONS OF USING THE GDP PPS / CAPITA	33
Annex 4. The MS Cases on the effects of stratification based on activity levels	35

Executive summary

Aim of the EU data collection framework is to gather basic data for impact assessment and economic performance of the EU fisheries sector. As the population is based on all the vessels in the fleet vessel registers there has been an ongoing discussion about the quality and meaning of the economic outcomes, because of the inclusion of vessels with low or no fishing activities in totals and averages. As from 2005 a distinction is made between vessels with fishing activities and inactive vessels, but it has been argued that a further specification of the active vessels into vessels with normal activity levels and low activity levels will improve both the meaning and the quality of the resulting estimates (PGECON, 2017).

In 2013 and 2014 two workshops (Virtanen et al 2013, Oostenbrugge et al, 2015) were held on the issue and these concluded that the distinction between vessels with low activity levels and normal activity levels could result in better quality, and other outcomes. However, in order to ensure consistency in outcomes, a system of thresholds was needed that would take into account national differences in economic circumstances. Because of this, PGECON concluded that a regional approach would be favourable and that a pilot should be carried out in order to develop a system of thresholds and test the consequences of the application of this system of thresholds to two regions (Baltic and North Sea)

The terms of reference and objectives for the workshop were:

1. Provide an overview of the technique to adjust reporting thresholds that could be used to ensure comparability of the resulting economic data from different MS (FADN, PPP, etc) and define a number of possible thresholds for testing.
2. Address the regional adjustment for member states.
3. Test the effects of implementation of different levels of thresholds for the aggregated economic data for the Baltic and North Sea region.
4. Develop a time frame for implementation of further stratification on activity levels and reporting thresholds on a regional basis.

In order to address the TOR the following activities were carried out:

1. The chair of the WG drafted a discussion paper on systems of Economic indicators/thresholds that are available on an EU bases (Annex 1). This paper described 4 different sets of economic indicators and thresholds that are used in other sectors/economic activities to define economic agents:
 - a. The system of VAT registration thresholds
 - b. The PP indicator system
 - c. The system of FADN- thresholds
 - d. The minimum wage rates

These systems are compared and their advances/disadvantages are discussed. This paper was circulated in advance of the WS and proposed two systems to be applied during the WS.

2. The chair of the WG developed formats for the analysis of the effects of application of the thresholds on detailed datasets of the MS-data on the economics of small-scale vessel. These automated analysis formats resulted in a set of standard graphs that could be used during the meeting for discussions and reporting of the results for the WG.
3. The WG members decided on the fleet segments to include in the analysis. Because the issue of low activity vessels mainly concerns the small scale fleet, fleet segments from this part of

the fleet were selected. For these segments the members of the WG prepared and brought along their detailed data in a predefined format to allow for an automated analysis of the data.

4. During the WS the following activities were carried out:
 - a. Sixteen experts from thirteen countries attended the meeting and analysed their data.
 - b. On the first day the group discussed the draft paper on possible threshold systems and selected two systems of thresholds to test during the meeting.
 - c. During the next days, the effects of the thresholds were tested in a total of 40 case studies covering both the North Sea (DK, GE, NL, UK) Baltic (DK, FIN, GE, LT, LV, PL), but also from the South Western waters (PT), the Mediterranean (CY, IT) and the Black Sea (BU, RO). Here, the results of the application of the two thresholds to the national data. Besides countries from the Baltic and North Sea region, also participants from other regions joined the meeting and analysed their data. Therefore the test cases covered all EU fishing regions. Unfortunately, due to flaws in the automated analysis tools, the analysis of the data took most of the week, so that the regional analysis could not be carried out.
 - d. On Thursday the results of the National analysis were presented and the advantages and disadvantages of the two threshold systems were discussed.
 - e. The planned discussion on possible ways forward (TOR 4) was not completed and postponed to the PGECOM meeting in 2018.

Based on the discussions on the four TOR the working group drew the following conclusions and recommendations:

- In principle the application of reporting thresholds to distinguish between vessels with low levels of activity and vessels with regular activities can lead to:
 - Separation of large numbers of vessels with low levels of activity and income from vessels with normal levels of activity
 - Increasing statistical accuracy of the economic properties of the active vessels, because of more homogeneous segments of vessels above the threshold
 - More informative data about the economics of small scale commercial fishermen.
- The working group reiterates that the application of a threshold system could be problematic in case no census information on value of landings is unavailable and is only to be implemented on a voluntary basis and to be decided on by region.
- From the current analysis it seems that the preferred parameter to be used as reporting threshold is the minimum wage. This parameter is available for most member states and provides a results in a distinction of the SSF in which the vessels with low activity levels are separated from the vessels with high activity levels that are operating for profit. When applying the GDP PPP most vessels in SSF are below the GDP threshold, even those who are operating for profit.

- The tests of the thresholds in 40 case studies from 5 EU fishing regions show that:
 - The numerous vessels below the threshold add relatively little to the overall totals
 - The cost structure and profits vary between vessels with low activities and vessels with normal activities in a number of case studies, but the differences are not consistent for all of them.
 - In many of the case studies the quality of the estimates are not affected by the application of the threshold, because either, the economic information is collected by census, or the level of activity is taken into account in the estimation procedures. For other cases the quality increases substantially (e.g. GE), but there are also cases in which the variability in activity level is high in the group of vessels above the threshold (e.g. UK)

- The working group also identifies some issues and recommends that that these need to be addressed before implementation of such a threshold: (1) confidentiality issues in small segments, (2) inexistence of minimal wages for some countries and (3) issues regarding the comparability of value of landings per vessel and income indicators per person.

- Referring to point three in the bullet above, the threshold system could potentially be enhanced by taking into account the number of fishermen in the fisheries under application. However also other considerations might cause problems in the application of a threshold, mentioned in other considerations

- The working group stresses that regional comparability is crucial for the success of using a set of thresholds. Therefore, the planned regional analysis should preferably still be carried out.

- The working group notices that not all TOR were discussed during the meeting. This was mainly due to inefficiencies in the data analysis during the meeting caused by flaws in the data analysis tools. The working group notices that using Excel automatized analysis tools prepared before the meeting are an easy and strait forward means for simple analysis. However, for analyses such as the ones planned during the meeting other computer programmes such as R or SPSS provide much stronger analytical tools, which are less susceptible to error. As the knowledge about these programmes is not common, and experts are reluctant to share detailed economic information for analyses, Excel seems the only common available tool. This limits the analysis capacity during a workshop of this scale.

- The working group notices that the preparation of the meeting was laborious, preparing both the discussion paper on thresholds and the analysis tools. This job was more than could be expected of a chair and better coordination of, and more resources for the preparations would have been beneficial to the outcome of the meeting.

Introduction

Background

Aim of the EU data collection framework is to gather basic data for impact assessment and economic performance of the EU fisheries sector. As the population is based on all the vessels in the fleet registers there has been an ongoing discussion about the quality and meaning of the economic outcomes, because of the inclusion of vessels with low or no fishing activities in totals and averages. As from 2005 a distinction is made between vessels with fishing activities and inactive vessels, but it has been argued that a further specification of the active vessels into vessels with normal activity levels and low activity levels will improve both the meaning and the quality of the resulting estimates (PGECON, 2017).

Dividing a fleet segment to two groups using threshold has two reasoning. In case of concentration of the production that is in itself and interesting feature of the sector. And furthermore in general the economic performance is different between the biggest units and the smaller ones.

In most of the EU countries the production in small-scale fisheries is highly concentrated with long tail of low active vessels with marginal production (Virtanen, 2013).

In case of really limited annual value of landings it may be questioned if the fishing activity can be even considered a commercial activity. In general statistics there is a clear criteria when enterprises are classified economic active that data collection regulation do not consider. And in any case including all these vessels dilute the small-scale fleet segment economic performance even when the fleet economic performance is not homogenous. With high concentration it is important to know the economic performance of the most active part of the the fleet. This is essential for analysis of fleet in general and particularly in advanced analysis such as bio-economic analysis.

Moreover, it is apparent that currently definitions used by Member states to define the vessels included in their fishing vessel register (and therefore comprising the populations of commercial fishing vessels) are not comparable and that various countries use ad hoc solutions to separate out the vessels with low activity levels when reporting the economic data. By using a reporting threshold, these inconsistencies will disappear and the comparability among the outcomes of countries fisheries data will become more comparable. Moreover, data from all vessels in the Fleet Vessel Register will be taken into account in the economic data collection and this distinction is by no means meant to be used as a filtering mechanism but as a reporting tool.

In 2013 and 2014 two workshops (Virtanen et al 2013, Oostenbrugge et al, 2015) were held on the issue and these concluded that the distinction between vessels with low activity levels and normal activity levels could result in better quality, and other outcomes. However, in order to ensure consistency in outcomes, a system of thresholds was needed that would take into account national differences in economic circumstances. It was also concluded that an EU-wide implementation of reporting thresholds would have many practical complications and was not desirable. Because of this, PGECON concluded that a regional approach would be favourable and that a pilot should be carried out in order to develop a system of thresholds and test the consequences of the application of this system of thresholds to two regions (Baltic and North Sea)

Terms of Reference

The recommendation of PGECON (2015) was elaborated in the TOR for a PGECON workshop which was held in The Hague in September 2017.

The terms of reference and objectives for the workshop were:

1. Provide an overview of the technique to adjust reporting thresholds that could be used to ensure comparability of the resulting economic data from different MS (FADN, PPP, etc) and define a number of possible thresholds for testing.
2. Address the regional adjustment for member states.
3. Test the effects of implementation of different levels of thresholds for the aggregated economic data for the Baltic and North Sea region.
4. Develop a time frame for implementation of further stratification on activity levels and reporting thresholds on a regional basis.

Workshop process

In order to address the TOR the following activities were carried out:

1. The chair of the WG drafted a discussion paper on systems of Economic indicators/thresholds that are available on an EU bases (Annex 1). This paper described 4 different sets of economic indicators and thresholds that are used in other sectors/economic activities to define economic agents:
 - a. The system of VAT registration thresholds
 - b. The PP indicator system
 - c. The system of FADN- thresholds
 - d. The minimum wage rates

These systems are compared and their advances/disadvantages are discussed. This paper was circulated in advance of the WS and proposed two systems to be applied during the WS.

2. The chair of the WG developed formats for the analysis of the effects of application of the thresholds on detailed datasets of the MS-data on the economics of small-scale vessel. These automated analysis formats resulted in a set of standard graphs that could be used during the meeting for discussions and reporting of the results for the WG.
3. The WG members decided on the fleet segments to include in the analysis. Because the issue of low activity vessels mainly concerns the small scale fleet, fleet segments from this part of the fleet were selected. For these segments the members of the WG prepared and brought along their detailed data in a predefined format to allow for an automated analysis of the data.
4. During the WS the following activities were carried out:
 - a. On the first day the group discussed the draft paper on possible threshold systems and selected two systems of thresholds to test during the meeting.
 - b. During the next days, the effects of the thresholds were tested using the national data. Besides countries from the Baltic and North Sea region, also participants from other regions joined the meeting and analysed their data. Therefore the test cases finally covered all EU fishing regions. Unfortunately, due to flaws in the automated analysis tools, the analysis of the data took most of the week, so that the regional analysis could not be carried out.
 - c. On Thursday the results of the National analysis were presented and the advantages and disadvantages of the two threshold systems were discussed.

- d. The planned discussion on possible ways forward (TOR 4) was not held and postponed to the PGECON meeting in 2018.

Structure of the report

The report follows the order of the TOR of the meeting. However there as a few changes applied:

- As all of the threshold systems under analysis include regional adjustments for the thresholds based on National economic conditions it was not necessary to specifically address TOR 2 (Address the regional adjustment for member states). Therefore this TOR was discussed in combination with TOR 1.
- As stated before, TOR 4 was not discussed at the meeting, but postponed to a later stage.
- After the chapters on the TOR a general chapter including lessons learned is presented. This includes conclusions and recommendations on both the content of the analysis and the process of organisation of the WS.

TOR 1. Provide an overview of the technique to adjust reporting thresholds that could be used to ensure comparability of the resulting economic data from different MS (FADN, PPP, etc) and define a number of possible thresholds for testing and TOR 2. Address the regional adjustment for member states.

Based on the discussion paper (see annex 2) and the TOR for this workshop the group started by discussing the four different sets of economic indicators and thresholds that are used in other sectors/economic activities to define economic agents:

- e. The system of VAT registration thresholds
- f. The PP indicator system
- g. The system of FADN- thresholds
- h. The minimum wage rates

The discussion started with recapturing some conclusions from previous workshops about requirements from thresholds (Virtanen et al 2013, Oostenbrugge et al, 2015):

- The threshold should distinguish between vessels operated by “economic agents”, following the principle of profit maximisation and being a relevant source of income, and vessels which are not a relevant source of income and are not predominantly operated for profit maximisation.
- The threshold should be based on income (value of landings per vessel) (not effort or volume)
- The threshold should differ between MS taking into account differences in standard of living, ppp, and nature of fisheries
- The threshold should be a ‘fixed value’ per country per year (as opposed to a statistical threshold that establishes a rule rather than a fixed value)

In the discussion paper an overview of advantages and disadvantages of each of these thresholds had already been prepared. These were presented and discussed on the first day of the workshop. The group agreed on the advantages and disadvantages as summarized in the table

Table 1. Pros and cons of the four thresholds

Threshold	Advantages	Disadvantages
VAT registration threshold	Credible threshold for commercial activities based on MS judgement as reflected in national law	Negative correlation (if any) with standard of living Differences in VAT registration thresholds may partly reflect political differences rather than differences in standards of living
GDP PPS per capita	Reflects by definition differences in standard of living	Income below average standard of living is not necessarily irrelevant GDP per capita is influenced by demographic factors
FADN thresholds	Consistency with agriculture statistics	Poor (positive) correlation with standards of living (GDP PPS)

	Positive (but poor) correlation with standards of living (GDP PPS)	Different cost structures in fisheries and agriculture may be a reason to deviate from FADN Differences in FADN thresholds are partly based on differences in farm structure between MS. This would not be applicable to fisheries.
Minimum wage	Positive correlation with standards of living (GDP PPS) Credible threshold: activities generating less than minimum income are not commercially relevant For MS that have not legally defined a minimum wage a percentage of average wage can be used, based on the average percentage in MS with minimum wage (42% in 2016)	Comparing wage level with value of landings where costs still have to be subtracted. This can be solved by adjusting the values for every MS by multiplying them with the ((historic) average ratio between Revenues and GVA in small scale fisheries. Not every MS has a legally defined minimum wage. Differences in minimum wages between countries may partly reflect political differences rather than differences in standard of living. Differences in minimum wage may partly reflect differences in price levels between MS. To remove these differences minimum wage levels can also be expressed in PPS.

The group concluded that

- VAT registration thresholds cannot be used as thresholds for all Member States as the different values in the Member States do not reflect differences in standards of living.
- Existing values for FADN thresholds cannot be used because the correlation with differences in standard of living is very weak and the differences between MS have partly been based on differences in typical farm structure in different Member States. However, it was also recognised that it could be an option to use a similar approach to FADN for developing thresholds per MS if other options would not lead to satisfactory results.
- GDP PPS per capita and minimum wage could be useful as basis for a threshold. The effect of using GDP PPS per capita and minimum wage levels as thresholds for reporting should be explored further during this workshop by analysing the effects of these thresholds on the structure of reported data per MS (for results see below)

Table 1. Values for the two types of optional thresholds to be tested by MS during the meeting

			Relative GDP PPS* (EU 28=100)	Minimum wage** per year (€)
Country	Country	Region	2016	2015
Austria	AT	Inland	36,540	
Belgium	BE	North Sea	34,220	18,022
Bulgaria	BG	Black Sea	13,920	2,209
Croatia	HR	Mediterranean	17,110	4,747
Cyprus	CY	Mediterranean	23,490	
Czech Republic	CZ	Inland	25,520	3,981
Denmark	DK	North Sea	36,250	
Estonia	EE	Baltic	21,460	4,680
Finland	FI	Baltic	31,610	
France	FR	Atlantic	30,450	17,490
Germany	DE	North Sea	35,670	17,280
Greece	EL	Mediterranean	19,430	8,205
Hungary	HU	Inland	19,430	3,993
Ireland	IE	Atlantic	51,330	17,542
Italy	IT	Mediterranean	27,840	
Latvia	LV	Baltic	18,850	4,320
Lithuania	LT	Baltic	21,750	3,600
Luxembourg	LU	Inland	77,430	23,076
Malta	MT	Mediterranean	27,550	8,646
Netherlands	NL	North Sea	37,120	18,022
Poland	PL	Baltic	20,010	4,914
Portugal	PT	Atlantic	22,330	7,070
Romania	RO	Black Sea	17,110	2,610
Slovakia	SK	Inland	22,330	4,560
Slovenia	SI	Mediterranean	24,070	9,489
Spain	ES	Atlantic	26,680	9,080
Sweden	SE	Baltic	35,960	
United Kingdom	UK	North Sea	31,320	16,546

*Eurostat GDP per capita in PPS, Data from 1st June 2017

** Source: Eurostat

As stated in the table it was discussed that even though GDP ppp and minimum wage could be used as systems to provide relative levels for the thresholds, both indications do not directly compare to value of landings. This has two main reasons:

- To get from value of landings to income costs have to be subtracted
- Both indicators are levels per person, whereas the value of landings is per vessel.

Appendix 3 provides a more detailed analysis of the relations between GDP PPP and income of landings.

In the group discussed that in order to solve this incomparability between the thresholds and the value of landings additional corrections could be applied such as the average number of fishermen on board the vessels, or the average proportion of GVA in the landings value. However the group noticed that this information would only be available from historic data on the level of the fleet segment. Therefore, these additional corrections would not lead to a perfect decision on the level of activity of the individual vessel. During the meeting these kind of adjustments were not applied in the analyses carried out and the group agreed that these corrections should be elaborated further before it was decided to implement a reporting threshold.

Recommendations

Elaborate on and test the usefulness of possible corrections to adjust national thresholds to become comparable to the value of landings.

TOR 3. Test the effects of implementation of different levels of thresholds for the aggregated economic data for the Baltic and North Sea region.

Sixteen experts from thirteen countries attended the meeting and analysed their data. Because of initial flaws in the automated data format, the data analysis took more time than planned, but ultimately, this resulted in a total of 40 case studies covering both the North Sea (DK, GE, NL, UK) and Baltic (DK, FIN, GE, LT, LV, PL), but also from the South Western waters (PT), the Mediterranean (CY, IT) and the Black Sea (BU, RO). Here, the results of the application of the two thresholds to the national data are summarised and conclusions are drawn on the applicability of each of the thresholds. The complete analysis per MS can be found in Annex 4.

Outcome national cases

Bulgaria

For the purpose of this case study all the transversal, economic and social data for the Bulgarian fleet was available. The data collection scheme for of group of variables is Census. The active fleet for 2015 was consisted of 1204 vessels, from them 894 were up to 12 meters, using passive gears only. For the first exercise the value of the Gross domestic product threshold applied was 13920€. There were no vessels above the threshold – all of the 894 vessels were under the threshold. For the second exercise the value of the minimum wage threshold applied was 2209€. Although the value of the second threshold is much lower than the value of the GDP threshold, only 13 from all the 894 vessels were above the threshold. These 13 vessels were distributed in 3 segments – 2 vessels in DFN 0006, 1 vessel in DFN 0612 and 10 vessels in FPO 06-12. Because of the small number of the vessels above the threshold in the DFN segments there will be a problem with confidentiality. The only segment with no problem with confidentiality was FPO 0612. From 39 vessels in it, 29 are below the threshold and 10 are above the threshold. The 10 vessels above the threshold generated 56% of the days at sea and 48% of the income for the segment.

Cyprus

The Small-Scale Fleet (vessels under 12m using passive gears) is by far the most significant segment of the Cyprus fleet since it represents the 95% of the total fleet in 2016 in terms of number of vessels and thus, employment.

Cyprus Fisheries Law¹ provides for a limited number of licenses for this segment annually and divides it into three (3) subcategories: vessels with fishing license Category A' (Full time fishing), vessels with fishing license Category B' (Part time fishing) and vessels with fishing license Category C' (Occasional fishing). According to the national legislation the Categories A'&B' licences (PG 0006 & PG 0612) should satisfy a minimum number of days (120) and a minimum catch per annum (1000Kg) in order to renew their fishing licenses. On the other hand, the professional fishing license category C' was introduced by a new national law and based on this law their fishing activity is performed on a periodic basis since they are allowed to fish only a total of 70 days each year. Consequently, their income from fisheries activities is too low. Thus, the category C' licences are sampled and reported in a different category (PGO 0006 & PGO 0612) than the Category A'&B' licences (PG 0006 & PG 0612).

Data available: The most important small-scale fleet segment is the *Polyvalent 'passive' gears with length 6-12m* (Category A'&B' licences). For this workshop this length group category (PG 0612) was evaluated. Despite the fact that the total population consists of 361 active vessels the available data

¹ Basic Fisheries Law Cap. 135 and subsequent amendments of 1961 to 2007, Fisheries Regulations of 1990 to 2012 based on Article 6 of the Basic Law

set is the sample which includes 111 vessels. It is noted that the length category PG 0006 is a small fleet segment with only 32 vessels.

Thresholds applied: The minimum wage of 11088 Euros. If applying the GDP threshold (23490 Euros) based on the available sample there is only one vessel above the threshold and thus, this threshold cannot be used since confidentiality issues arise and also it doesn't provide any further information for reporting purposes if this threshold is used.

Results

Applying any threshold in Cyprus case doesn't provide any further value to reporting. As explained above the GDP threshold cannot be used because the value of landings per fisherman is below the threshold nearly for all the small-scale fishermen and thus applying the threshold will result in no reporting. Also confidentiality issues arise.

Cyprus as a result of the different categories of fishing licences it already distinguishes, both for sampling and reporting purposes, between the categories A'&B' and category C' based on effort and as a consequence value of landings, meaning that there is already a distinction between low activity vessels that go mostly for leisure (PGO 0006 & PGO 0612) and normal activity vessels (PG 0006 & PG 0612).

Finland

To be added later

Germany

Three thresholds were applied to German data to illustrate the effect on some performance indicators. In addition to the GDP-related value (35.670€) and the minimum wage (17.280€) a 5.000€ was used. The GDP-related threshold left only very few vessels exceeding that value. Even with the 5.000€ threshold the majority of vessels <10m are below that value whereas most vessels >10 have a value of landings above that threshold.

In every case the GVA indicated distinct differences between vessels below and above the threshold. A considerable improvement on the quality of data for vessel groups above the threshold could be observed, regardless of the absolute threshold and the variable. The coefficient of variation after applying a threshold was in the range of 50-80% of the CV without applying a threshold. The highest decrease was achieved when applying the highest threshold. However, as mentioned before, the highest threshold resulted in a number of vessels above threshold which appeared unreasonably low. Overall, a value-of-landings-threshold applied on data from German small scale vessels results in an increase of data quality for the economically active part and thus appears beneficial.

A side aspect of the application of a threshold is the issue of EU management measures. Those are usually addressed to the economic performance, which appears relevant mainly for economically active vessels. German legislation applies certain criteria for eligibility of EMFF funding. Amongst those are minimum profits and a minimum contribution rate to the household total income. The required minimum profit is currently set at 10.000€. As costs are to be deducted from the revenues, this profit value corresponds to a higher value of landings, depending on the cost structure, but surely above the minimum wage figure (17.280€).

Italy

In Italy landings data are collected by means of a stratified sample survey, where the sample is randomly selected within each segment and the strata are based on technical (gear utilised), dimensional (length overall) and geographical (region) characteristics of the vessels. The selection of the samples within each stratum is then done according to a probability proportional to size (PPS)

strategy (<http://dcf-italia.cnr.it>). Vessels of less than 10 metres' length overall are not obliged to keep a fishing logbook nor to complete a landing declaration.

Moreover, due to the characteristics of the small-scale fisheries, low-income and/or low-activity vessels characterize Italian fisheries, and are thus considered to be an important component of the sector that cannot be excluded – or kept separate - from any socio-economic analysis

For the above described circumstances, the application of a cut-off/reporting threshold based on income is considered wholly inappropriate in a policy context that aims to better understand and support small-scale fisheries, like the Italian one.

Latvia

The coastal segment VL0010 was taken for the analysis. The census data for 2015 are available for the Sea Days, Fish Days, Weight of Landing and Value of Landing. The data are collected by vessel logbooks and sale notes.

The data for the income and costs are collected in aggregated format for the fleet segments and not available for each individual vessel. Due to that reason the detailed analysis for the FTE, Income and GVA cannot be made.

The two thresholds were applied GDP and Minimum wage per year. The data on the 1st of June 2017 presented for the GDP threshold is 18,850 euro and for the minimum wage 4,320 euro.

The average number of the days at sea for the 185 vessels was 58 days.

The results when the Minimum Wage threshold is applied show that the 142 vessels are below threshold and 43 above threshold. The 142 vessels below threshold spent 49 days at sea during 2015 in comparison with 43 vessels above threshold which spent 85 days at sea during same time period.

The share of the sea days for the vessels below threshold is 48% from the total sea days.

In case when the GDP threshold is applied most of the vessels in the segment are below the threshold (169 vessels) and only 16 vessels are above threshold. The vessels below threshold has a lower activity and spent 53 days at sea during 2015 in comparison with 16 vessels above threshold which during same time period spent in average 104 days at sea. Despite on the longer trips for 16 vessels above threshold, the 169 vessels below threshold contribute 84% to the total sea days.

In the both cases, the thresholds application in 2015 does not influence into the data confidentiality. Only fishing effort was used in the calculation for the thresholds application. Due to the economic data collection approach which is based on the format aggregated per fleet segments and impossibility of obtaining the individual data per each vessel the application of the thresholds and its use for the economic analysis in case of Latvia could not be evaluated. The conclusions could be made only when some of the detailed economic parameters will be included in the calculation.

Lithuania

Lithuanian fleet data collection scheme is based on census survey for all fleet segments and all economic and transversal variables. However, transversal data are available at the vessel level, whereas economic data are collected under enterprise level and data of all vessels of particular company is covered by one questionnaire. In such case disaggregation procedure was used to allocate economic variables to each vessel accordingly to value of landings. Application of activity level was tested comparing two thresholds: GDP expressed in PPS (21750 Euro) and Minimum wage per year (3600 Euro). Small scale fleet in Lithuania consists from two segments, PG0010 and DFN1012. Number of vessels in segment DFN1012 was not sufficient to be used for threshold analysis due to confidentiality problems in cases of both thresholds. Another confidentiality issue occurred after application on GDP threshold to PG0010 segment, which separated population to the unsafe confidential level. Therefore application of thresholds was possible only for the PG0010 segment and using only Minimum wage level. Application of minimum wage threshold divided population in 44% of vessels above threshold and 56% below. Average FTE per vessel above the threshold increased to 0,8 FTE, leaving 0,3 FTE per vessel below threshold, compare to 0,5 FTE for total population. Higher labour intensity was correlated with economic activity of the vessels above

threshold. For example average annual income per enterprise above threshold was 11,9 thousand Euro compare to 2,5 thousand Euro below. Activity levels had a significant impact in terms of average profitability, expressed in GVA and Net profit. After separation of activities, average net profit per vessel above threshold was 3828 Euro, compare to 23 Euro loss below it. Using Minimum wage threshold population above this level represented all profit generated by segment. Return on fixed tangible assets (ROFTA) above the threshold reached 180% whereas below threshold it was -27%.

Poland

In Poland's case two small fleet Baltic Sea segments were taken into account: PG0010 and PG1012, but due to confidentiality issues only PG0010 were analysed. Two thresholds were applied GDP (20010 euro) and minimal wage (4919 euro). 80% vessels were below the first threshold and 35% considering second threshold. Effects on average values were as expected, sea days, income, GVA and net profit were better than without thresholds. After applying thresholds segments are more homogenous.

Portugal

Portugal tested the application of the 2 proposed thresholds, "Minimum Wage per year" set as 7.070€ for PRT and "Relative GDP PPS (EU28=100)" set as 22.330€ (source: Eurostat).

The test was performed to the mainland passive SSF fleet, in a total of 2.476 vessels.

With the application of the GDP value more than 70% of the vessels stays below the threshold: PGP0010 – 72%; DFN0010 – 79%; HOK0010 – 84%). With this threshold, confidentiality issues are raised in 2 fleet segments, mostly because the few number of vessels (PGP1012 and DFN1012).

In general, the average income increases when a threshold is applied, because vessels with low contribution for the income were separated. Once more, the threshold minimum wages have better results in the way that the income of the vessels above the threshold are not so different from the segment averages without threshold.

Concerning GVA and net profit, the minimum wage returns the vessels with low or negative GVA below the threshold. As expected, above the threshold the values are slightly higher, showing that only the vessels with low activity and low FTE, with almost none contribution to the average income and with negative or close to zero GVA and negative profit are the only ones being torn apart to stay below the threshold.

In conclusion although the present exercise indicates that an application of a threshold close to annual minimum wage could get more reliable estimates in fleet segments, is important to stay in view how it can be implemented. In case of Portugal, 3 regions have SSF with different pattern of activity, gears in use or target assemblages from where derive different social economic performance. Some more tests, with the whole fleet are needed to evaluate is a common threshold is possible to be applied to the 3 regions. Main concern is about the application of not equivalent threshold between MS placing in risk the comparability.

The Netherlands

In the case of The Netherlands two small fleet segments were taken into account: PG0010 and PG1012. Two thresholds were applied GDP (37120 euro) and minimal wage (18022 euro). Most of the vessels revenues were below the two thresholds; respectively 92% and 80% vessels were below the first threshold and 83% and 55% below the second threshold. As a small number of vessels were above the GDP PPP threshold this resulted in a confidentiality issue for the segment PG1012. After

applying thresholds segments are more homogenous, but the uncertainty of the estimates of the total segment increased as the sampling rate in the vessels above the threshold was relatively low.

United Kingdom

Abstract of results to be included

Table 2: Overview of segments that were analysed during the workshop and some results of the analysis.

Country	Segments	GDP			Minimal wage			Other			CV
		No vessels	Value	% vessels below	conf issues	Value	% vessels below	conf issues	Value	% vessels below	
Bugaria	DFN0006		13920	all	no	2209	>95%	yes			
	DFN0612			all	no		>95%	yes			
	FPO0612			all	no		75%	no			
Cyprus	PG0612	361	23490	99%	yes	11088	?				
	PG0006	32		100							
Danmark*	DTS0010	11	36250		yes				20000		yes
	PGP00101	775		88%					80%		
	PMP0010	117		80%					73%		
	DRB1012	15		6-30%	yes				6-30%		yes
	DTS1012	11			yes						yes
	PGP1012	48									sometim es
	PMP1012	33			somtime s (4 years)						yes
Finland*	VL0012	1172	31610	95%	no				10000	78%	no
Germany	PG0010	743	35670	97%	no	17280	87%	no	5000	66%	no
	PG1012	64		67%	no		42%	no		20%	no
Italy*	PG0006	190	27840	90%	no				10000	25%	no
	PG0612	500		60%	no					20%	no
Latvia	PG0010	185	18850	>90%	no	4320	75%	no			
Lithuania	PG0010	55	21750	96%	yes	3600	56%	no			

	DFN1012	7			yes			yes
Poland	PG0010	244	20010	80%	no	4919	35%	no
	PG1012	44		11%	yes		2%	yes
Portugal	PGP00101	1840	22330	72%	no	7070	26%	no
	PGP1012	11		36%	yes		9%	yes
	DFN0010	232		79%	no		41%	no
	DFN1012	22		5%	yes		0%	no
	FPO0010	161		43%	no		16%	no
	FPO1012	54		0%	no		0%	no
	HOK0010	146		84%	no		26%	no
	HOK1012	10		0%	no		0%	no
The Netherlands	PG0010	223	37120	92%	no	18022	83%	no
	PG1012	29		69%	yes		55%	no
United Kingdom	MGP0010	30	31320	20%	yes	16546	18%	yes
	PGP0010	80		82%	no		75%	no
	FPO0010	200		63%	no		50%	no
	FPO1012	1700		15%	no		10%	no
	HOK0010	530		90%	no		80%	no
	HOK1012	15		40%	yes		30%	yes
	DFN0010	600		80%	no		70%	no
	DFN1012	15		15%	yes		10%	yes

*: Denmark, Finland and Italy tested other reporting thresholds than the minimum wage as this parameter is not used in these countries. Denmark and Finland tested the threshold on VAT exemptions, Italy the average wage of the two segments in 2015. Germany tested the 5.000 Euro threshold in addition to the GDP PPS and the minimum wage.

From the presentations of the national case studies and the discussions afterwards the following conclusion were drawn:

- Segments tested were highly diverse covering most regions, fishing techniques and length classes of small scale fisheries. Moreover, cases included both segments with few vessels and segments with numerous vessels.
- Application of the GDP PPP as reporting threshold resulted in many case studies in the characterisation of all/most vessels as low activity vessels and had therefore little use for the distinction between the active and less active vessels in the segments.
- Application of the minimum wage resulted in a more even distribution between active and less active fishing vessels.
- However, some countries could not test the threshold minimum wage as these countries now minimum wage is available (e.g. Finland and Denmark).
- Application of both thresholds caused confidentiality issues in many smaller segments, because the number of vessels in either the segment of active vessels or low active vessels became too small.
- As expected, the active vessels in most segments contributed far more to the total value of landings, GVA, employment and profit than the less active vessels. In some cases there were considerable differences in cost structure and profitability between the two groups.
- The effect on the statistical quality of the outcomes varied among cases. In cases where economic data are collected on a census basis, the application of the thresholds did not have any effect, whereas, for other countries positive effects on the quality of the estimations were found (E.g. Germany) but also negative.

Other considerations

Besides the general conclusions from the national case studies some other considerations regarding the theoretic effects and implementation issues of reporting thresholds were discussed:

The enterprise versus vessel issue

In the small scale fleet it is not uncommon that a fisherman owns more than one small scale vessel. Often these vessels are suited for specific purposes. The value of landings can be assigned to separate vessels from the same owner. In this case the total value of landings of a fisherman can be above the threshold, even though the value of landings per separate vessel is below the threshold. In order to follow the basic idea of distinction between fishermen acting as economic agents versus fishermen acting more for leisure purposes it would be advisable to apply the threshold to the value of landings of the enterprise. However, this might increase the complexity of the approach. Both the feasibility of the approach and the relevance were not further discussed and analyzed during the workshop. It is advisable to follow up on these aspects in the future for further fine-tuning of the threshold approach.

Sample survey data collection and implications in thresholds application

Sample surveys are used when it is not possible or practical to conduct a census and collect information from every individual of the population on the transversal data.

In many countries, small scale vessels are not subjected to quota system but rather they are managed according to a set of input-control measures. Additionally, vessels of less than 10 metres' length overall in many countries are not obliged to keep a fishing logbook nor to complete a landing declaration and so landings data are collected for most of the cases through sample surveys. One of

the most common sample survey methods is the 'stratified sample survey', where the sample is randomly selected within each segment (or stratum). The construction of the segment is done prior the start of the survey and is based on a set of elements - mostly technical - of the vessel. These elements do not take into account any outputs generated by the vessel. Therefore, without logbooks or landing declarations the group of vessels 'below and above' the threshold would have to be separated post-factum with negative implications on the real representatives of the sample; on the statistical methodology; and on the overall quality of the estimates. This makes the application of any threshold based on the output of the activity, such as the revenue, barely compatible with sample-survey data collection systems.

Moreover, with no quota system in place, the production levels of the vessels are highly aleatory and cannot be forecasted in an accurate manner. In such a context, the low-income and/or low-activity vessels are an important component of the sector that cannot be separated when socio-economic analysis are carried out.

The above described circumstances characterize many of the Mediterranean small-scale fisheries and this mis-fit between sample based surveys combined with the strong representation of vessels with low-income and/or low activity make the application of a cut-off threshold inappropriate.

Confidentiality issues

Small scale fishery data is very sensitive. Vessels' economic data in segments is not homogeneous. Due to the UE regulations on confidentiality, no data that can be linked to individual people or vessel can be made public. If thresholds are applied, some vessels could be above or below thresholds and then they can be recognized. The levels of aggregation and confidentiality should ensure that the identities of individuals or vessels are not revealed.

Recommendations

The working group concludes that application of a reporting threshold can lead to a distinction between low activity and active vessels and help to better interpret the economic information from small scale vessel segments. From the two thresholds chosen the threshold based on minimum wage seem to perform better in separating of groups with various levels of activity within fleet segments in the small scale fisheries. The threshold based on GDP is in many cases too high to do so.

The working group identifies some issues and recommends that that these need to be addressed before implementation of such a threshold: (1) confidentiality issues in small segments, (2) inexistence of minimal wages for some countries and (3) issues regarding the comparability of value of landings per vessel and income indicators per person.

The working group stresses that regional comparability is crucial for the success of using a set of thresholds. Therefore, the planned regional analysis should preferably still be carried out.

The working group reiterates that the application of a threshold system could be problematic in case no census information on value of landings is unavailable and is only to be implemented on a voluntary basis and to be decided on by region.

TOR 4. Develop a time frame for implementation of further stratification on activity levels and reporting thresholds on a regional basis.

The practical implementation procedures for application of activity level threshold was addressed during workshop discussions and was considered also in the previous meetings regarding this topic. For example, two terms of reference in 2014 meeting were dedicated to investigate possible implementation procedures, especially in cases where insufficient auxiliary information for MS is available, as well as to develop advice on the issues concerning application of different thresholds and way forward. It was highlighted that the use of activity levels is suitable for reporting purposes only, and data collection should remain for total population. However sub-stratification of segments using threshold was also taken into consideration in order to achieve higher statistical precision, and to improve estimates in case different activity levels in one segment have different cost structure and are different in management.

Proposed options of thresholds for reporting may better distinguish commercial fleet from less active fleet and give an opportunity to analyze sub-segments with different perspective. Therefore, during implementation procedure, two distinct purposes should be available, application in sub-stratification for the further estimates and threshold for reporting and data analysis.

Taking into account results from previous meetings and in order to facilitate the process of selection of suitable activity levels, the pilot study was carried out, with aim to overview applicability of different threshold systems and assess the consequences of the application of this system to two regions (Baltic and North Sea). For this analysis 4 possible indicators have been taken into consideration, and after discussions two of them were tested with MS data.

Before implementation steps, selected thresholds were tested with individual MS data to check confidentiality, effect of implication in terms of distribution of capacity, effort, employment, income and profitability indicators at MS and regional levels. Also, impact on quality of estimates and data variability was taken into account. Furthermore, if application of thresholds will be found feasible, implementation by MS should be optional.

The decision and suggestions, concerning practical implementation of thresholds, should be addressed and finalized during PGECON 2018, with coverage of representatives from JRC, DGMARE and other end users, as well as representatives from Each MS, responsible for implementation of EU MAP. To address this issue, Term of Reference for PGECON 2018 could be proposed as “Feasibility and practical implementation of activity thresholds in estimation procedures and reporting of SSF data”.

Recommendations

PGECON 2018 should discuss the results of this working group and propose a way forward, taking into account the recommendations of this group.

Conclusions and recommendations

Based on the discussions on the four TOR the working group drew the following conclusions and recommendations:

- In principle the application of reporting thresholds to distinguish between vessels with low levels of activity and vessels with regular activities can lead to:
 - Separation of large numbers of vessels with low levels of activity and income from vessels with normal levels of activity
 - Increasing statistical accuracy of the economic properties of the active vessels, because of more homogeneous segments of vessels above the threshold
 - More informative data about the economics of small scale commercial fishermen.
- The working group reiterates that the application of a threshold system could be problematic in case no census information on value of landings is unavailable and is only to be implemented on a voluntary basis and to be decided on by region.
- From the current analysis it seems that the preferred parameter to be used as reporting threshold is the minimum wage. This parameter is available for most member states and provides a results in a distinction of the SSF in which the vessels with low activity levels are separated from the vessels with high activity levels that are operating for profit. When applying the GDP PPP most vessels in SSF are below the GDP threshold, even those who are operating for profit.
- The tests of the thresholds in 40 case studies from 5 EU fishing regions show that:
 - The numerous vessels below the threshold add relatively little to the overall totals
 - The cost structure and profits vary between vessels with low activities and vessels with normal activities in a number of case studies, but the differences are not consistent for all of them.
 - In many of the case studies the quality of the estimates are not affected by the application of the threshold, because either, the economic information is collected by census, or the level of activity is taken into account in the estimation procedures. For other cases the quality increases substantially (e.g. GE), but there are also cases in which the variability in activity level is high in the group of vessels above the threshold (e.g. UK)
- The working group also identifies some issues and recommends that that these need to be addressed before implementation of such a threshold: (1) confidentiality issues in small segments, (2) inexistence of minimal wages for some countries and (3) issues regarding the comparability of value of landings per vessel and income indicators per person.
- Referring to point three in the bullet above, the threshold system could potentially be enhanced by taking into account the number of fishermen in the fisheries under application.

However also other considerations might cause problems in the application of a threshold, mentioned in other considerations

- The working group stresses that regional comparability is crucial for the success of using a set of thresholds. Therefore, the planned regional analysis should preferably still be carried out.
- The working group notices that not all TOR were discussed during the meeting. This was mainly due to inefficiencies in the data analysis during the meeting caused by flaws in the data analysis tools. The working group notices that using Excel automatized analysis tools prepared before the meeting are an easy and strait forward means for simple analysis. However, for analyses such as the ones planned during the meeting other computer programmes such as R or SPSS provide much stronger analytical tools, which are less susceptible to error. As the knowledge about these programmes is not common, and experts are reluctant to share detailed economic information for analyses, Excel seems the only common available tool. This limits the analysis capacity during a workshop of this scale.
- The working group notices that the preparation of the meeting was laborious, preparing both the discussion paper on thresholds and the analysis tools. This job was more than could be expected of a chair and better coordination of, and more resources for the preparations would have been beneficial to the outcome of the meeting.

Literature

PGECON 2015, 4th Planning Group on Economic Issues (PGECON), May 18 - 22, 2015, Arranged by the Thünen-Institute of Sea Fisheries at the Center for Technology and Society, Technical University of Berlin.

https://datacollection.jrc.ec.europa.eu/documents/10213/909557/PGECON_2015.pdf?version=1.2

PGECON 2017, Subgroup of Fisheries Data Collection Experts Group 6th Planning Group on Economic Issues – PGECON, 15-19 May 2017 Vilnius, Lithuania.

<https://datacollection.jrc.ec.europa.eu/documents/10213/1060339/PGECON+2017.pdf>

Virtanen Jarno, Sabatella Evelina, Berkenhagen Jörg and Pokki Heidi, 2013. DCF Workshop on statistical issues and thresholds. Helsinki, Finland 9.-13.12.2013.

<https://datacollection.jrc.ec.europa.eu/documents/10213/891473/DCF+Workshop+on+statistical+issues+and+thresholds.pdf>

Van Oostenbrugge 2015, DCF Workshop “Using fishing activity levels in economic data collection” The Hague, The Netherlands 13 - 17 October 2014.

<https://datacollection.jrc.ec.europa.eu/documents/10213/891473/DCF+Workshop+Activity+levels.pdf>

Annex 1. List of participants

Country	Name expert	Email
Bulgaria	Simona Nicheva	simona.nicheva@iara.government.bg
Cyprus	Myrto Ioannou	mioannou@dfmr.moa.gov.cy
Denmark	Kim Normark Andersen	kno@dst.dk
Finland	Joonas Valve	joonas.valve@luke.fi
	Jarno Virtanen	jarno.virtanen@luke.fi
Germany	Jörg Berkenhagen	joerg.berkenhagen@ti.bund.de
Italy	Dario Pinello	pinello@nisea.eu
Latvia	Irina Davidjuka	irina.davidjuka@bior.lv
Lithuania	Edvardas Kazlauskas	edvardas.kazlauskas@vic.lt
	Andrius Linauskas	andrius.linauskas@vic.lt
Poland	Malgorzata Kieliszewska	mkieliszewska@mir.gdynia.pl
Portugal	Susana Godinho	sgodinho@dgrm.mm.gov.pt
Romania	Gheorghe Alexandru	alexandru.gheorghe@anpa.ro
The Netherlands	Hans van Oostenbrugge	Hans.vanOostenbrugge@wur.nl
	Erik Buisman	Erk.Buisman@wur.nl
	Pavel Salz (Monday and Thursday)	psalz@framian.nl
UK	Arina Motova	arina.motova@seafish.co.uk

Annex 2. Defining thresholds for activity levels of the EU fishing fleets

Discussion paper for workshop on Implementation of thresholds
The Hague, The Netherlands 25 - 29 September 2017

Introduction

Aim of data collection is basic data for impact assessment and economic performance. As the population is based on all the vessels in the fleet registers there has been an ongoing discussion about the quality and meaning of the economic outcomes, because of the inclusion of vessels with low or no fishing activities in totals and averages. As from 2005 a distinction is made between vessels with fishing activities and inactive vessels, but it has been argued that a further specification of the active vessels values into vessels with normal activity levels and low activity levels will improve both the meaning and the quality of the resulting estimates. Data from all vessels in the Fleet Vessel Register will be taken into account in the economic data collection and this distinction is by no means meant to be used as a filtering mechanism but as a reporting tool.

In 2013 and 2014 two workshops (Virtanen et al 2013, Oostenbrugge et al, 2015) were held on the issue and these concluded that the distinction between vessels with low activity levels and normal activity levels could result in better quality, and other outcomes. However, in order to ensure consistency in outcomes, a system of thresholds was needed that would take into account national differences in economic circumstances. It was also concluded that an EU-wide implementation of reporting thresholds would have many practical complications and was not desirable. Because of this, PGECON concluded that a regional approach would be favourable and that a pilot should be carried out in order to develop a system of thresholds and test the consequences of the application of this system of thresholds to two regions (Baltic and North Sea).

In the 2014 workshop the effects of using 3 indicators for activity level were analysed and compared: landings volume, landings value and effort. It was concluded that landings value (income) was the most appropriate indicator to base a threshold for activity on.

The 2014 workshop also concluded that:

- The threshold should distinguish between vessels which are operated by “economic agents”, thus following the principle of profit maximisation and being a relevant source of income, and vessels which are not a relevant source of income and are not predominantly operated for profit maximisation.
- The distinction between low active vessels and high active vessels mainly applies to small scale fisheries. In large scale fisheries (>12 meters) a threshold may only identify vessels with abnormally low activity levels.
- It should be evaluated at national level whether the implementation of a reporting threshold leads to better quality estimates, taking into account methodological and data issues (e.g. low observation numbers), and results that better represent the two types of vessels. In fleets with high regional differences in standards of living, application of overall national thresholds for reporting might not be useful.
- There is not one solution to the most optimal application of thresholds to all Member States/fisheries, but the applicability of a threshold depends on the management context and the type of fishery. However, the group considers that in using a set of fixed thresholds, based on economic indicators used to describe the income of the firm (e.g. FADN, average total revenue per vessel) may provide a pragmatic solution to come to a consistent set of thresholds.
- After an in-depth discussion and considering the results of the analysis, the group recommends the ‘fixed threshold’ which consists of a given value per country per year (as opposed to a statistical threshold that establishes a rule rather than a fixed value)

This paper will describe 4 different sets of thresholds for landings value (income) that are used in other sectors/economic activities to define economic agents:

1. The system of VAT registration thresholds
2. The PP indicator system
3. The system of FADN- thresholds
4. The minimum wage rates

These systems will be compared and their advantages/disadvantages will be discussed. During the workshop the different thresholds will be discussed and 2 threshold systems will be selected and applied to the various national data, and regional analyses will be compiled.

Options for thresholds for activity levels

1. The system of VAT registration thresholds

In almost every MS an income level is defined below which an economic agent does not have to pay Value Added Tax. This value is in principle very relevant as it defines the level of income above which the MS considers someone to be an entrepreneur performing a commercial activity.

2. The PP indicator system: GDP per capita in PPS

Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. GDP can be expressed in purchasing power standards (PPS), i.e. a common currency that eliminates the differences in price levels between countries allowing meaningful volume comparisons of GDP between countries. The PPS is an artificial currency unit. Theoretically, one PPS can buy the same amount of goods and services in each country. However, price differences across borders mean that different amounts of national currency units are needed for the same goods and services depending on the country. PPS are derived by dividing any economic aggregate of a country in national currency by its respective purchasing power parities. Thus, PPPs can be interpreted as the exchange rate of the PPS against the euro.

Gross domestic product in purchasing power standards is calculated by dividing GDP by the corresponding purchasing power parity (PPP). GDP per capita in PPS is obtained by dividing GDP by population size.

An advantage of this threshold is that it by definition reflects the differences in standards of living by correcting GDP per capita for differences in price levels in the different MS. On the other hand GDP per capita represents an average level for the whole population of a country while wages are per employee. It's not immediately clear why any income below average standard of living would be commercially irrelevant. Moreover, GDP per capita is influenced by demographic factors (age structure).

3. The system of FADN- thresholds

In the EU data collection for agriculture a system of thresholds per MS is already established. In the FADN there is a clear definition that the economic size of a firm to be considered to be in target population has to be high enough to provide livelihood to one household. Applying the same thresholds would make EU fisheries statistics consistent with EU economic statistics for agriculture in this respect. On the other hand, different cost structures and cost levels in agriculture and fisheries may be a reason to deviate from FADN thresholds.

4. The minimum wage rates

Most EU Member States have defined a legal minimum wage for full time employees. One option would be to use this income level as a threshold for the commercial fishing fleet. The ratio behind this is that an activity that generates income below the minimum wage is not economically interesting. One problem with using this indicator as threshold is that not every MS has a defined a legal minimum wage. A possible solution for this would be to calculate the average percentage of minimum wage relative to the average wage for the MS that have a minimum wage (42%) and then apply this percentage to obtain the derived minimum wage for the MS that don't have a legal minimum wage. Another problem is that value of landings is not directly comparable to the labour wages as costs still have to be subtracted. Therefore in principle it could be better to use minimum wage as a threshold for value added than for income, but this may be less practical.

Table 1 presents the values of the different optional thresholds in EU Member States. Next to the minimum wage the table also presents average wages as these can be used to calculate a derived minimum wage where this is not legally defined. The values for the different thresholds differ considerably which means that the thresholds will have different effects on the data to be reported.

Table 1. Values for the different optional thresholds per MS

			Relative GDP PPS* (EU 28=100)	FADN thresholds(€ **	Minimum wage*** per year (€)	Average wage (gross)**** (€)	VAT registration thresholds ***** (€)
Country	Country	Region	2016	2017	2015	2017	2,017
Austria	AT	Inland	36,540	15,000		32,508	30,000
Belgium	BE	North Sea	34,220	25,000	18,022	40,812	15,000
Bulgaria	BG	Black Sea	13,920	4,000	2,209	6,372	25,600
Croatia	HR	Mediterranean	17,110	4,000	4,747	13,116	28,290
Cyprus	CY	Mediterranean	23,490	4,000		21,348	15,600
Czech Republic	CZ	Inland	25,520	8,000	3,981	12,780	38,211
Denmark	DK	North Sea	36,250	15,000		62,292	6,725
Estonia	EE	Baltic	21,460	4,000	4,680	13,836	40,000
Finland	FI	Baltic	31,610	8,000		40,560	10,000
France	FR	Atlantic	30,450	25,000	17,490	35,484	32,600
Germany	DE	North Sea	35,670	25,000	17,280	44,436	17,500
Greece	EL	Mediterranean	19,430	4,000	8,205	13,104	10,000
Hungary	HU	Inland	19,430	4,000	3,993	11,616	19,320
Ireland	IE	Atlantic	51,330	8,000	17,542	37,596	37,500
Italy	IT	Mediterranean	27,840	8,000		30,720	60,000
Latvia	LV	Baltic	18,850	4,000	4,320	10,632	50,000
Lithuania	LT	Baltic	21,750	4,000	3,600	9,816	45,000
Luxembourg	LU	Inland	77,430	25,000	23,076	52,944	30,000
Malta	MT	Mediterranean	27,550	4,000	8,646		-
Netherlands	NL	North Sea	37,120	25,000	18,022	34,260	1,345

Poland	PL	Baltic	20,010	4,000	4,914	12,876	36,000
Portugal	PT	Atlantic	22,330	4,000	7,070	13,896	12,500
Romania	RO	Black Sea	17,110	2,000	2,610	8,784	48,554
Slovakia	SK	Inland	22,330	25,000	4,560	10,764	49,790
Slovenia	SI	Mediterranean	24,070	4,000	9,489	19,356	50,000
Spain	ES	Atlantic	26,680	8,000	9,080	24,996	-
Sweden	SE	Baltic	35,960	15,000		42,312	-
United Kingdom	UK	North Sea	31,320	25,000	16,546	28,740	83,000

*Eurostat GDP per capita in PPS, Data from 1st June 2017

**http://ec.europa.eu/agriculture/rica/methodology1_en.cfm#dotfoo

*** Source: Eurostat

**** Source: Wikipedia

***** Source <http://www.vatlive.com/eu-vat-rules/eu-vat-number-registration/vat-registration-threshold/>

Figure 1 and 2 present the correlation between the different threshold options. Figure 1 shows that FADN thresholds, minimum wage and average wage levels in MS are positively correlated to GDP PPS. Minimum wage and average wage have reasonable R² while FADN threshold has much lower R². Figure 2 shows that VAT registration thresholds have negative correlation with GDP PPS with very low R². A reason for this may be that differences in VAT registration levels depend not so much on the costs of living but more on political differences between MS.

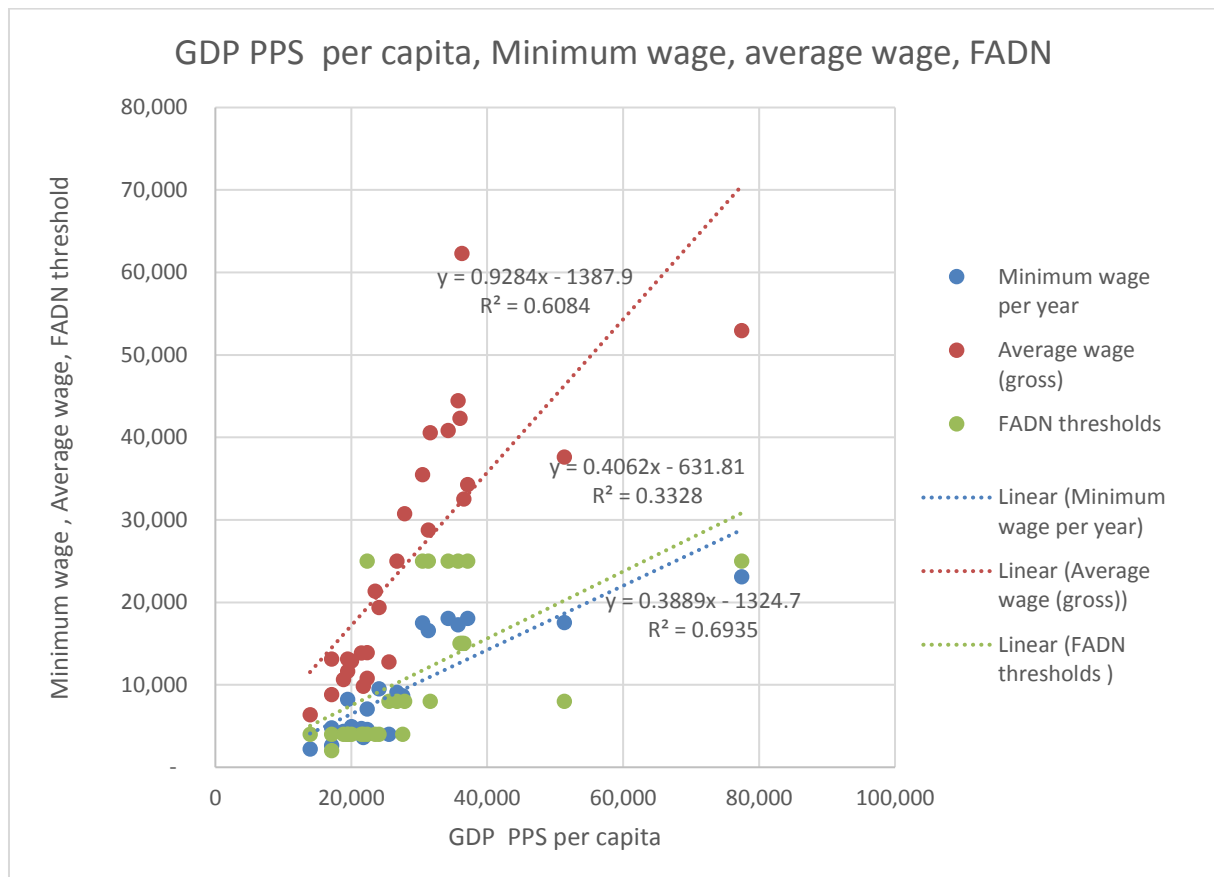


Figure 1. Relation between GDP per capita in PPS and Minimum wage, average wage and FADN thresholds

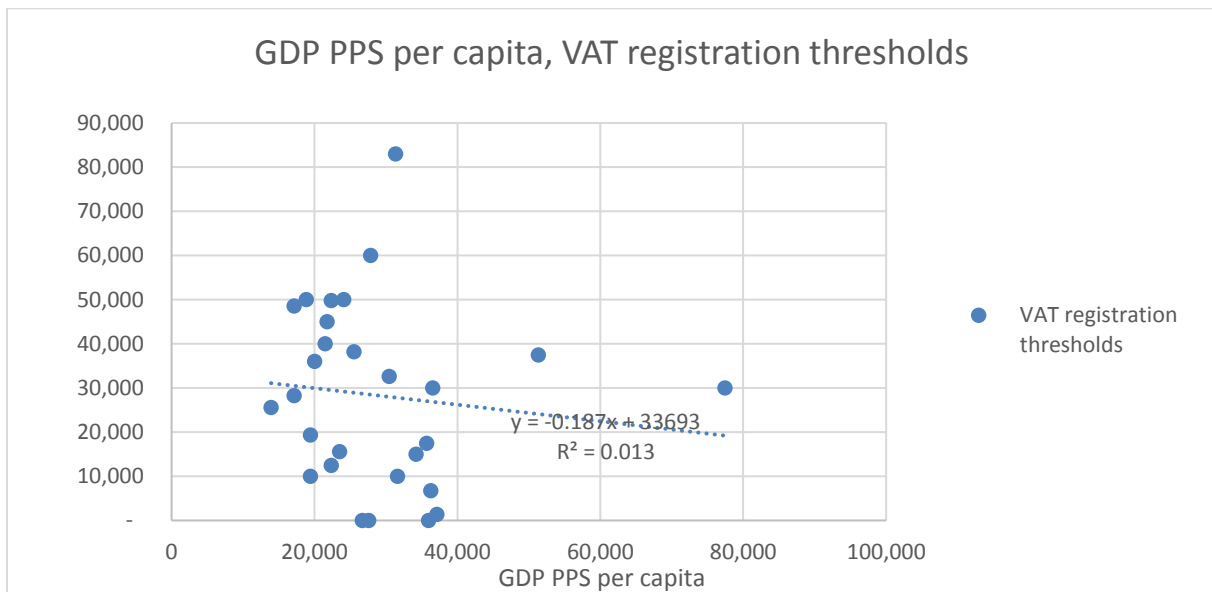


Figure 2. GDP per capita in PPS and VAT registration thresholds

Discussion

From the previous workshops it was concluded that:

thresholds for the activity level should be based on income (value of landings) (Oostenbrugge et al, 2015) and that “evidently one common money based threshold is not applicable for all EU. Nature of fisheries varies by MS and purchasing power parity and standard of living should be considered when defining a threshold” (Virtanen et al, 2013)

This means that relative differences in the threshold should reflect differences in standards of living between MS and at the same time the absolute level of the of the indicator should define a credible threshold of commercial relevance.

For this discussion 4 possible indicators have been selected that could possibly play a role in defining thresholds for activity levels.

The GDP PPS per capita is by definition a good reflection of differences in standard of living between MS. However it’s less clear why the absolute level of this indicator is a relevant threshold for commercially relevant economic activity. Particularly, it would have to be argued why any income below average standard of living would be commercially irrelevant.

For the other possible indicators, minimum wage (or some percentage of average wage), VAT registration threshold and FADN thresholds it can in principle be argued that they define a relevant threshold for commercially relevant activities.

In the previous section it was shown that VAT registration levels differ considerably between MS and more importantly that these differences do not reflect the differences in standards of living between MS (negative correlation with GDP PPS with low R^2). This seems to make VAT registration level less attractive as a threshold for commercially relevant activities in fisheries.

Both FADN thresholds and minimum wage (and average wage) show positive correlations with GDP PPS (although R^2 for FADN is quite low) which means that differences in these thresholds among MS do more or less reflect differences in cost of living. The main advantage of FADN thresholds is that it would make thresholds in fisheries economic statistics consistent with agricultural economic statistics, despite the poor relation with standard of living. On the other hand, the differences between FADN thresholds in different MS are partly based on differences in farm structures. This would not be applicable to fishing fleets. A Minimum wage presents a threshold that can be motivated to be relevant and has relatively good relation with standard of living as represented by GDP PPS per capita although perhaps this threshold is too low to be compared to value of landings where costs still have to be subtracted. To solve this bias, the values could be adjusted by multiplying them with the (historic) ratio between Revenues and GVA in fisheries. As the issue of low activity vessels is most relevant to small scale fisheries it would be most logical to use the values for this part of the fleet.

Table 2. Pros and cons of the four thresholds

Threshold	Advantages	Disadvantages
VAT registration threshold	Credible threshold for commercial activities based on MS judgement as reflected in national law	Negative correlation (if any) with standard of living Differences in VAT registration thresholds may partly reflect political differences rather than differences in standards of living
GDP PPS per capita	Reflects by definition differences in standard of living	Income below average standard of living is not necessarily irrelevant GDP per capita is influenced by demographic factors
FADN thresholds	Consistency with agriculture statistics Positive (but poor) correlation with standards of living (GDP PPS)	Poor (positive) correlation with standards of living (GDP PPS) Different cost structures in fisheries and agriculture may be a reason to deviate from FADN Differences in FADN thresholds are partly based on differences in farm structure between MS. This would not be applicable to fisheries.
Minimum wage	Positive correlation with standards of living (GDP PPS) Credible threshold: activities generating less than minimum income are not commercially relevant For MS that have not legally defined a minimum wage a percentage of average wage can be used, based on the average	Comparing wage level with value of landings where costs still have to be subtracted. This can be solved by adjusting the values for every MS by multiplying them with the ((historic) average ratio between Revenues and GVA in small scale fisheries. Not every MS has a legally defined minimum wage.

	percentage in MS with minimum wage (42% in 2016)	Differences in minimum wages between countries may partly reflect political differences rather than differences in standard of living. Differences in minimum wage may partly reflect differences in price levels between MS. To remove these differences minimum wage levels can also be expressed in PPS.
--	--------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Preliminary conclusion

From this discussion that it seems appropriate (but still open for discussion at the workshop) to investigate three of the presented thresholds further during the workshop for the effects on the data to be reported in different MS:

1. FADN thresholds
2. GDP in PPS per capita.
3. Minimum wage (or some percentage of average wage where minimum wage is not available) adjusted by the ratio between Revenues and GVA in small scale fisheries.

Annex 3. IMPLICATIONS OF USING THE GDP PPS / CAPITA

One of the evaluated proposals for a threshold was the relation between the value of landings (VoL) and GDP PPS / capita (GDP). These two values are not quite comparable:

- GDP is an income indicator per capita.
- VoL is measured per vessel and includes costs. It is at best a proxy for income per vessel, but not per employed.

With the proposed ratio vessels which would be classified 'above threshold' must meet the criterion:

$$(1) \quad \text{VoL} / \text{vessel} > \text{GDP} / \text{population}$$

This relation can be brought to a common denominator by considering that:

- In the EU fishing industry gross value added (GVA) is approximately 50% of the VoL, i.e.

$\text{VoL} = 2 * \text{GVA}$. GVA below refers to GVA / vessel.

- Approximately 50% of the EU population is employed, i.e. $\text{population} = 2 * \text{employment (EMP)}$

- For simplicity it assumed that 'employment' is identical to FTE.

The above relation can be therefore written as:

$$(2) \quad 2 * GVA > GDP / 2 * EMP$$

$$(3) \quad GVA > 1/4 * GDP / EMP$$

Equation (3) shows that using the proposed criterion (1) a vessel would be classified above threshold if its GVA is larger than 25% of the average GDP / employed. In case that the vessel employs one FTE, this seems to be a reasonably acceptable value.

However, if a vessel employs 2 FTE, than its GVA / FTE compares to the threshold as:

$$(4) \quad 1/2 * GVA > 1/4 * GDP / EMP$$

$$(5) \quad GVA > 1/2 * GDP / EMP$$

In other words, vessels with higher employment have to meet a higher standard in order to be classified above threshold – 50% of the GDP / employed and not only 25%.

Conversely, vessels employing 0.5 FTE have to meet a threshold of:

$$(6) \quad GVA > 1/8 * GDP / EMP$$

In other words, vessels with lower employment have to meet a lower standard in order to be classified above threshold – 12.5% of the GDP / employed and not 25%.

The above review shows that the application of the proposed threshold (1) puts different requirements on actual income (expressed as GVA/FTE). Vessels with higher employment must generate higher income per FTE than vessels with lower employment to be classified as 'commercially active'.

The evident disadvantages of using GVA / FTE are that both GVA and FTE are not available on census basis while VoL / vessel is available in most MS. Calculation of GVA and FTE for each individual vessel would have to be based on segment averages. Before final adoption of the threshold (1) it may be relevant to analyse the above described consequences and detail.

Annex 4. The MS Cases on the effects of stratification based on activity levels

Bulgaria

Cyprus

Denmark

After considering the different optional thresholds in the discussion paper, the working group chose two threshold levels for analysis, the relative GDP PPS (Purchasing Power Standard) and the Minimum wage per year. For Denmark the PPS was set to 36,250 € and 20,000 € were used as Minimum wage, as there is no official minimum wage in Denmark. As all landings by Danish fishermen are registered by sales notes together with landing declarations and/or logbooks, it is possible to calculate the aggregate value of landings for each active vessel in Danish fishery. For the years 2012-2015 there were between 1,115 and 1,010 active vessels below 12 meters, which according fishing technique and vessel length have been grouped into 7 DCF fleet segments.

FISHING TECH	VESSEL LENGTH	2012	2013	2014	2015
DTS	VL0010	10	11	11	11
PGP	VL0010	855	823	808	775
PMP	VL0010	126	116	110	117
DRB	VL1012	21	24	19	15
DTS	VL1012	9	9	10	11
PGP	VL1012	50	56	53	48
PMP	VL1012	44	30	33	33
All active vessels		1115	1069	1044	1010

The DTS groups cannot be divided any further without creating problems of confidentiality, because there are only 9 to 11 vessels in each group. Also the dredgers (DRB VL1012) cannot be divided further, because only 1 to 4 vessels have yearly value of landings less than the PPS threshold. The remaining two groups (PGP and PMP) with vessel length 0-10 metres have been chosen for the analysis, as these groups have most vessels.

Fleet composition

Figure 1a: Number of vessel below and above the GDP PPS threshold (=36.250 €).

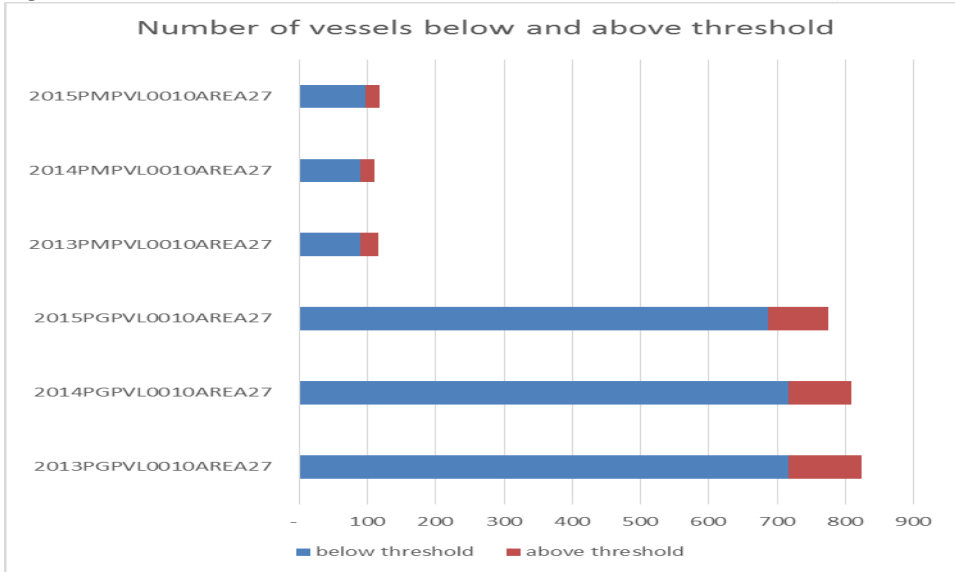
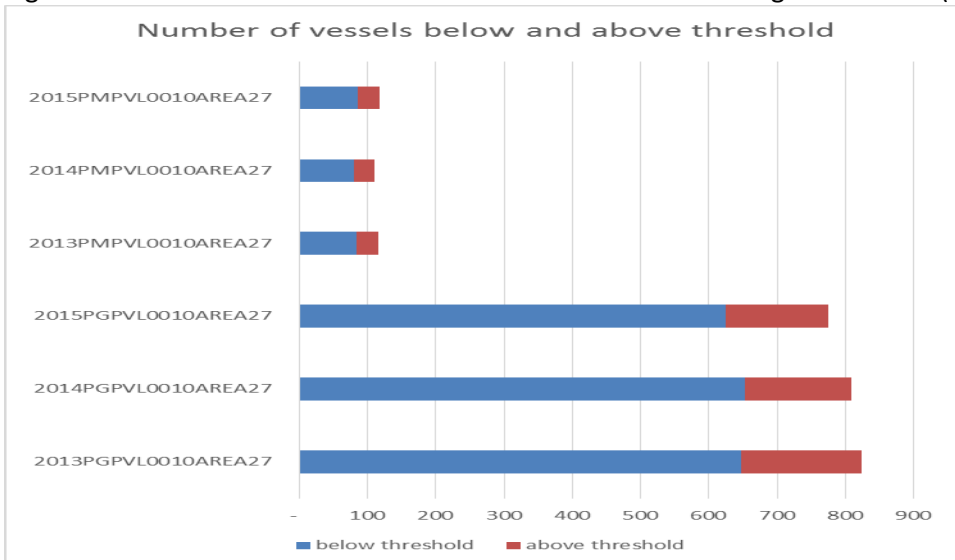


Figure 1b: Number of vessel below and above the “minimum wage” threshold (set at 20.000).



With the high threshold (36,250 €) about 80 per cent of the vessels lies below the threshold for the PMP group and about 88 per cent of the vessels in the PGP group, whereas about 73 per cent of the PMP vessels and 80 percent of the PGP vessels is below the lower threshold (20,000 €).

In numbers there was 117 vessels in the PMP group in 2015 which using the high threshold was divided to 97+20 and by the low threshold to 85+32. For the 775 vessels in the PGP group the split were 687+88 by high threshold and 624+151 by using the low threshold.

Confidentiality issues

Segment year combinations can give confidentiality problems if the number of vessels becomes less than 10 for the group.

Table 1: Problems when applying threshold GDP PPS (=36.250 €).

FISHING_TE	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
DTS	VL0010	4	4
	VL1012	4	4
DRB	VL1012	4	0
PGP	VL0010	0	0
	VL1012	0	0
PMP	VL0010	0	0
	VL1012	1	0

Table 2: Problems when applying “minimum wage” threshold (set at 20.000 €).

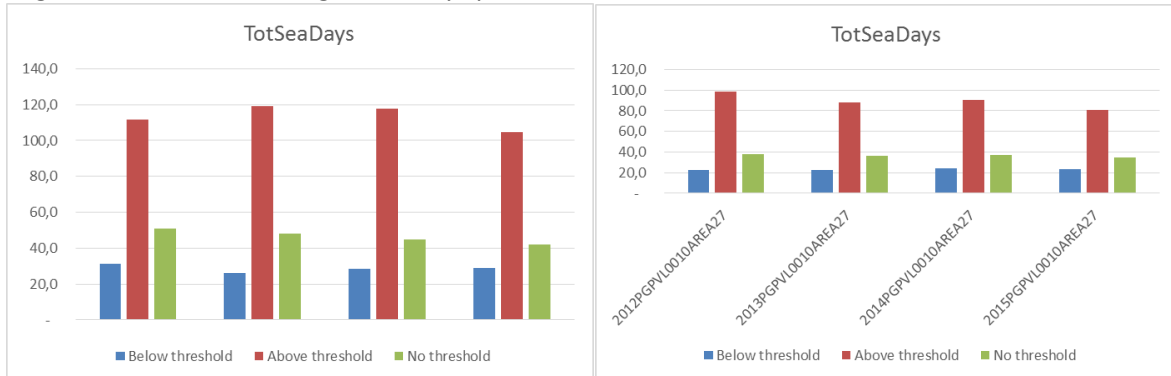
FISHING_TE	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
DTS	VL0010	4	4
	VL1012	3	3
DRB	VL1012	4	0
PGP	VL0010	0	0
	VL1012	1	0
PMP	VL0010	0	0
	VL1012	3	0

The limited number of vessels in the DTS segments causes confidentiality problems every year (2012-2015) already by dividing into the two length groups 0-10 and 10-12 metres. And for the DRB 10-12 metres group the number of vessels below thresholds is only 1 to 4.

Effect on average values

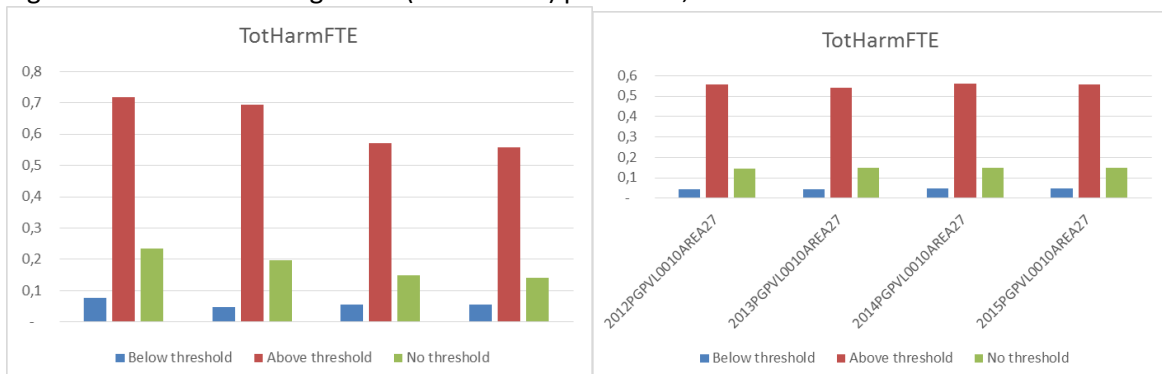
In the figures below the left hand side show the graphs for the PMPVL0010 using the high threshold (€ 36,250) and on the right hand side the graphs for the PGPVL0010 using the low threshold (€ 20,000).

Figure 2: Estimated averages Sea Days per vessel, with and without the use of a threshold.



The figures on TotSeaDays per vessel show the differences in activity level between the group above and below the thresholds. Without threshold the less active vessels reduces the average activity significant. Introducing the threshold shows that for both segments the vessels above the threshold are commercial fishing vessels with an average activity level of about 100 days at sea per year. That is even more significant in the figures on labour input per vessel (TotHarmFTE).

Figure 3: Estimated averages FTE (2000 hours) per vessel, with and without the use of a threshold.



The TotHarmFTE figures show that the average labour input for the vessels above thresholds is close to one full time job, but for the vessels below threshold the “labour input” is more or less part time or leisure fishery.

Figure 4: Estimated averages Income per vessel, with and without the use of a threshold.

The figures on income and Gross value added (GVA) shows very clearly the insignificance of the economic activity by the vessels below thresholds.

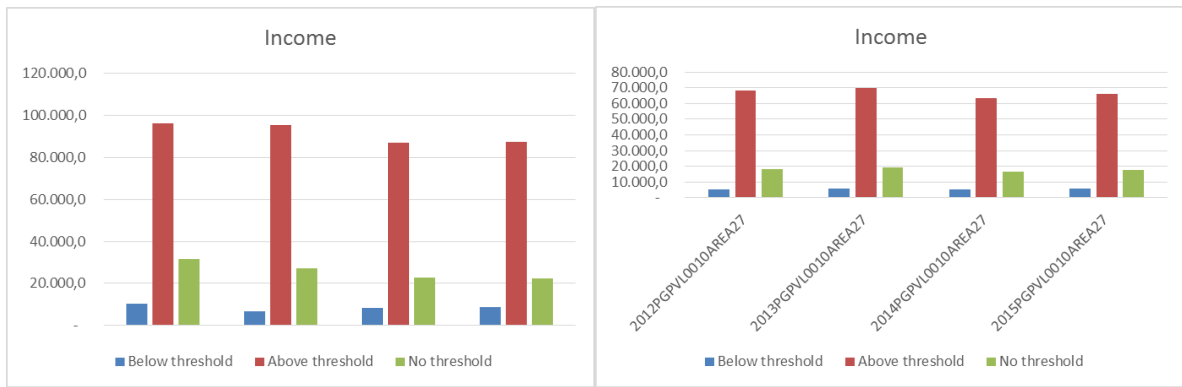
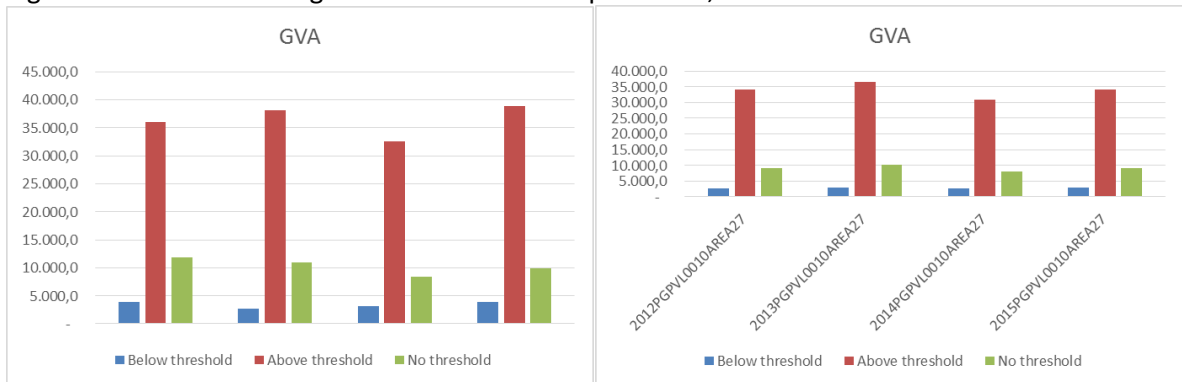
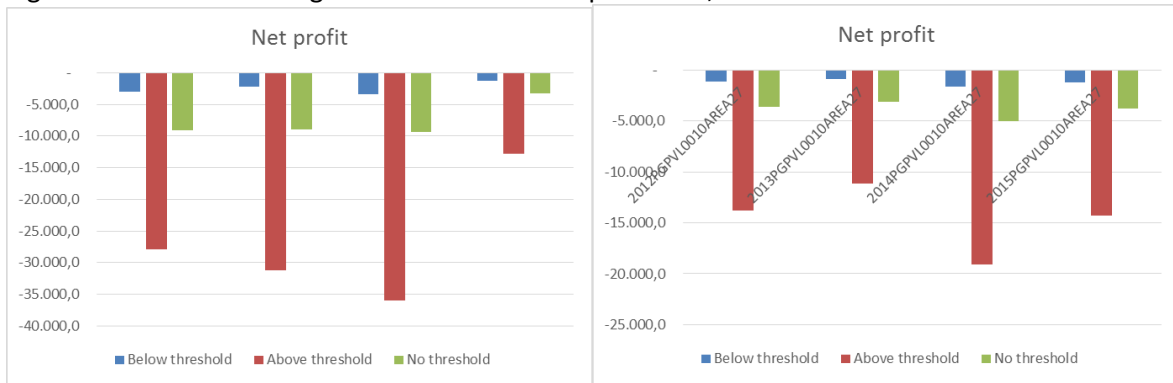


Figure 5: Estimated averages Gross Value Added per vessel, with and without the use of a threshold.



The figures on Net profit show the same picture as income and GVA, though the outcome is negative. The negative profit for vessels less than 10 metres has to do with the remuneration for owners own labour, which is calculated using the average hourly wage cost for employed in privately owned industry (= 33.25 Euro per hour).

Figure 5: Estimated averages Gross Value Added per vessel, with and without the use of a threshold.



Effects on totals

The same figures with PMPVL0010 (€ 36,250) graphs on the left hand side and PGPVL0010 (€ 20,000) graphs on the right hand side show the effect on totals.

Figure 6: Estimated total Sea days for the segment, with and without the threshold.

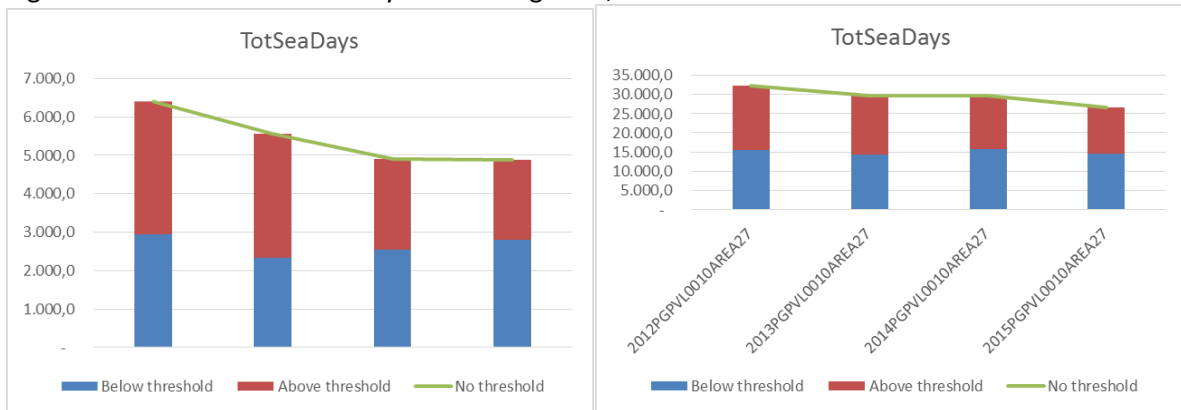
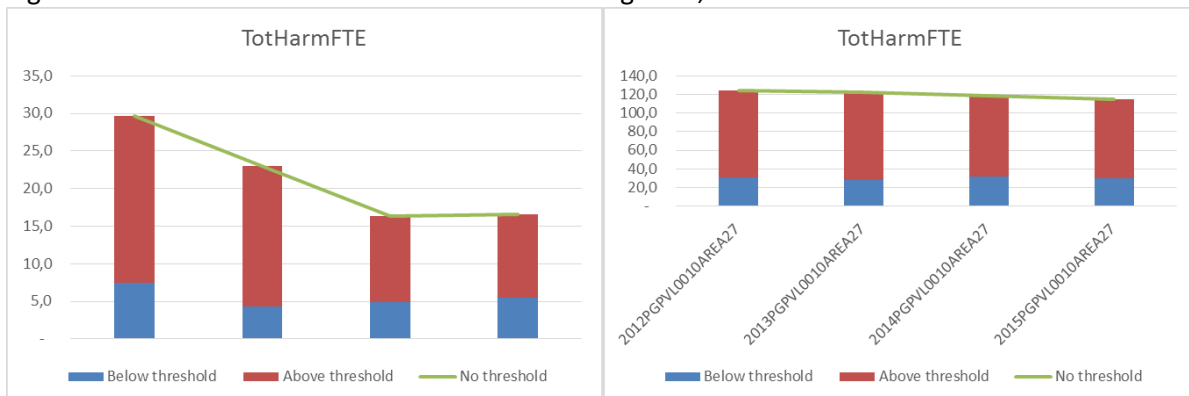
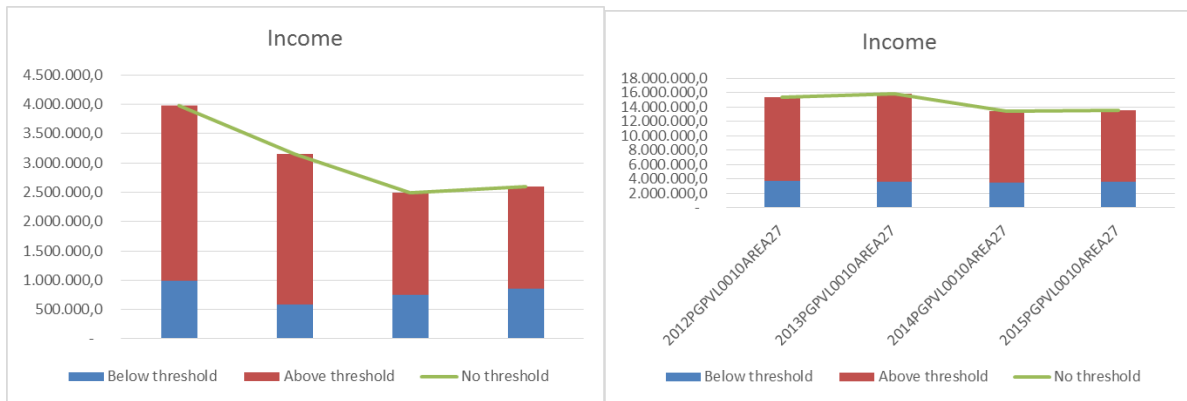


Figure 7: Estimated total Harmonized FTE for the segment, with and without the threshold.



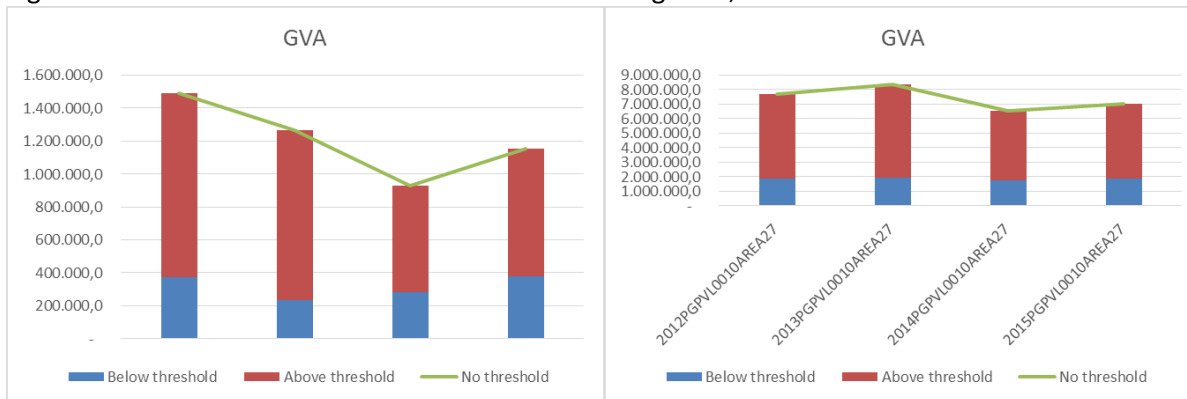
The total sum of FTE's for the PMPVL0010 group below the (€ 36,250) threshold is about 5 FTE and for PGPVL0010 the group below (€ 20,000) threshold the total for the 624 vessels only add up to about 30 FTE's.

Figure 8: Estimated total Income for the segment, with and without the threshold.



The total income for the 117 PMPVL0010 vessels adds up to 2.6 Million Euro, of which 67% comes from 20 vessels with value of landings above the high threshold. For the larger PGPVL0010 group the total income for the 775 vessels was 13.5 Million Euro, of which 73% (10 Million) comes from the 151 vessels with landing value higher than the low threshold.

Figure 9: Estimated total Gross Value Added for the segment, with and without the threshold.

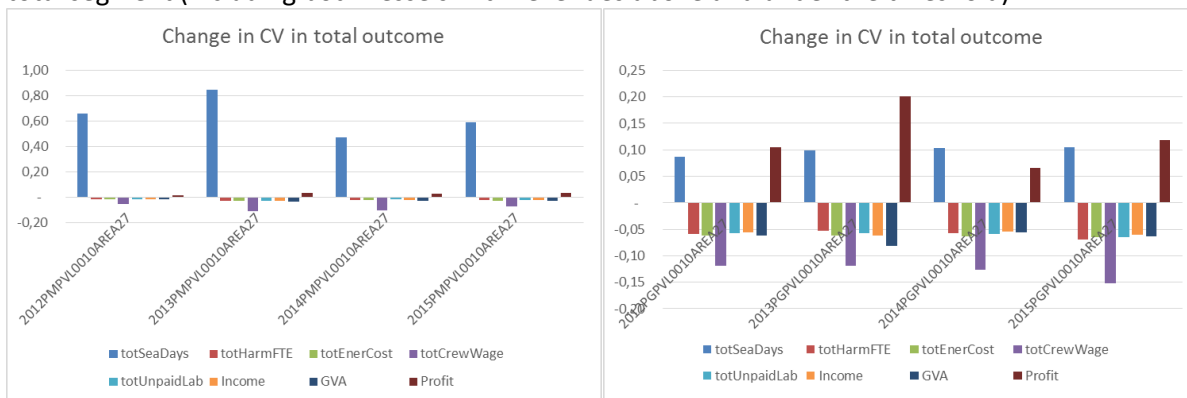


The importance of using thresholds is that removing the 3.5 Million Euro from the VL0010 segments makes it possible to show, that there are in fact also in Denmark commercial fishery by vessels below 10 metres.

Effect on quality of estimates

Also the use of threshold improves the quality of the final estimates, which is shown in the figures below.

Figure 10: Effect of the use of a threshold on the quality of the estimate (Expressed as the CV) of the total segment (including both vessels with revenues above and under the threshold).



The figures show the difference for the total segments. For SeaDays and Profit the CV has increased because the vessels below thresholds have very big variances. The main advantage of using thresholds is to separate the low activity vessels from and thereby get a more reliable trustworthy result for the vessels with activity above the threshold. Therefore the more reasonable comparison should be between the total segment and the segment above threshold.

Finland

Data available:

The Finnish data related small-scale fisheries is based on that collected under Data collection regulation. Catch and effort data is based on mandatory coastal fishing declarations that cover all fishing. Economic data on small-scale fisheries is based on account survey; for detailed description of sampling design and estimation methods see National data collection programme for Finnish fisheries.

Thresholds applied:

Two thresholds were applied for the Finnish small-scale fisheries:

Threshold 1: VAT liability for enterprises applied in Finland that is currently €10,000 annual turnover.

Threshold 2: GDP per capita in PPS that was €31,610 in 2017.

Concentration of Finnish small-scale fleet

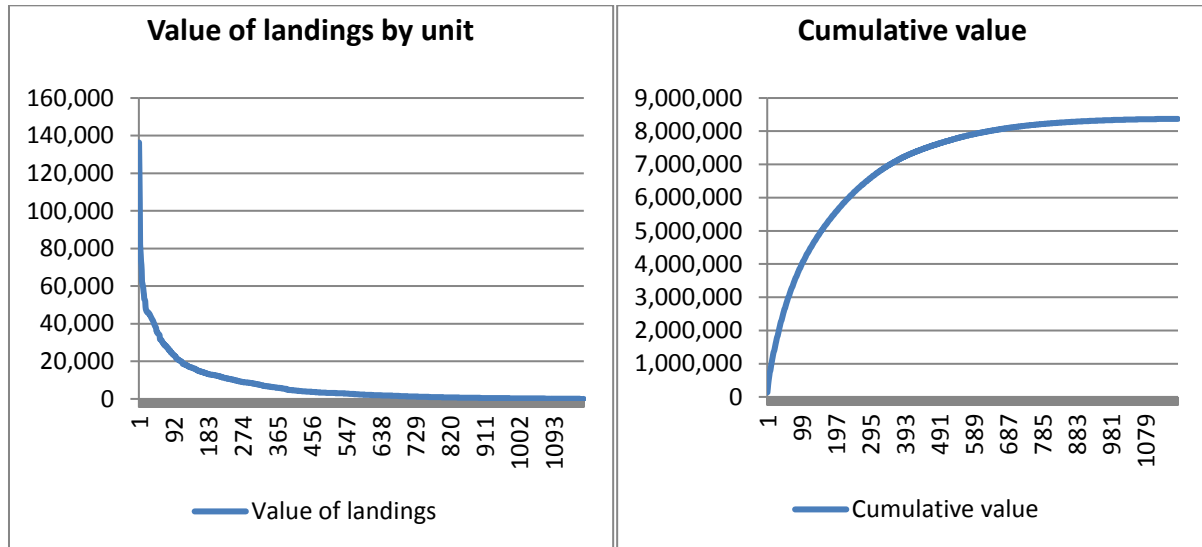


Figure 1. Concentration of Finnish small-scale fisheries in 2015

Finnish small-scale fisheries are highly concentrated (see Figure 1). 450 most active vessels out of total 1172 vessels account for 90% of total landings of the fleet segment in terms of value landings. Furthermore 400 least active vessels landing value is under €1,000 and these vessels contribute only 2% of the total landing value.

Results

Fleet composition with thresholds

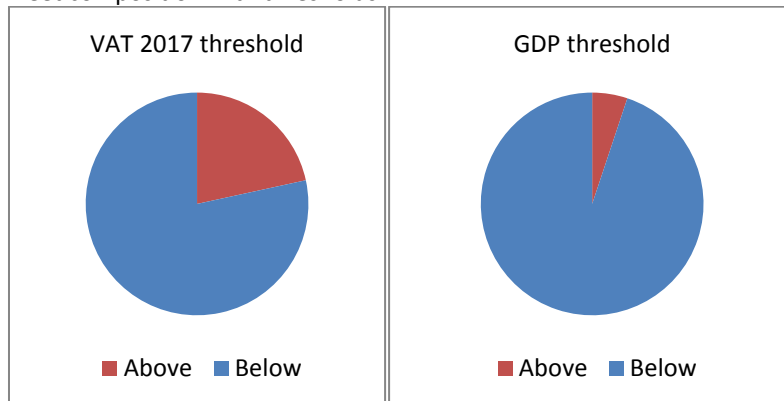


Figure 2. Number of vessel below and above the threshold with different threshold levels.

253 vessels exceeded the current VAT liability threshold level and these vessels accounted for 77% of the total revenue of the segment.

Only 60 vessels exceeded the GDP threshold when applied in 2015 Finnish small-scale fisheries. The share of total production of these most active vessels was 36%.

Confidentiality issues

No impact in terms as confidentiality as can be seen in Figure 2.

Effects on totals with thresholds

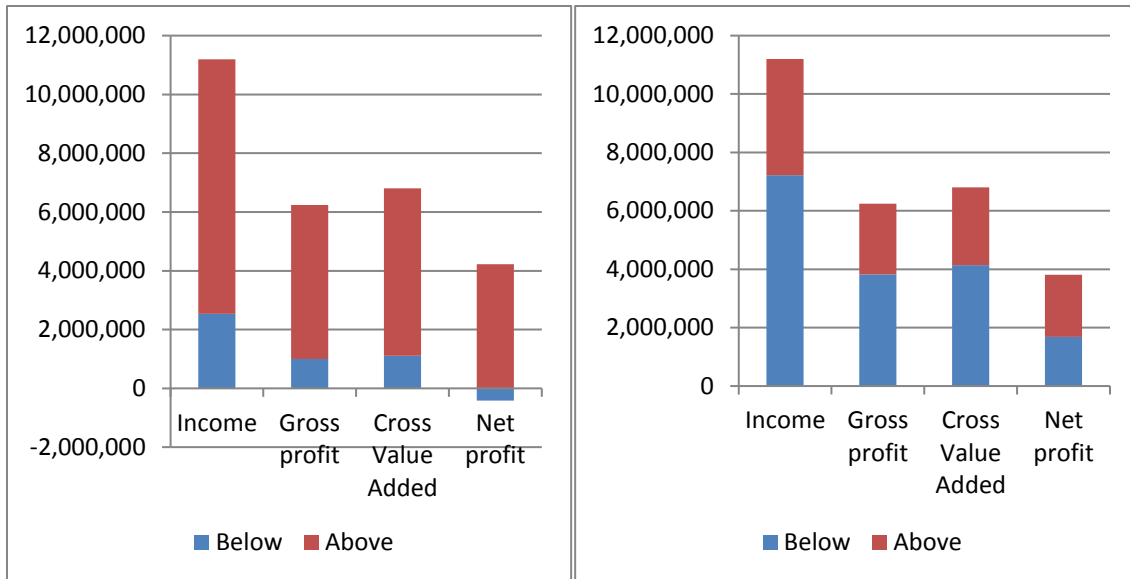


Figure 3: Estimated totals for the small-scale segment with the VAT threshold (left) and with the GDP threshold (right).

Vessels over VAT threshold accounted for 77% of income of the whole small-scale fishing segment. Consequently this group of vessels also generate most of the value added and profits of the segment. Furthermore the vessels below the threshold were making losses.

Vessels over GDP threshold accounted for only one third of the whole small-scale fishing segment revenue. These active vessels were extremely profitable accounting half of the total net profits of the segment. However now with a high threshold level the vessels below that generated notable amount of profits and greater part of the gross value added of the segment total.

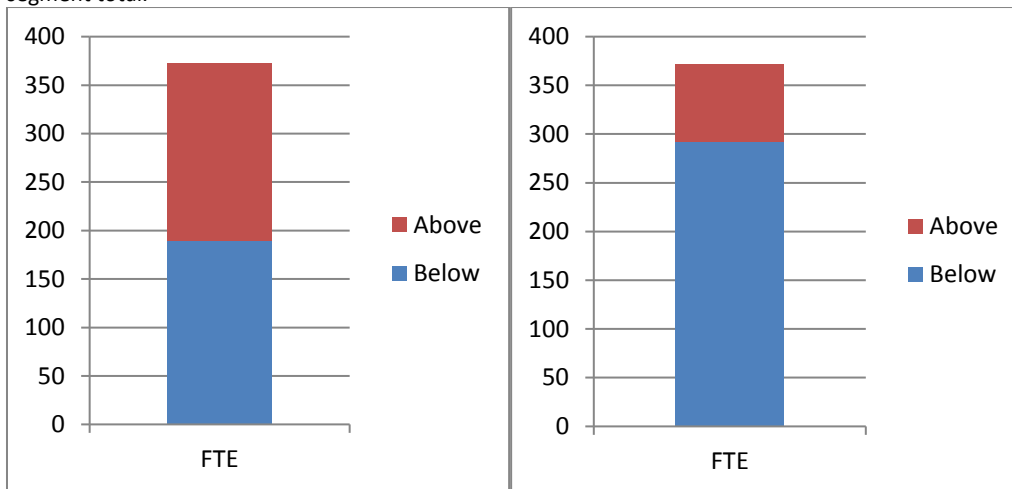


Figure 4: Share of employment of the segment in FTE with and without the thresholds: VAT (left) and GDP (right).

The vessels over the VAT threshold account for half of the total FTE in the small-scale fleet in 2015 while those above the GDP threshold employ only 21% of the total FTE.

Effect on average values with VAT liability threshold

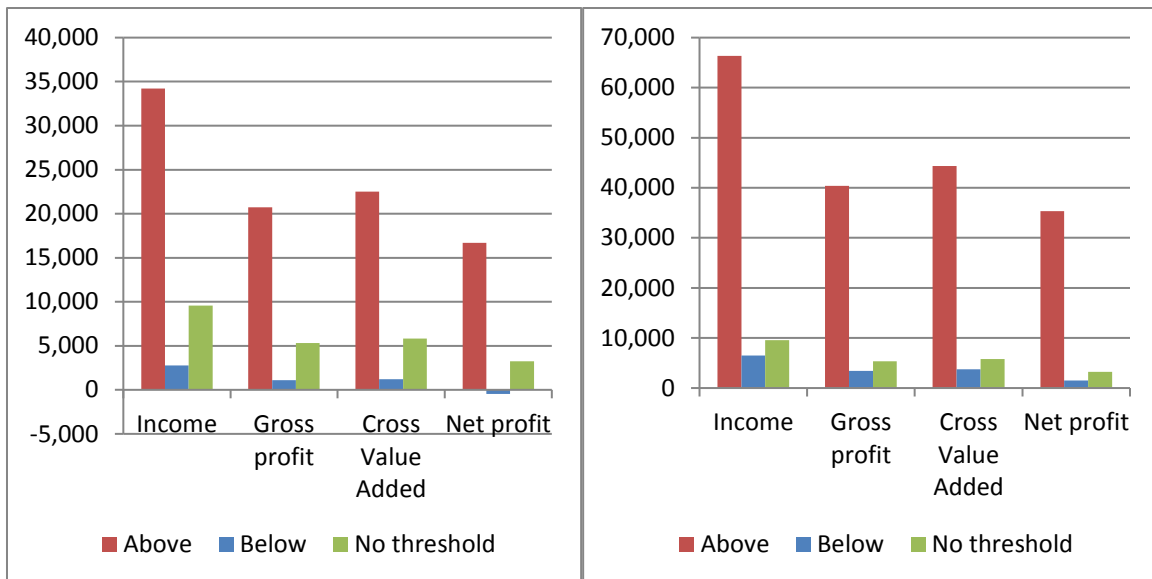


Figure 5. Estimated average economic performance indicators with and without VAT threshold (left) and GDP threshold (right).

The vessel above VAT threshold account for majority of the total income of whole fleet segment and evidently these vessels have a significantly higher profitability. In fact the vessels with low activity are not only contributing marginally to the total production but also are making significant losses. And in contrary the active part of vessels are extremely profitable making almost 50% net a profit that is high enough to create resource rent at the total fleet segment level (Figure 6).

The profitability increases together with average size when applying the higher DCP per capita threshold. In 2015 this most active part of the fleet vessels made remarkable 53% net profits. However now also the vessels below the threshold are making reasonable profits due to the fact that vessels over the VAT liability level were profitable.

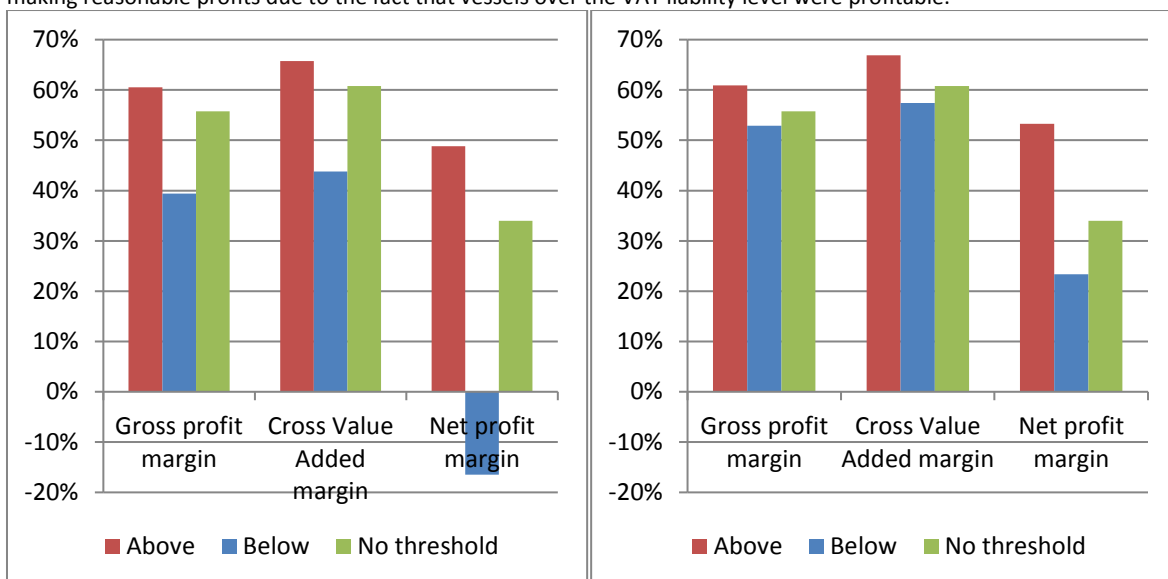


Figure 6. Profitability indicators with and without VAT threshold (left) and GDP threshold (right).

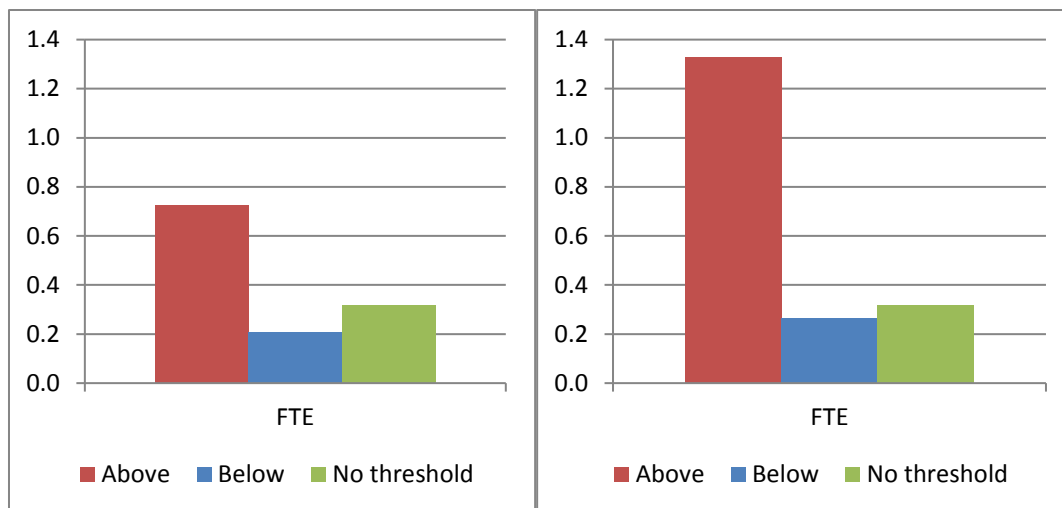


Figure 7: Estimated averages for the small-scale segment with and without the use of the VAT threshold.

The active part of the fleet above the VAT threshold employs half of the fleet total FTE and on average is 0.7 FTE compared to 0.2 in the vessels below the threshold. The vessels over the GDP vessels naturally employ on average more than the others averaging 1.3 FTE in 2015.

Effect on quality of estimates

The activity in terms of total income is considered in the Finnish sampling design and corresponding estimation method and therefore there are no implications to accuracy of estimates for the vessels above threshold.

Conclusions

Finnish small-scale fisheries are highly concentrated with long tail of extremely low activity and marginal annual income. Applying thresholds to separate the active part from the low active part proves that also economic performance is related to activity. The active part of the fleet is making remarkable net profits generating significant resource rent while the low active vessels are making losses. And higher the income higher the profits; however with high threshold level as DCP threshold large part of fleet is below the threshold that are still contributing a lot to total revenue and profits. Therefore for Finnish fleet lower threshold level would be applicable. The VAT threshold level is used in Finland for fishing units to be categorised commercial fishers that are eligible for EMFF funding. And therefore economic data is essential for evaluation of EMFF operational programme.

Country name: Germany

Data available

For all vessels: Value of landings, weight of landings, days at sea

For sample (~150 vessels): Crew cost, fuel cost, variable cost, non-variable cost, repair/maintenance cost, depreciation cost.

Thresholds applied:

€35,670 (Rel. GDP PPS) , €17,280 (min. wage), 5.000€

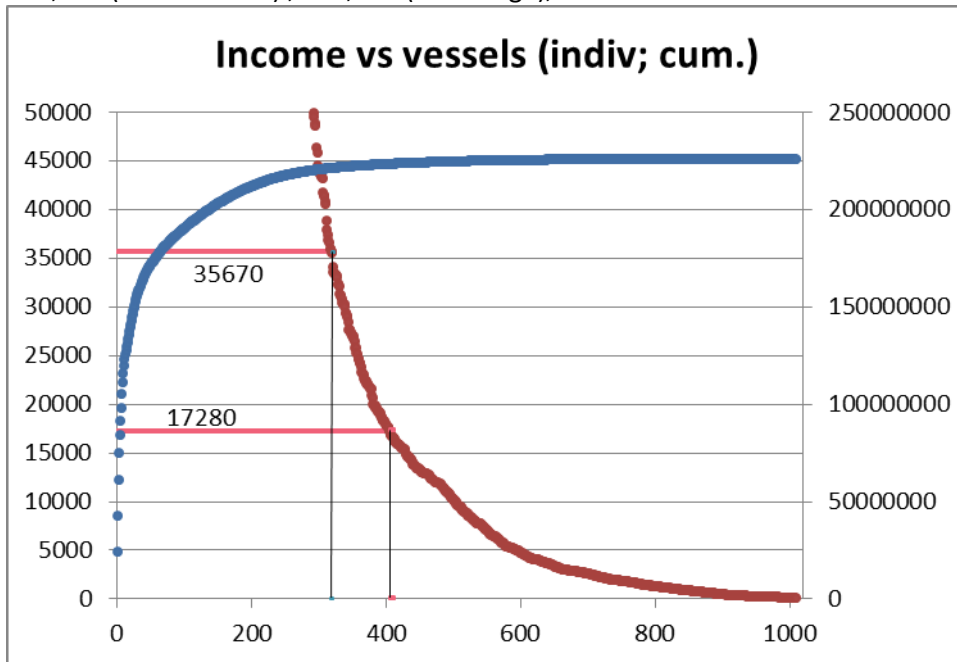


Figure of income per vessel for the entire German fleet (incl. large scale). The red curve represents data for individual data (left y-axis, cut off), the blue curve indicates cumulative data (right y-axis). Red horizontal lines indicate two of the thresholds applied (GDP-related and minimum wage).

Results

Fleet composition

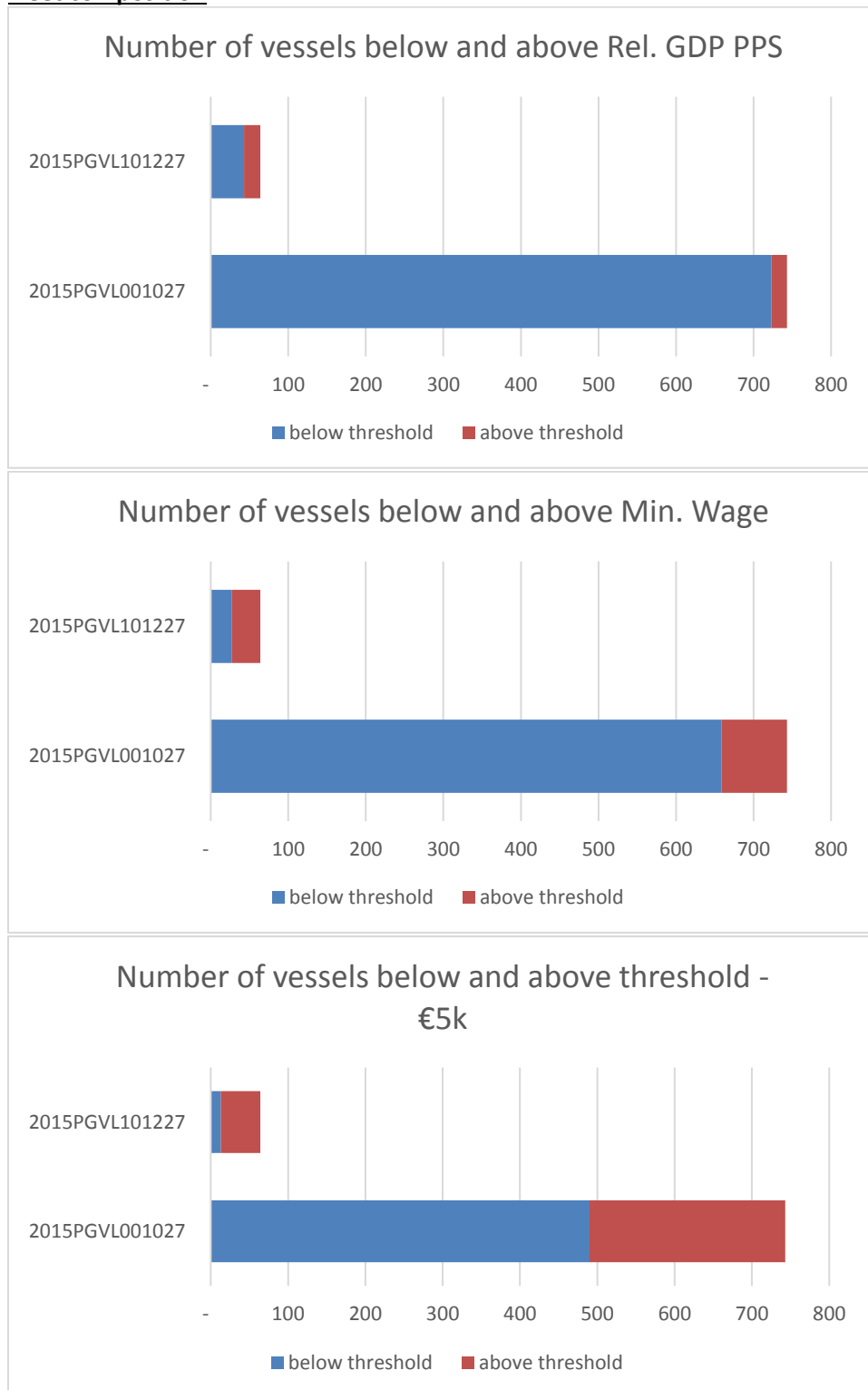


Figure : Number of vessel below and above the threshold after application of a threshold of GDP (above) and minimum wage (below)

The GDP related threshold leads to a ratio of 20/723 (0-10m) and 21/43 (10-12m). For the minimum wage approach these figures are 84/659 and 37/27, and for the 5k€ approach 253/490, 51/13, respectively. For the under 10m length class a number of 20 appears rather low.

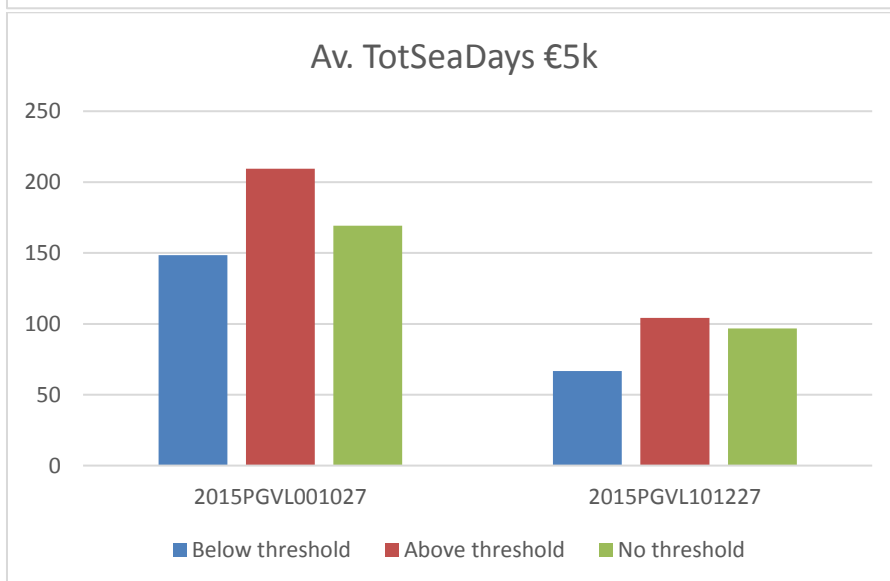
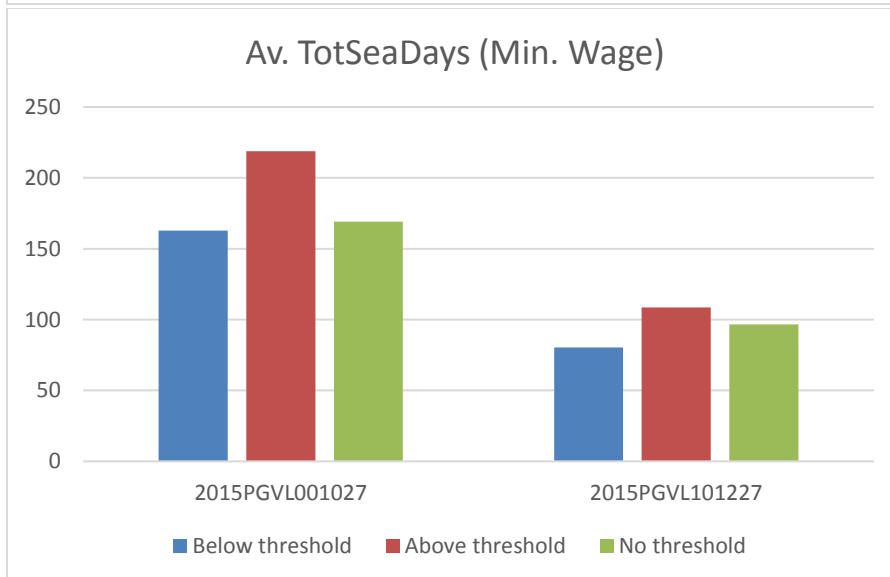
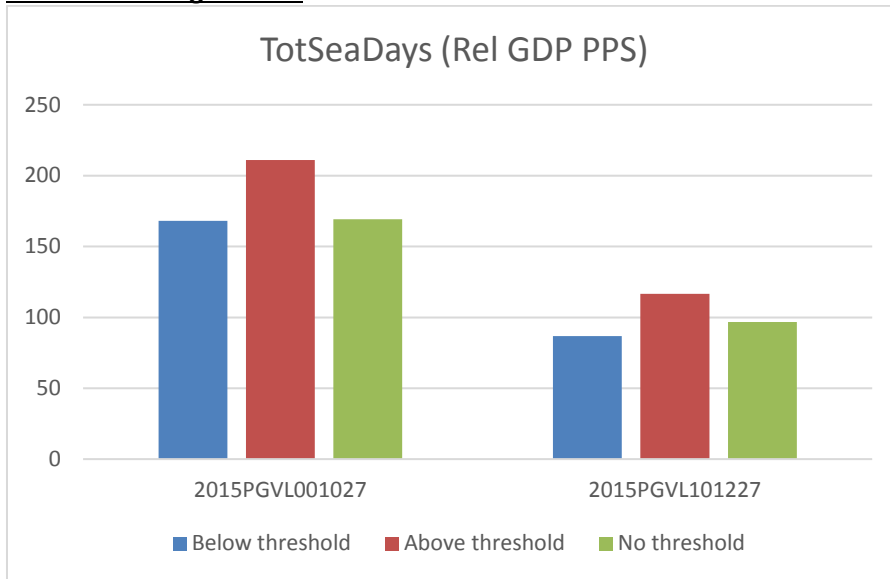
Confidentiality issues

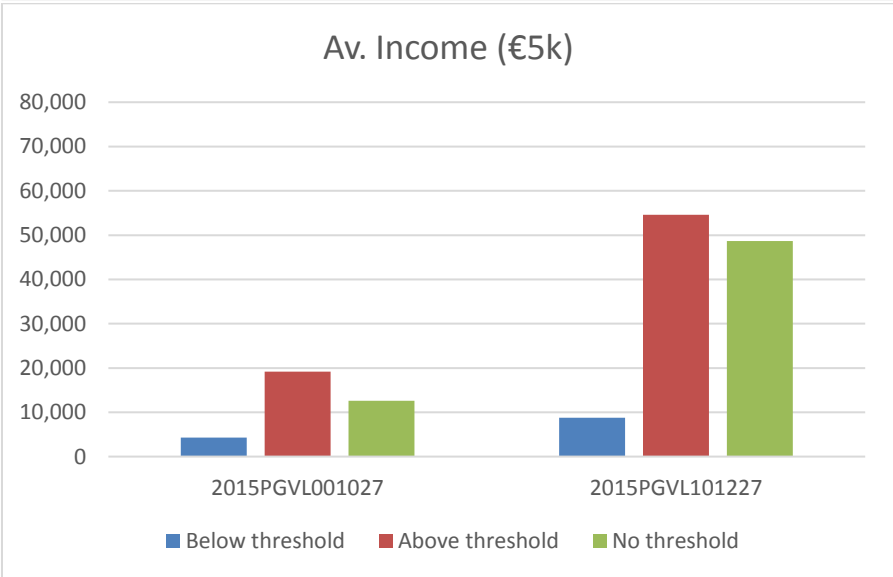
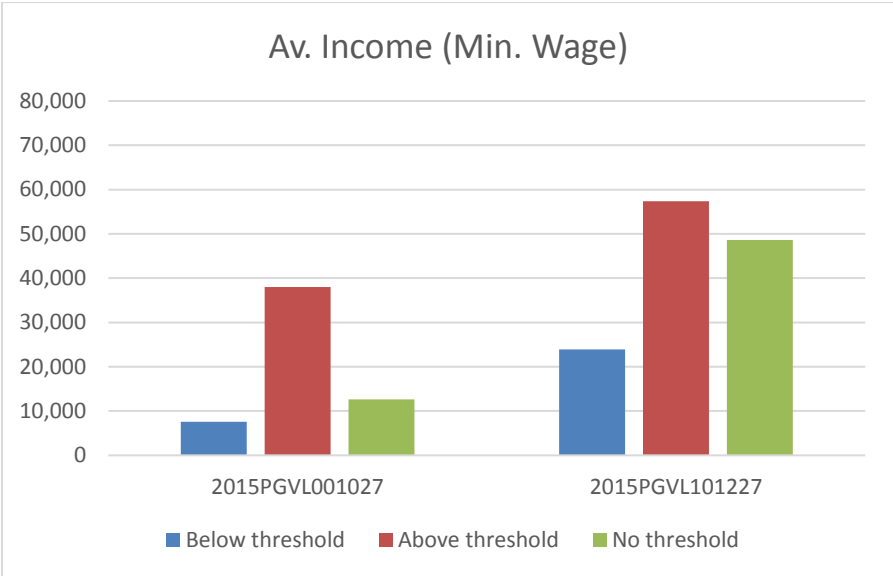
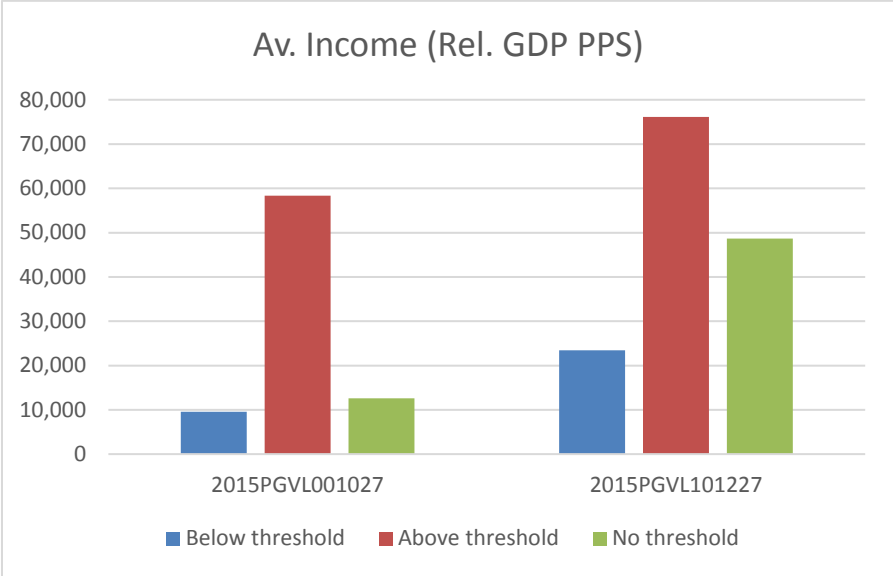
NO CONFIDENTIALITY ISSUES – the threshold is applied only to the large segments of vessels below 12m using passive gears. In all cases the resulting segments contain more than 10 vessels.

General remarks on data used

The data provided for analysis are of preliminary nature. The data on days at sea provided for vessels without logbook obligation are too high. Data for unpaid labour and capital value could not be provided short-term. Thus the figures on profit were not complete. Instead, the GVA should be used as profitability indicator.

Effect on average values





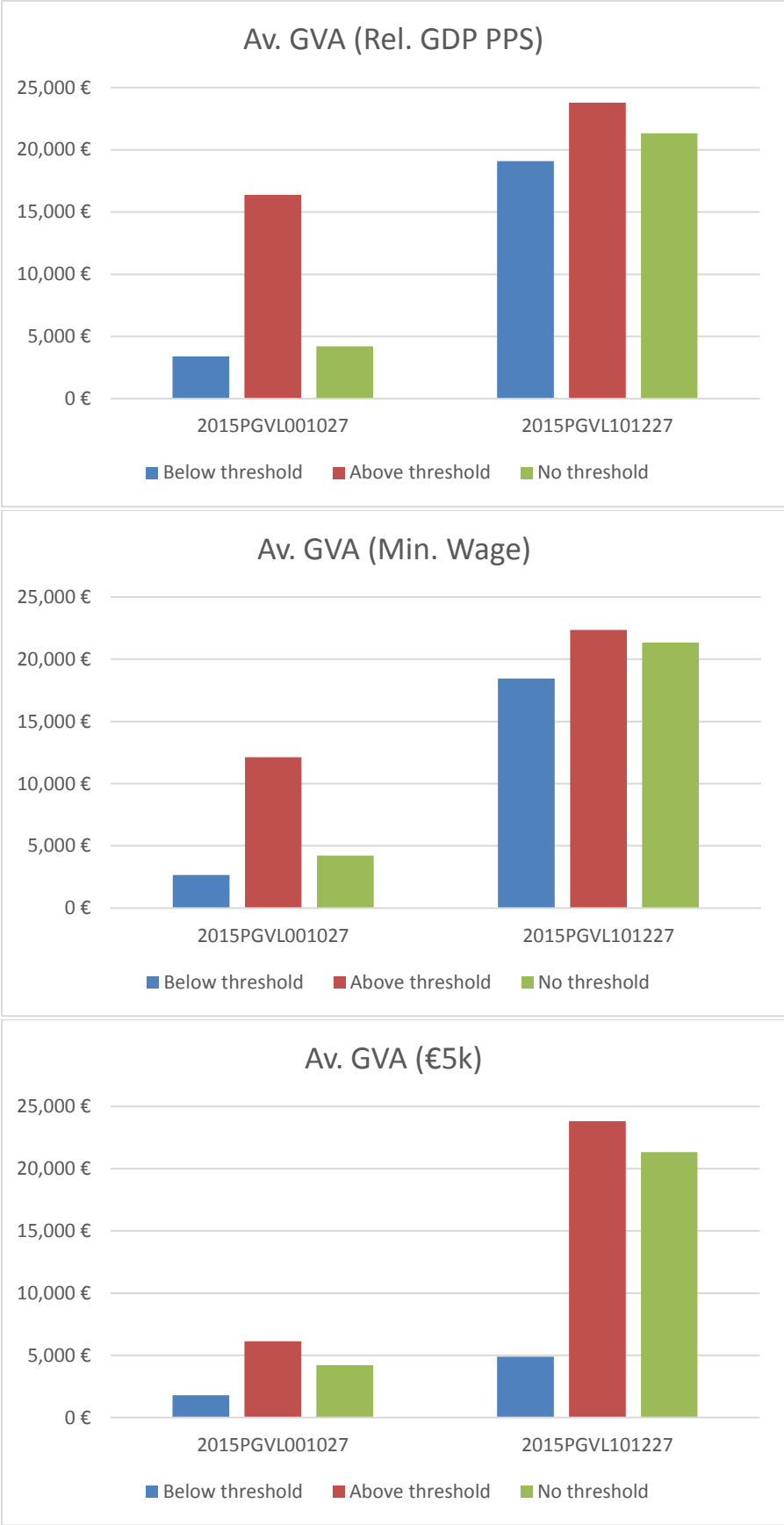
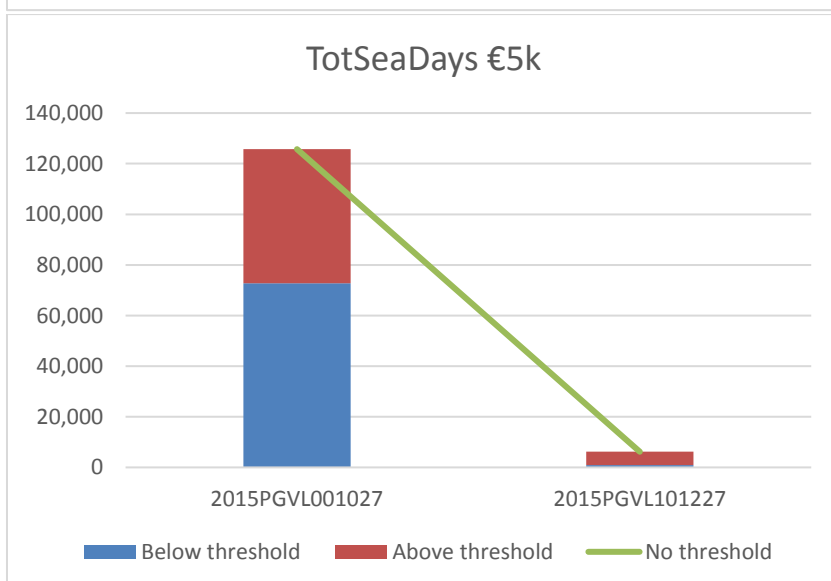
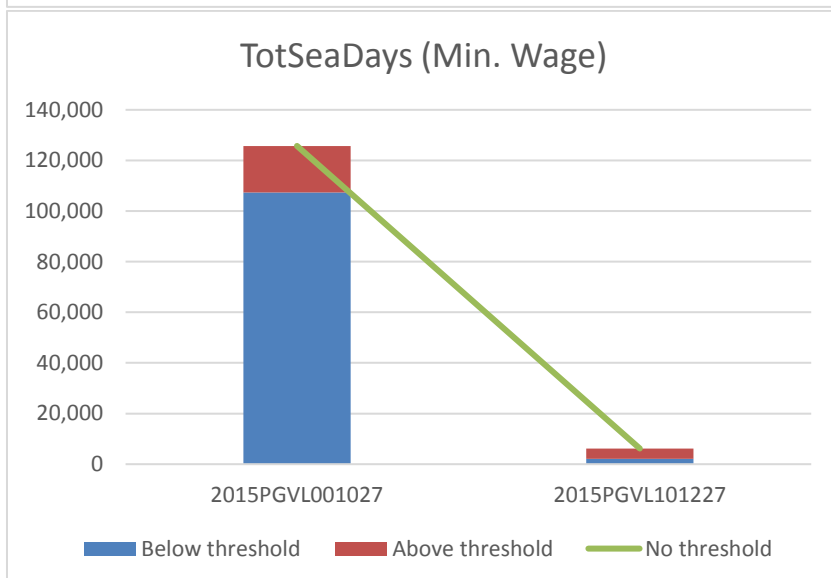
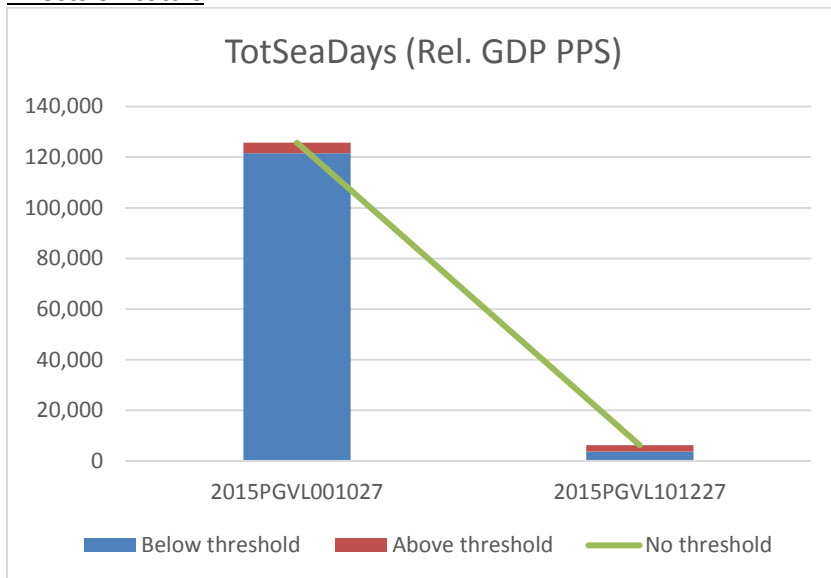
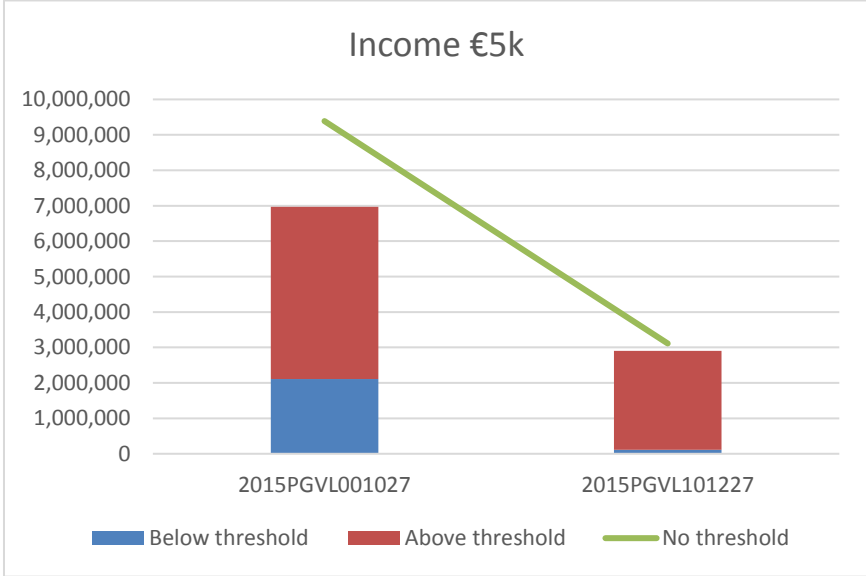
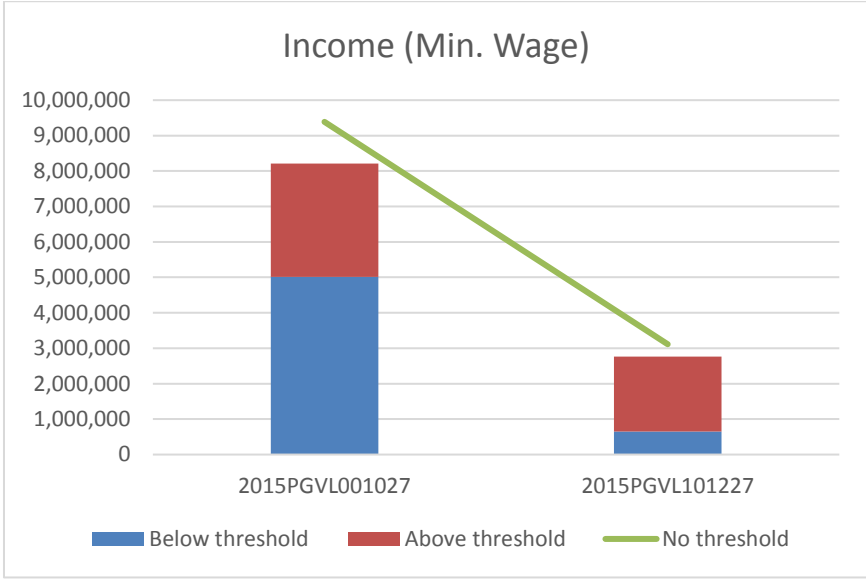
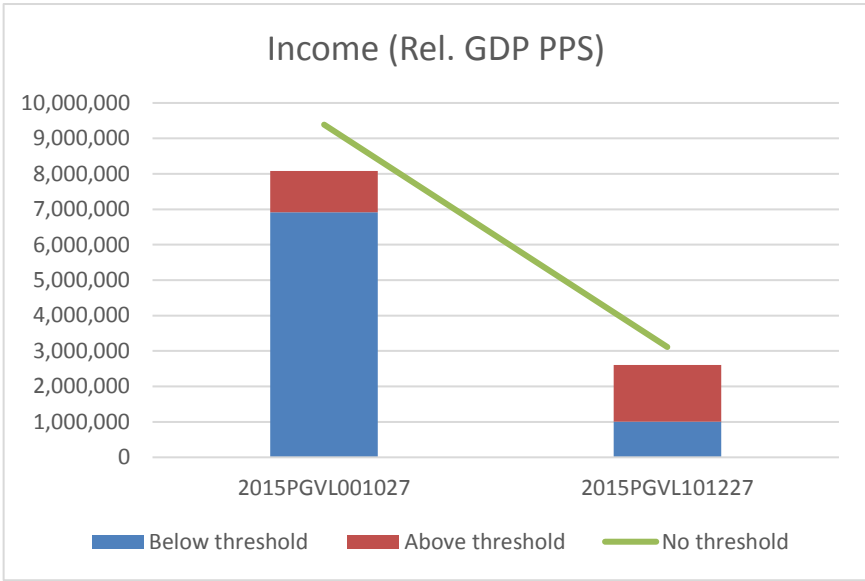


Figure : Estimated averages for the segments under analysis, with and without the use of a threshold.

Effects on totals





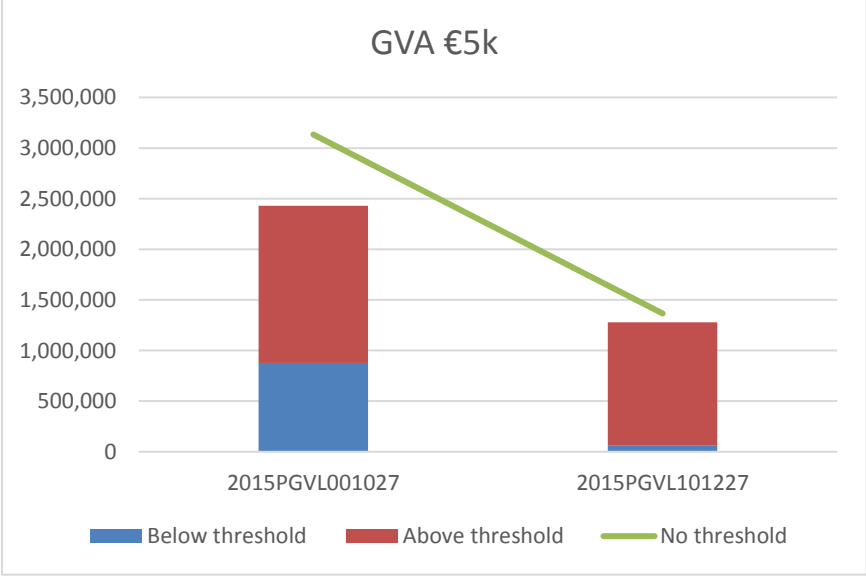
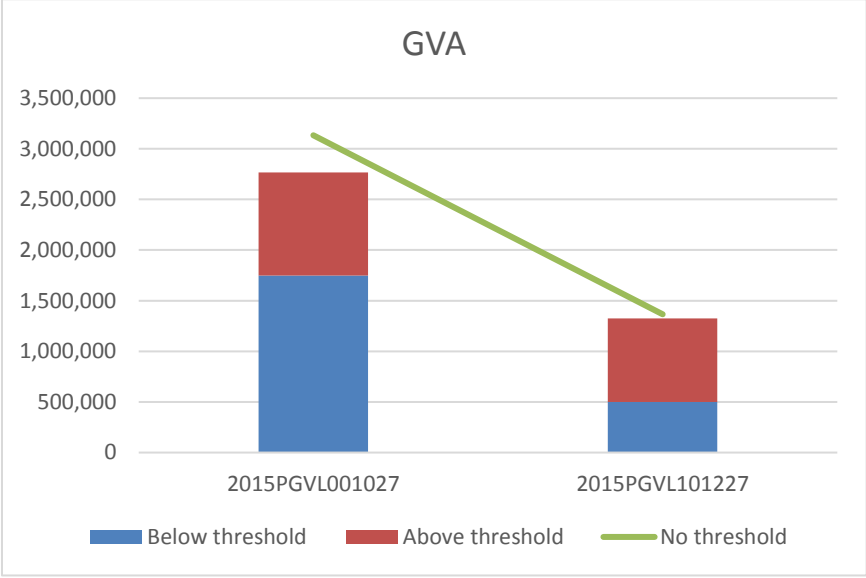
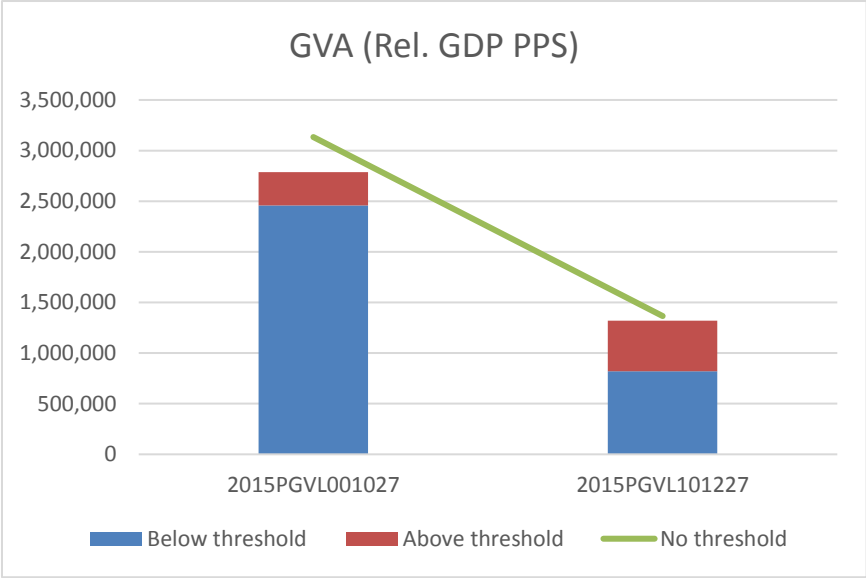


Figure : Estimated totals for the segments under analysis, with and without the threshold.

Effect on quality of estimates

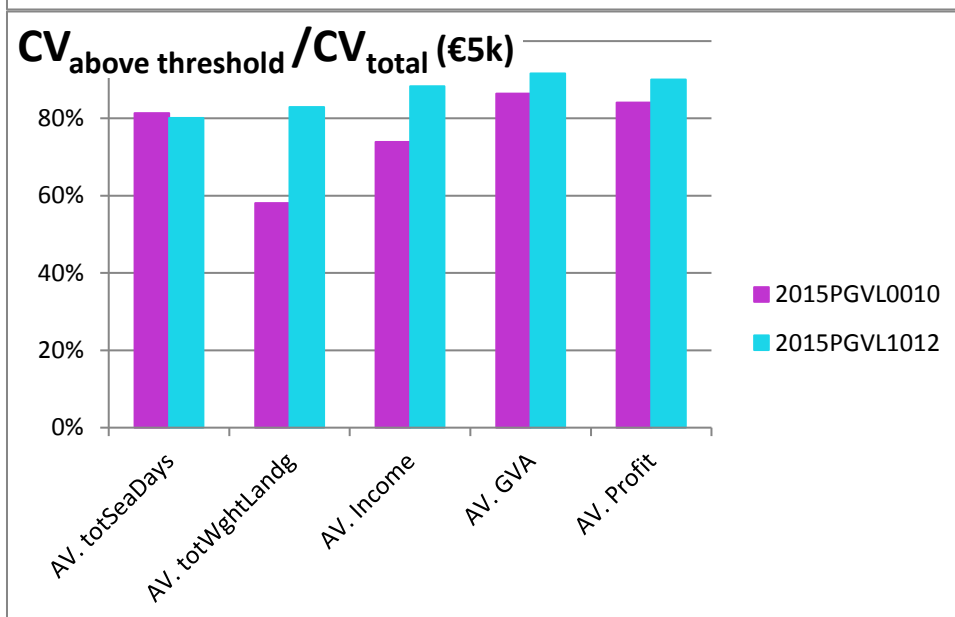
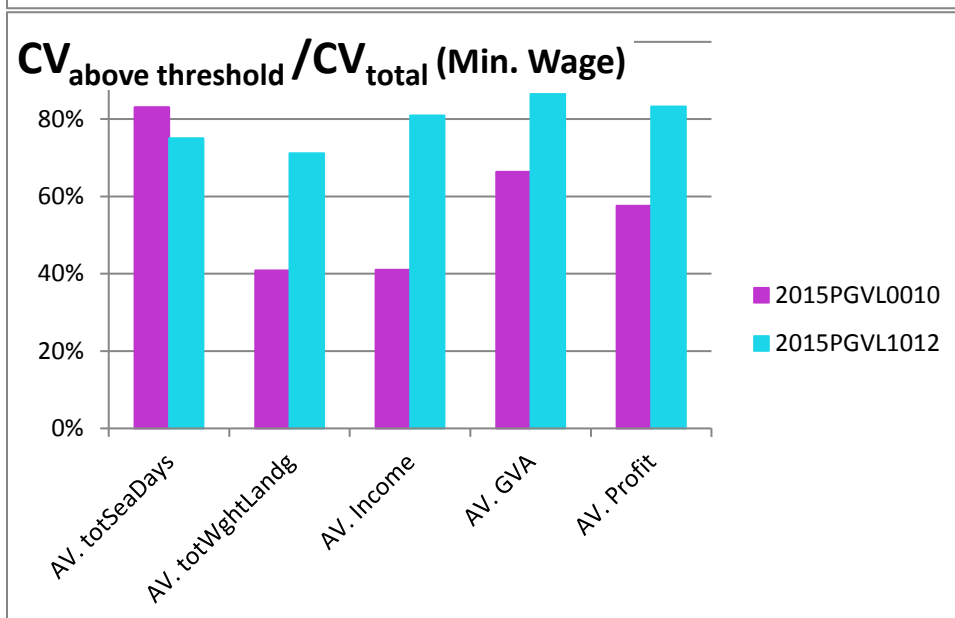
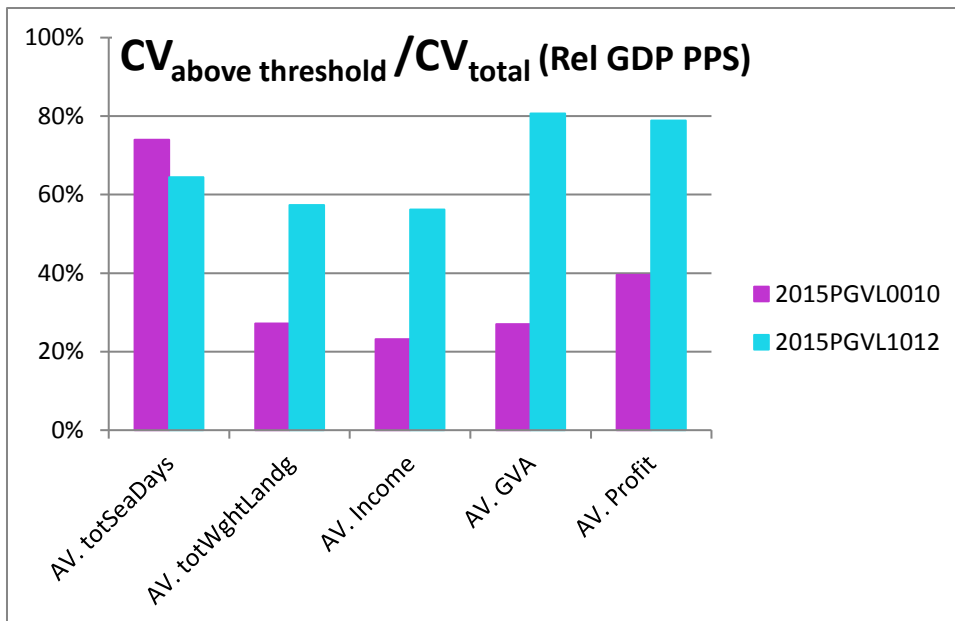


Figure : Effect of the use of a threshold on the quality of the estimate (Expressed as the CV)of the total segment (including both vessel with revenues above and under the threshold).

Italy

The polyvalent passive fleet in Italy represents the backbone of the fishing fleet, being composed by 7,787 vessels which accounting for 62% of the total fleet. It is the second largest fleet of this category in Europe.

The main patterns of this fleet are the following: a) family business organisation; b) area of operation close to landing points (<10 nm); c) use of one or more passive gears; d) limited daily landings (<40 Kg/day); e) small quantity of many species (on average between 10 and 50 species landed per day); f) direct selling of the product (no auction); g) high quality of the landings and high selling price (compared to large vessels). The management system for such a category of vessel is mainly based on input-control measures; No quota-system is in place.

These small-scale fishers may have other sources of income and the fishing activity can also be used as a source of supplementary income. The average income generated by these vessels is below the average generated by other fleet segments, as this work, in some cases, is part of a diversified livelihoods strategy.

In Italy landings data are collected by means of a stratified sample survey, where the sample is randomly selected within each segment and the strata are based on technical (gear utilised), dimensional (length overall) and geographical (region) characteristics of the vessels. The segments are then set up before the survey starts. The selection of the samples within each stratum is then done according to a probability proportional to size (PPS) strategy (<http://dcf-italia.cnr.it>). The application of any threshold based on the output of the activity, such as the revenue, is then barely compatible with such a data collection system and, further, vessels of less than 10 metres' length overall are not obliged to keep a fishing logbook nor to complete a landing declaration. Without logbooks or landing declarations these vessels would have to be separated from the 'above threshold' sample post-factum with negative implications on the sample coverage rates as well as the larger issue of excluding samples that are real representatives of the population.

These low-income and/or low-activity vessels characterize Italian fisheries, and are thus considered to be an important component of the sector that cannot be kept separate from the high-income and/or high activity vessels when socio-economic analysis are carried out. Any analysis done keeping separate, or excluding, this part of the fleet would provide biased conclusions on the socio-economic conditions of small scale vessels.

In summary, for all the reasons listed above, in the Italian context the application of any threshold is not advisable.

In support of these conclusions, an exercise was carried out in order to test the effect of the application of thresholds on the data of small-scale vessels and the results are presented below. A particularly striking result is shown in Figure 1 where, if the GDP threshold were to be set then on 90% of the segment 2015PGVL00006Italy and 65% of 2015PGVL0612Italy would result below the threshold and separated from the other part of the fleet, although they are entirely representative of the population. An analysis that kept separate such a large part of the population cannot be deemed to be representative of the population.

Data available:

The focus of the analysis was the small-scale vessels below 12 metres, and it was carried out utilising the sample data. More specifically, data from 706 sampled vessels were utilised, representative of a population of 7,787 vessels. These vessels have been analysed according to the following two groups:

- Small scale vessels below 6 metres (PG0006)
- Small scale vessels 6-12 metres (PG0612)

Thresholds applied:

GDP in PPS: 27,840 (Eurostat, Data from 1st June 2017)

Average wage of the two segments in 2015: 10000€

Results

Fleet composition

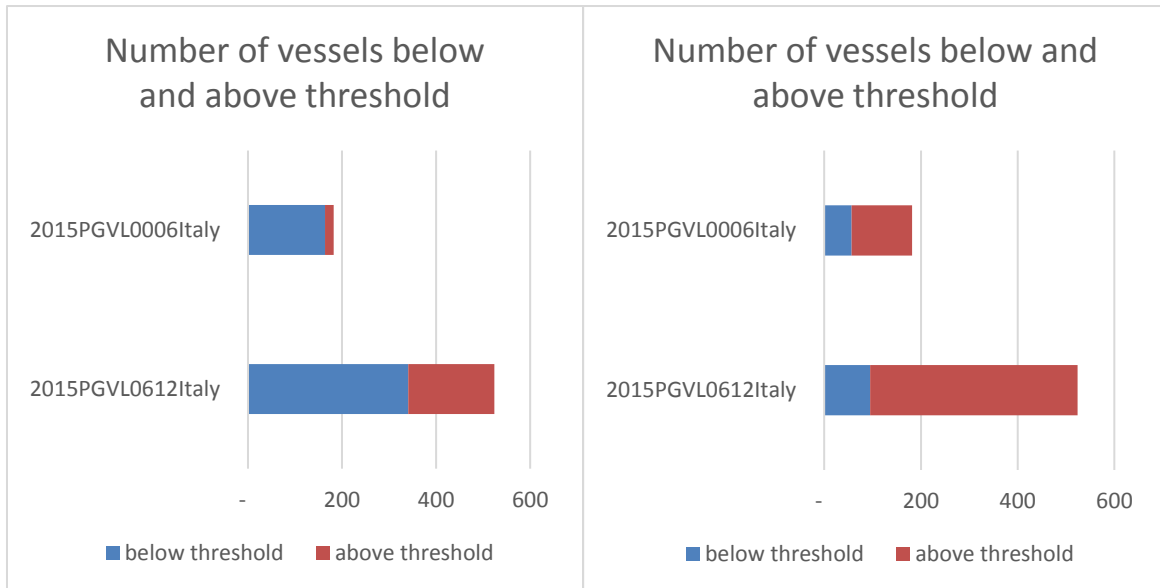


Figure 1: Number of vessel in the sample below and above the threshold after application of the threshold of GDP (left) and average wage (right)

Confidentiality issues

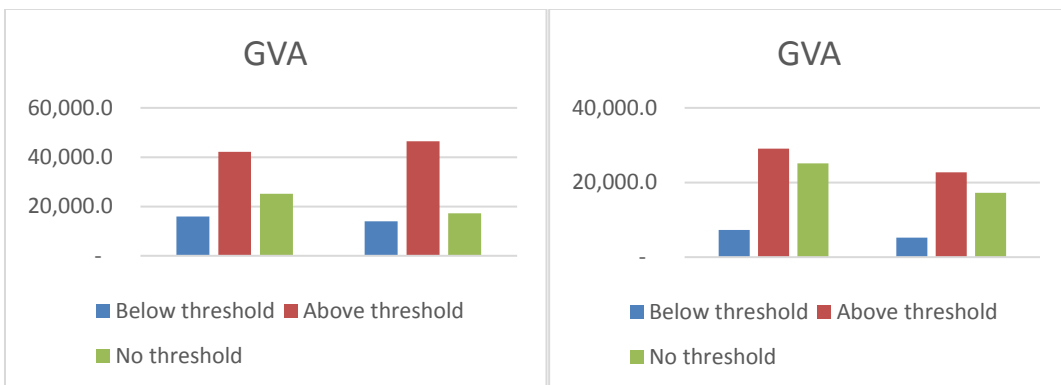
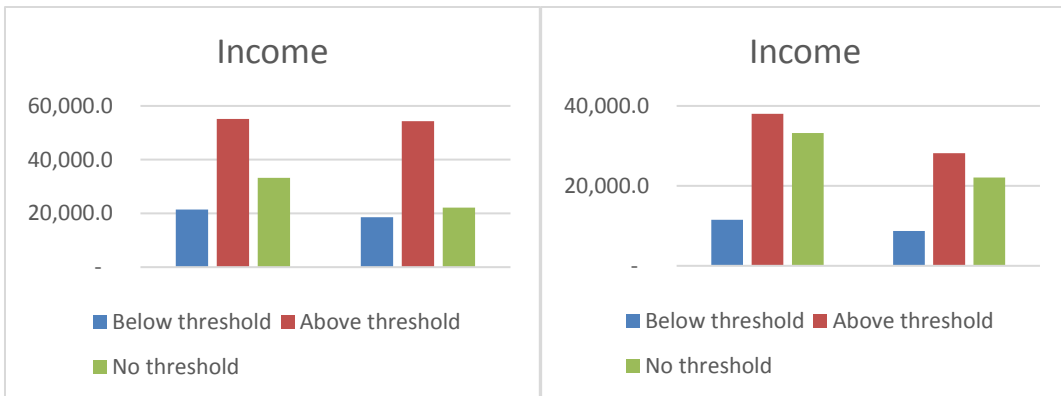
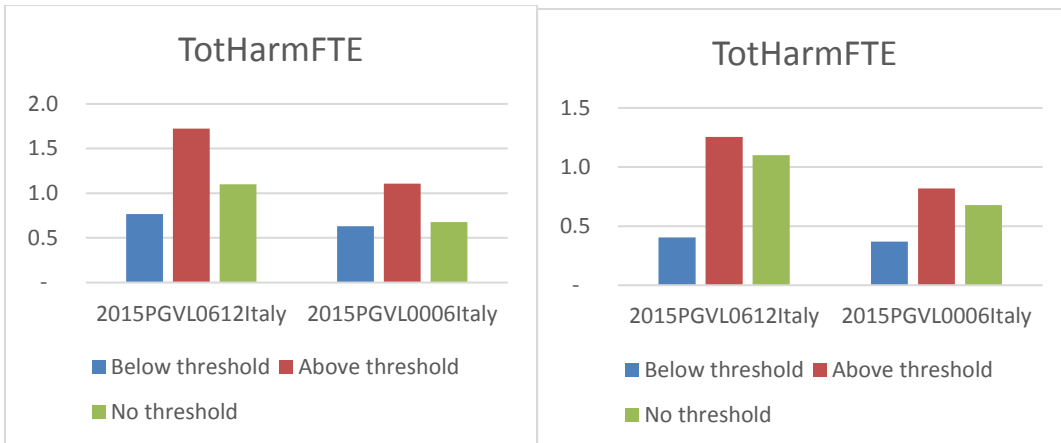
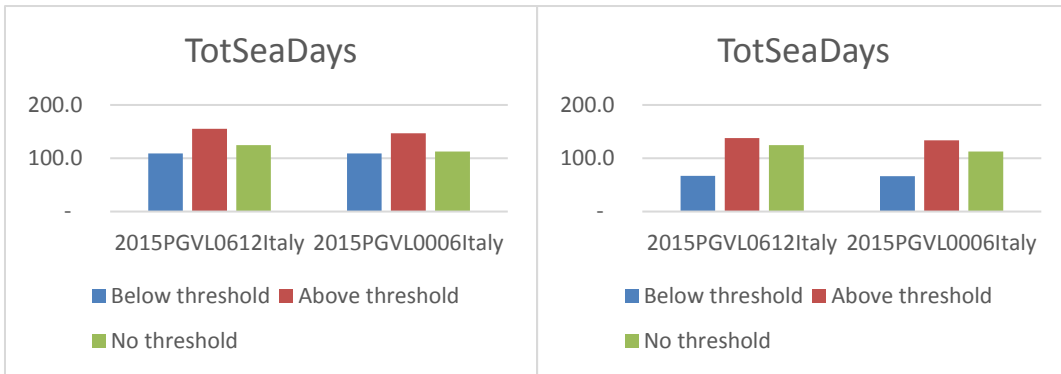
Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold GDP

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
PG	VL0006	0	0
	VL0612	0	0

Table 2: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold minimum wage

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
PG	VL0010	0	0
	VL1012	0	0

Effects on average - threshold of GDP (left) and average wage (right)



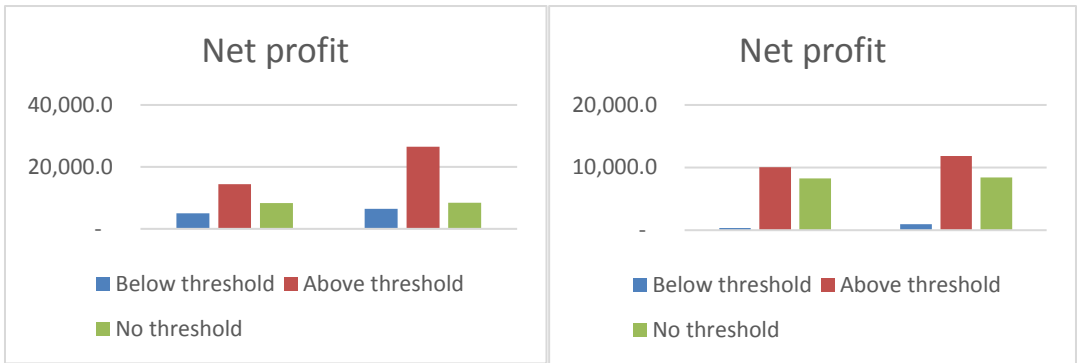


Figure 3: Estimated totals for the segments under analysis, with and without the threshold based on GDP (left) and on average wage (right).

Effect on total values - threshold of GDP (left) and average wage (right)

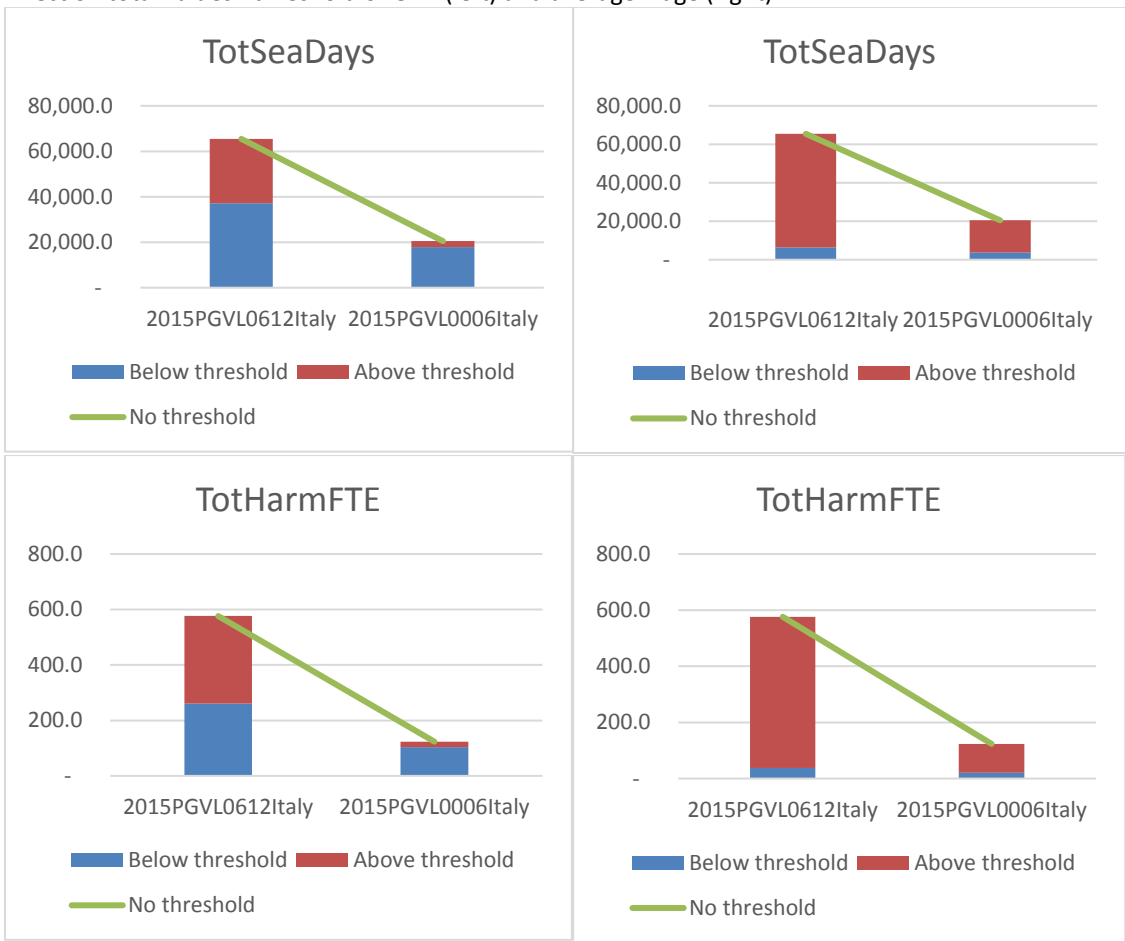




Figure 4: Estimated averages for the segments under analysis, with and without the use of a threshold.

Effect on quality of estimates

As the Italian data is collected by means of a sample survey, there was not considered meaningful any calculation of changes in CV values.

Latvia

Data available:

The coastal segment VL0010 was taken for the analysis. The census data for 2015 are available for the Sea Days, Fish Days, Weight of Landing and Value of Landing. The data are collected by vessel logbooks and sale notes.

The data for the Income and Costs are collected by the fleet segments and not available for each individual vessel. Due to that reason the following figures: TotHarmFTE, Income and GVA cannot be provided.

Thresholds applied:

Two thresholds were applied GDP and Minimum wage per year.

The data on the 1st of June 2017 presented for the GDP is 18,850 euro and for the minimum wage 4,320 euro.

Results

Fleet composition

The Minimum Wage threshold is applied - the 142 vessels are below threshold and 43 above threshold.

The GDP threshold is applied - the 169 vessels are below threshold and 16 above threshold.

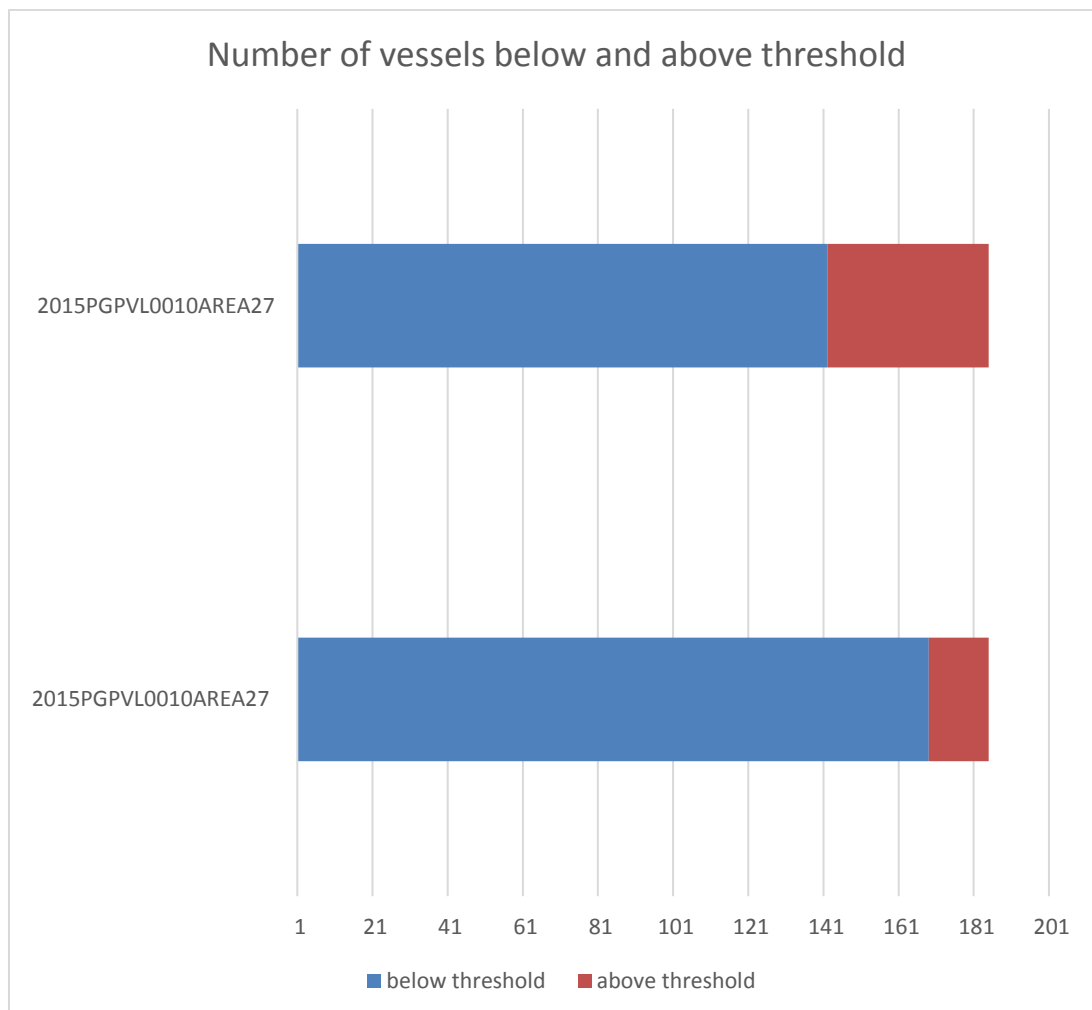


Figure : Number of vessel below and above the threshold after application of a threshold of minimum wage (above) and minimum wage GDP (below)

Confidentiality issues

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold GDP

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
PGP	VL0010	0	0

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold minimum wage

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
PGP	VL0010	0	0

Effect on average values

The average number of the days at sea for the 185 vessels was 58 days.

The GDP threshold is applied - the 169 vessels below threshold has a lower activity and spent 53 days at sea during 2015 in comparison with 16 vessels above threshold which during same time period spent in average 104 days at sea.

The Minimum Wage threshold is applied - the 142 vessels below threshold has a lower activity and spent 49 days at sea during 2015 in comparison with 43 vessels above threshold which during same time period spent 85 in average days at sea.

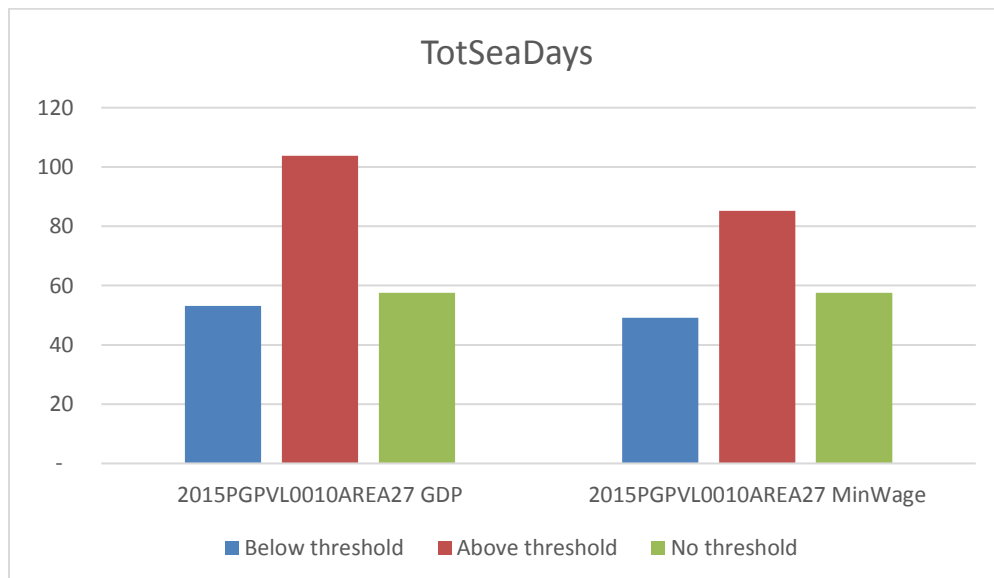


Figure : Estimated averages for the segments under analysis, with and without the use of a threshold.

Effects on totals

The GDP threshold is applied - despite on the longer trips for 16 vessels above threshold the 169 vessels below threshold contribute 84% to the total sea days.

The Minimum Wage threshold is applied – the share of sea days for the of vessels below threshold is 48% to the total sea days.

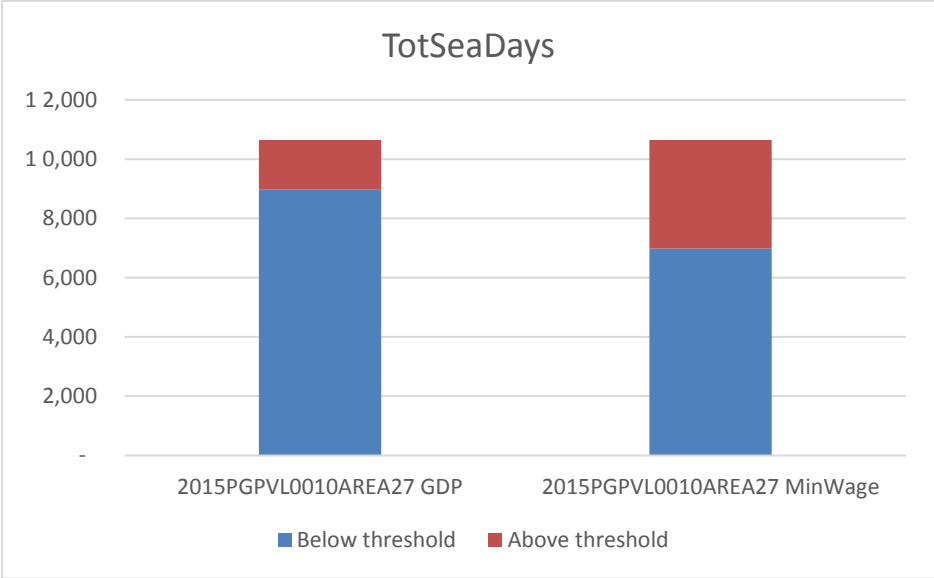


Figure : Estimated totals for the segments under analysis, with and without the threshold.

Effect on quality of estimates

The census data was used for the analysis and the estimates did not apply.

Lithuania

Data available:

Census scheme was applied in the collection of economic and transversal variables for small scale fleet segments. However, transversal data are available at the vessel level, whereas economic data are collected under unit of enterprise. In the cases when one enterprise owns more than one vessel, data disaggregation procedure was used to allocate economic variables to each vessel. Allocation of cost and employment data to vessel was based proportionally on the value of landings. Year 2015 was chosen as a reference year for analysis because characteristics of the small scale fleet is not vary dependant on year and time series were not necessary for such analysis. Small scale fleet in Lithuania consists from two segments, PG0010 and DFN1012. Number of vessels in segment DFN1012 was not sufficient to be used for threshold analysis because it faces confidentiality problems on both cases of different threshold. Therefore application of thresholds in general is possible only for the PG0010 segment, taking into account also relevance of this segment to the SSF. In terms of number of vessels, effort, employment and value of landings, segment PG0010 is dominant in Lithuanian small scale fleet.

Thresholds applied:

In the exercise to evaluate the applicability of activity level, two different thresholds were chosen, minimum wage and Gross domestic product (GDP) expressed in purchasing power standards per capita (PPS). According to Eurostat data, in 2015 Lithuanian minimum wage per year was 3600 Euro, whereas 2016 GDP per capita in PPS was 21750. Both thresholds significantly differs from each other and that applicability of GDP per capita in PPS is unlikely to be used, as it leaves 96% of vessels in PG0010 segment below the threshold and rises confidentiality issues in both SSF segments. Therefore, only threshold of minimum wage per year will be considered in further analysis. Taking into account number of vessels in PG0010 segment, application of minimum wage threshold divides population in 44% of vessels above threshold and 56% below.

Results

Fleet composition

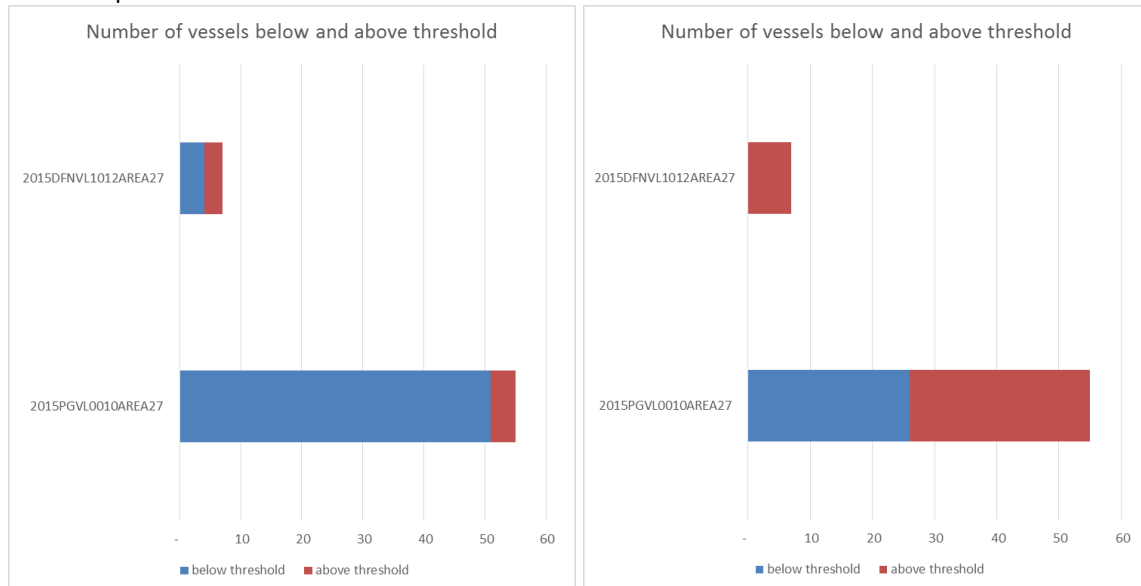


Figure : Number of vessel below and above the threshold after application of a threshold of GDP (left) and minimum wage (right)

Confidentiality issues

Tables above show the situation of the confidentiality after application of both thresholds respectively. Application of GDP threshold created confidentiality issues in both segments, whereas minimum wage threshold could be used for PG0010 segment. Therefore economic and employment data for the segment DFN1012 concerning both thresholds and PG0010 with GDP threshold will not be provided in figures.

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold GDP

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below theshold	Sum of problem with confidentiality above threshold
PG	VL0010	0	1
DFN	VL1012	1	1

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem

when applying threshold minimum wage

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below theshold	Sum of problem with confidentiality above threshold
PG	VL0010	0	0
DFN	VL1012	1	1

Effect on average values

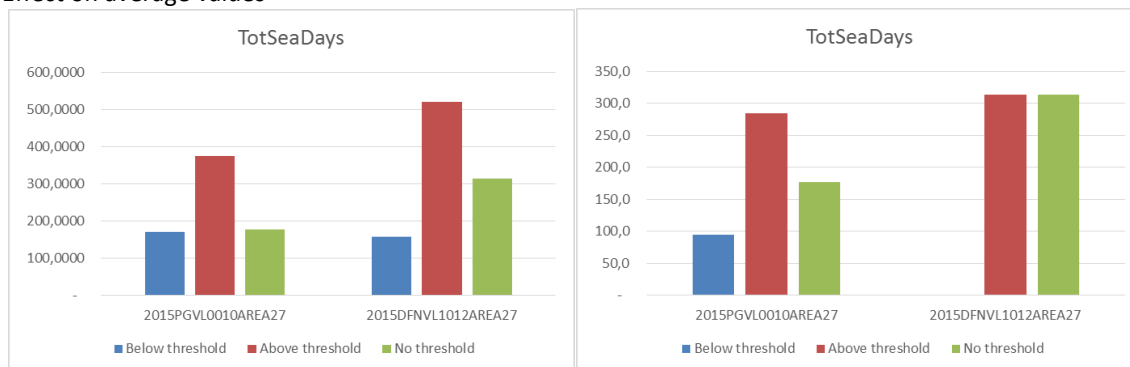


Figure : Estimated averages of Total SeaDays below, above and without the threshold after application of a threshold of GDP (left) and minimum wage (right)



Figure : Estimated averages of Total Harmonized FTE, Income, GVA and Net profit below, above and without the threshold after application of a threshold of minimum wage

After application of Minimum wage threshold to the SSF segment PG0010, average FTE per vessel above the threshold increased to 0,8 FTE, leaving 0,3 FTE per vessel below threshold, compare to 0,5 FTE for total population. Higher labour intensity was correlated with economic activity of the vessels above threshold. For example average annual income per enterprise above threshold was 11,9 thousand Euro compare to 2,5 thousand Euro below. Activity levels had a significant impact in terms of average profitability, expressed in GVA and Net profit. After separation of activities, average net profit per vessel above threshold was 3828 Euro, compare to 23 Euro loss below it.

Effects on totals

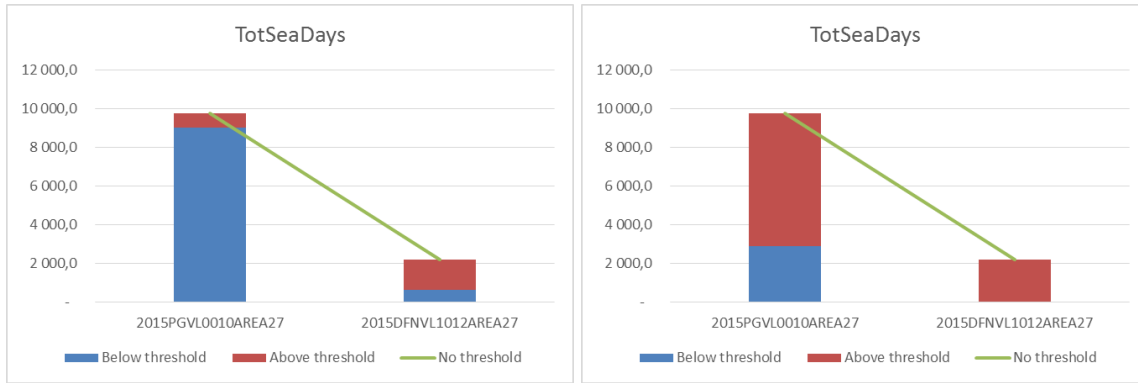


Figure : Estimated totals of Total Sea Days below, above and without the threshold after application of a threshold of GDP (left) and minimum wage (right)

As was mentioned before, threshold as GDP in PPS inadequately separates activities for SSF segments. Despite confidentiality issues GDP in PPS level allocated only 8% of effort in terms of Days at sea above threshold in PG0010 segment. In contrast to GDP in PPS level, Minimum wage thresholds allocated about 70% of total effort above threshold which contributed to almost 80% of segment income.

Among the selected variables for impact analysis, Net profit was the mostly distinguished by minimum wage threshold. For example in comparison to income and effort, net profit was moved only above the threshold, leaving modest net loss below threshold. In other words, population above the threshold represented all profits of the segment. However, in terms of employment, application of minimum wage threshold represented 67% of FTE.

Concerning capital value, minimum wage thresholds separates population to 60% above and 40% below the threshold. Taking into account the shift of net profit above the threshold, it significantly affect capital productivity. For example Return on fixed tangible assets (ROFTA) above the threshold was 180% whereas below threshold it amounted only -27%.



Figure : Estimated totals of Total Harmonized FTE, Income, GVA and Net profit below and above the threshold after application of a threshold of minimum wage

Effect on quality of estimates
Not relevant, data collection scheme is census

POLAND

Data available:

During the workshop data from 2015 on small scale fleet (vessels below 12 m using passive gear) was used.

Thresholds applied:

The minimum annual wage in 2015 (4,919 euro) and the relative GDP PPS (20,010 euro) were applied as thresholds.

Results

Fleet composition

Following application of the minimum wage threshold, segment VL0010PG consists of 158 vessels (86 were deducted – 35%) and segment VL1012PG of 43 vessels (only one was identified below the threshold).

Following application of the GDP threshold, segment VL0010PG consists of 49 vessels which stands for 20% of this segment. In segment VL1012PG 39 vessels were above the threshold which represents 89% of vessels in this segment.

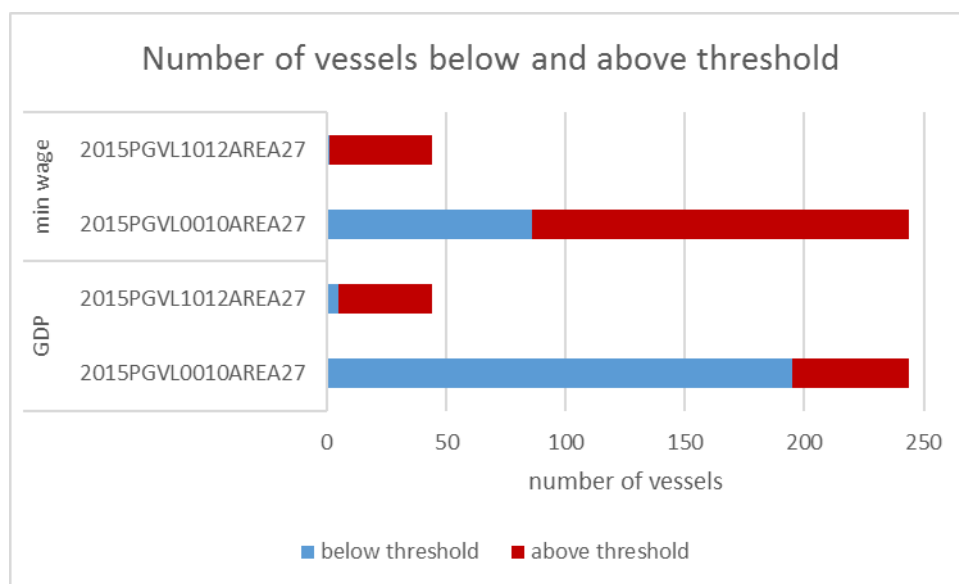


Figure 1: Number of vessel below and above the thresholds after application of a minimum wage and GDP thresholds.

Confidentiality issues

Only one vessel from VL1012PG was below the thresholds so it should be included into analyses because of the confidentiality.

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can pose a problem when applying the minimum wage threshold.

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
PG	VL0010	0	0
	VL1012	1	0

Table 2: Segment year combinations with less than 10 vessels for which confidentiality can pose a problem when applying the GDP threshold.

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold

PG	VL0010	0	0
	VL1012	1	0

Effect on average values

Indicators for the VL0010PG fleet, measured by average revenue, GVA and net profit after introducing the minimum wage and GDP thresholds, are higher than without these thresholds.

Without applying the minimum wage threshold, vessels in VL0010PG segment spent average 84 days at sea. 86 vessels below threshold spent 56 days at sea and 158 vessels above the threshold were 99 days at sea in 2015. For the GDP threshold, vessels above it, spent more time at sea than without the threshold.

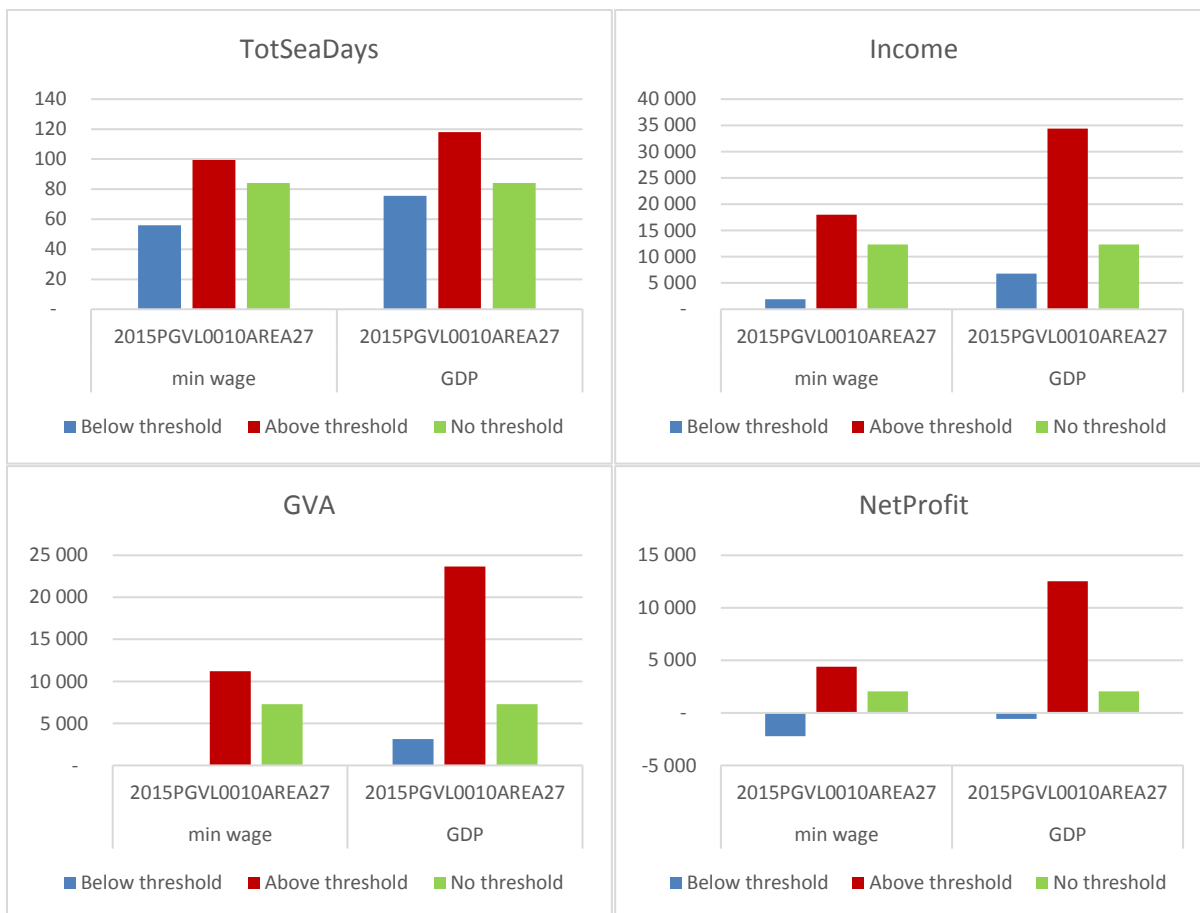


Figure 2: Estimated averages for the segments under analysis, with and without the use of a thresholds.

Effects on totals

For the minimum wage threshold, 86 vessels from VL0010PG were below the threshold and spent 4803 days at sea, which stands for 23% of total sea days. 158 vessels were above the threshold and they spent 15701 days at sea (77%).

When the GDP threshold applied, in segment VL0010PG vessels above the threshold spent 5780 days at sea which represents 28% of sea days in that segment. 5 vessels in VL1012PG below the GDP threshold generated 8% of the total sea days in that segment.

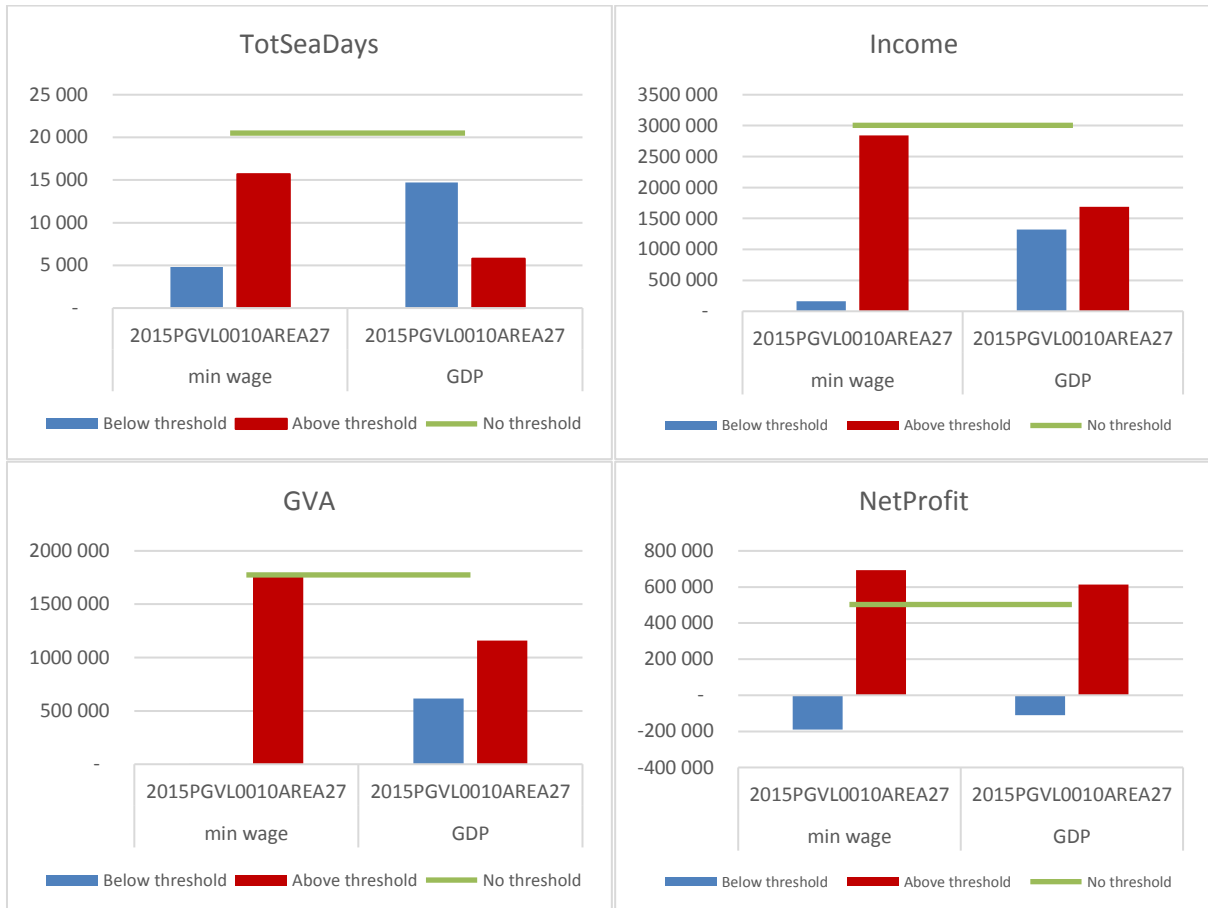


Figure 3: Estimated totals for the segments under analysis, with and without the thresholds.

Relative change in total outcome

Relative change in the total outcome for energy costs after applying the minimum wage decreased by 5,6% and crew wage by 2,4%.

For the GDP threshold in VL0010PG segment, the energy costs decreased by 2,8% and crew wage by 1,9%.

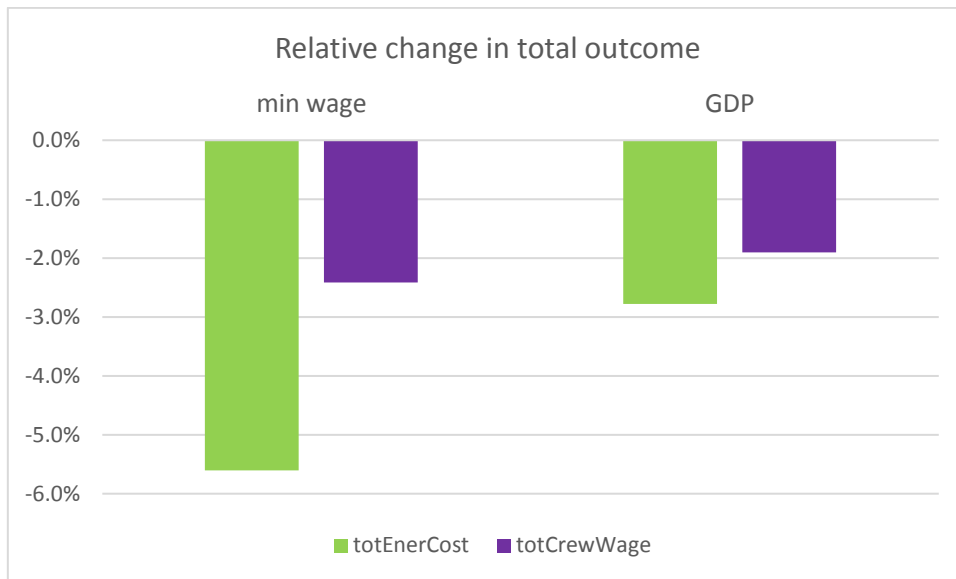


Figure 4: Relative change in total outcome for energy costs and crew wage with thresholds.

Effect on quality of estimates

Changes in CVs are so small (close to zero) that it has no impact on the total outcome. The total energy costs drop by 0,2% and the total crew wage is up by 0,3% in VL0010PG segment. Hence, the quality of the estimates is good.

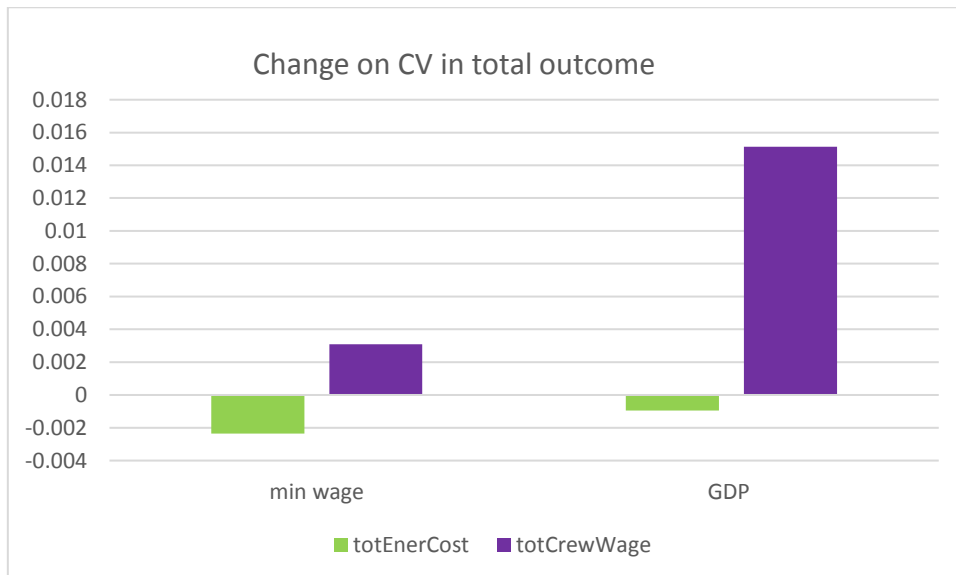


Figure 4: Effect of the use of a threshold on the quality of the estimate (expressed as the CV) of the total segment (including both vessel with revenues above and under the threshold).

Portugal

Data available:

Effort, landings and economic data was fit in the provided excel file corresponding to:

- active fleet on a total of 3870 vessel from all Portuguese regions (mainland, Autonomous Regions of Azores and Madeira).
- Data was disaggregated by geo indicator (NGI, P2, P3, IWE).
- Reference year was 2015.

Despite the possibility to test all data, the goal was establish on analyse of fleet segments below 12 meters and only for passive gears. After some tests, PRT decided to reduce the input data to vessels belonging to "Area 27", to geo-indicator "NGI" (mainland) and to vessels above 12m only with passive gears (=2.476 vessels).

Thresholds applied:

7.070 €	PRT minimum Wage per year (source: Eurostat)
22.330 €	PRT Relative GDP PPS (EU28=100) (source: Eurostat GDP per capita in PPS, data from 1 st June 2017)

Results

Fleet composition

		GDP - threshold			minWage - threshold		
		Below threshold	Above threshold	%below	Below threshold	Above threshold	%below
PGP	VL0010	1.318	522	72%	485	1.355	26%
PGP	VL1012	4	7	36%	1	10	9%
DFN	VL0010	183	49	79%	95	137	41%
DFN	VL1012	1	21	5%	-	22	0%
FPO	VL0010	70	91	43%	26	135	16%
FPO	VL1012	-	54	0%	-	54	0%
HOK	VL0010	122	24	84%	38	108	26%
HOK	VL1012	-	10	0%	-	10	0%

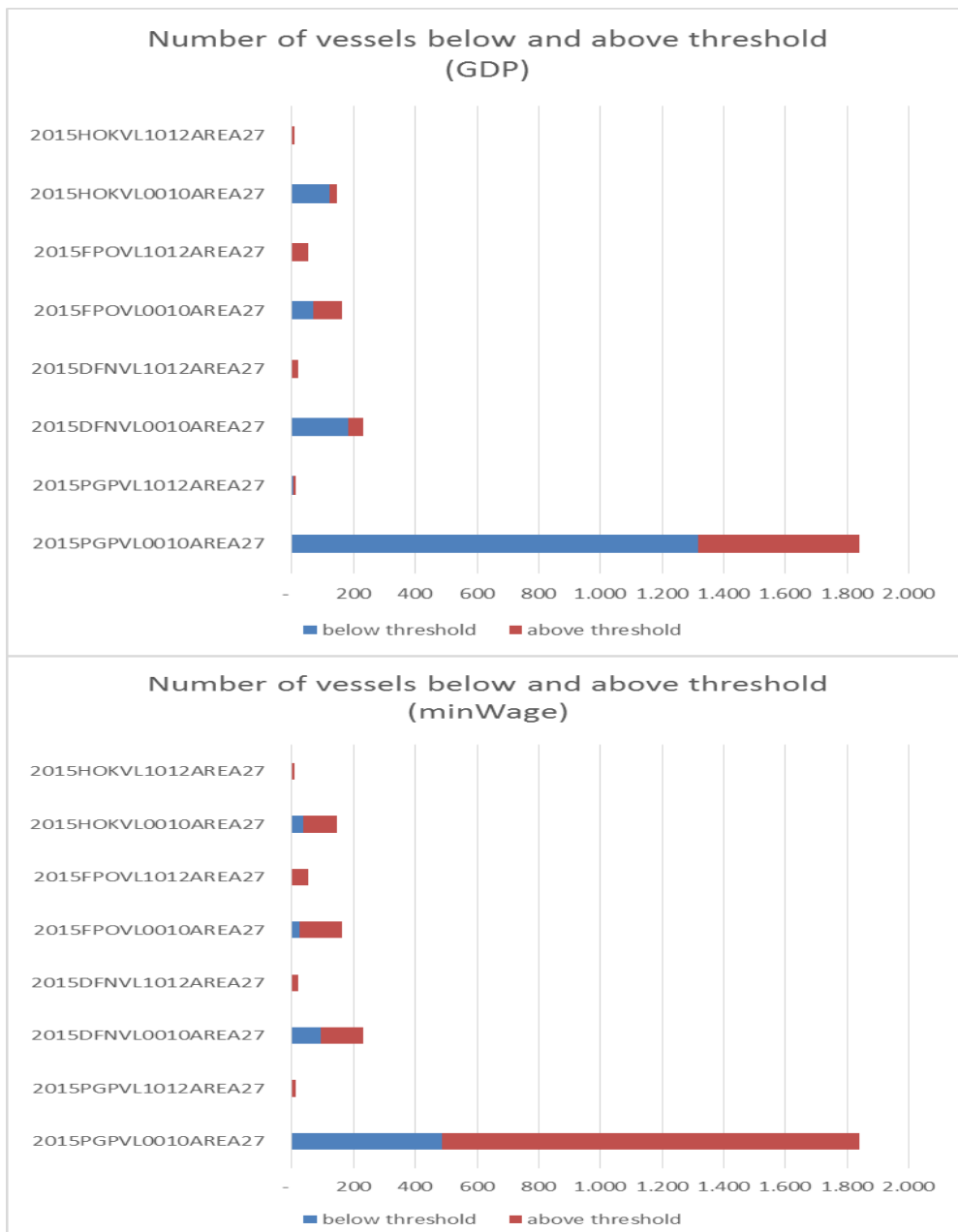


Figure: Number of vessel below and above the threshold after application of a threshold of GDP (above) and minimum wage (below)

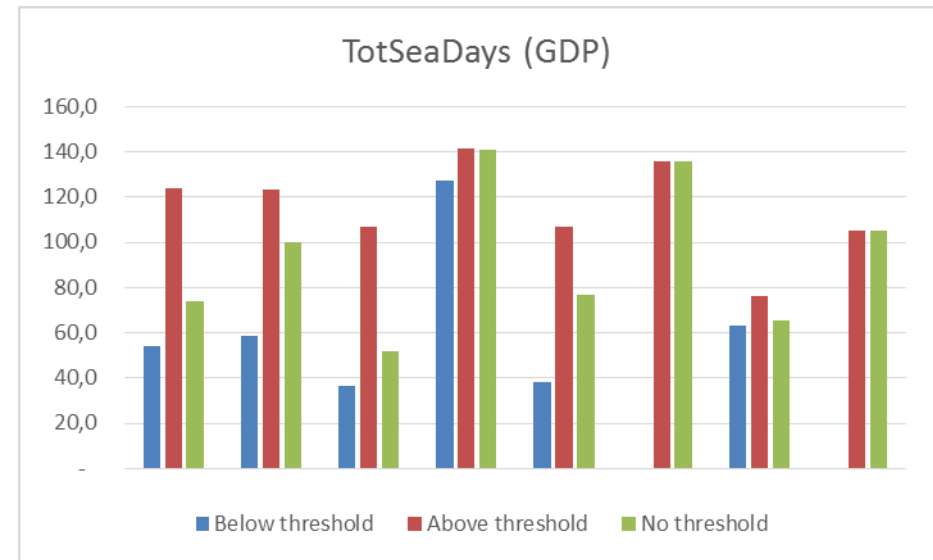
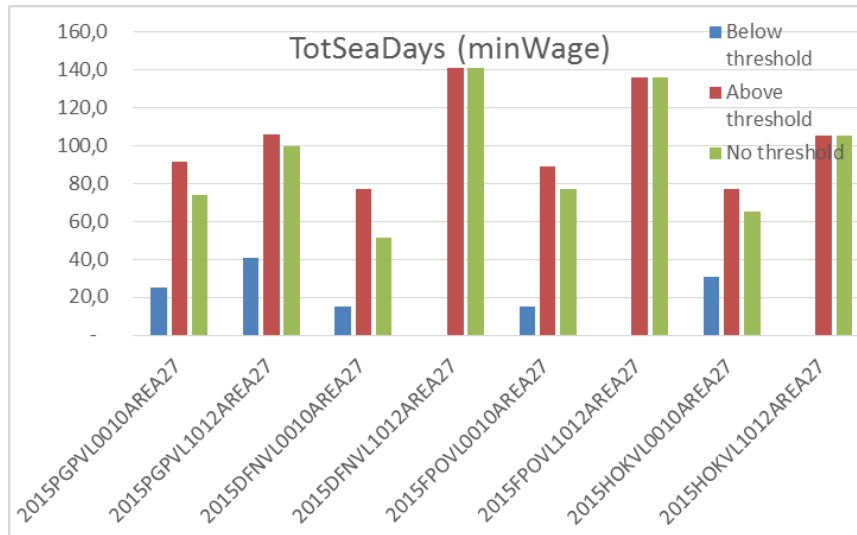
With the application of the GDP value more than 70% of the vessels stays below the threshold: PGP0010 – 72%; DFN0010 – 79%; HOK0010 – 84%). With this threshold, confidentiality issues are raised in 2 fleet segments, mostly because the few number of vessels (PGP1012 and DFN1012). Using the Minimum wage for threshold, only in DFN0010 the near half of the vessels stay below the threshold (41%).

Confidentiality issues

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold GDP (PRT 22.330 €) or minimum wage (PRT 7.070 €).

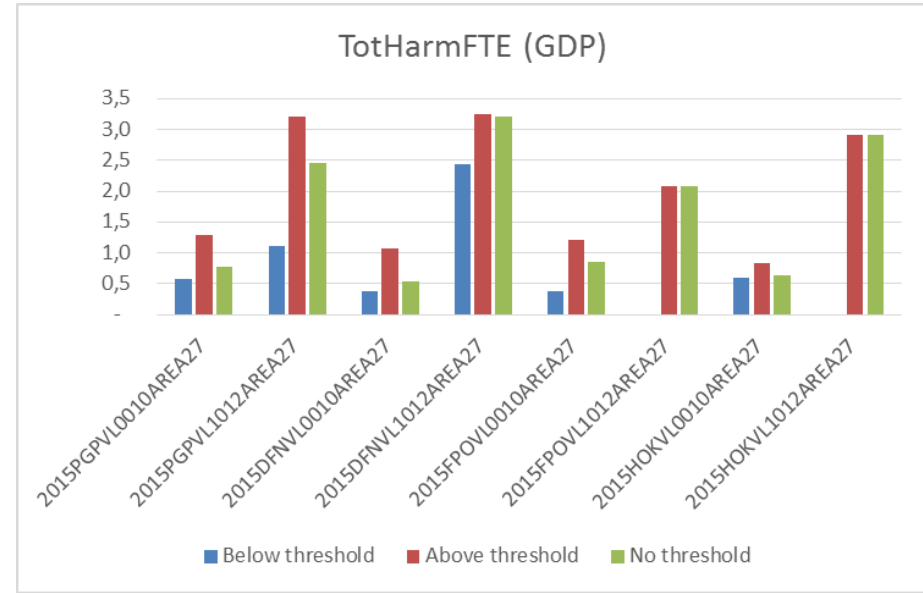
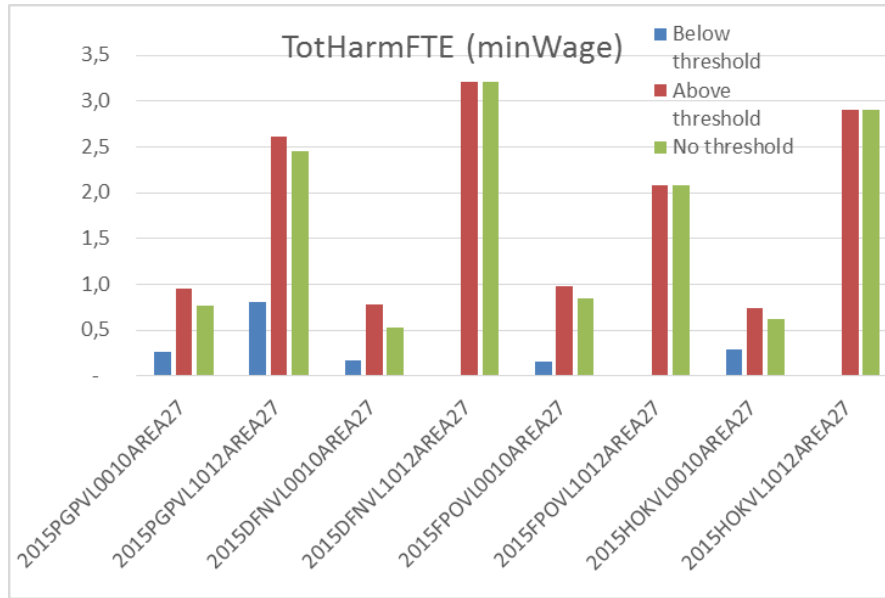
		GDP		MinWage	
FISHING_TEC	VESSEL_LENGTH	Sum of problem with confidentiality below theshold	Sum of problem with confidentiality above threshold	Sum of problem with confidentiality below theshold	Sum of problem with confidentiality above threshold
PGP	VL0010	0	0	0	0
	VL1012	1	1	1	0
DFN	VL0010	0	0	0	0
	VL1012	1	0	0	0
FPO	VL0010	0	0	0	0
	VL1012	0	0	0	0
HOK	VL0010	0	0	0	0
	VL1012	0	0	0	0

Effect on average values

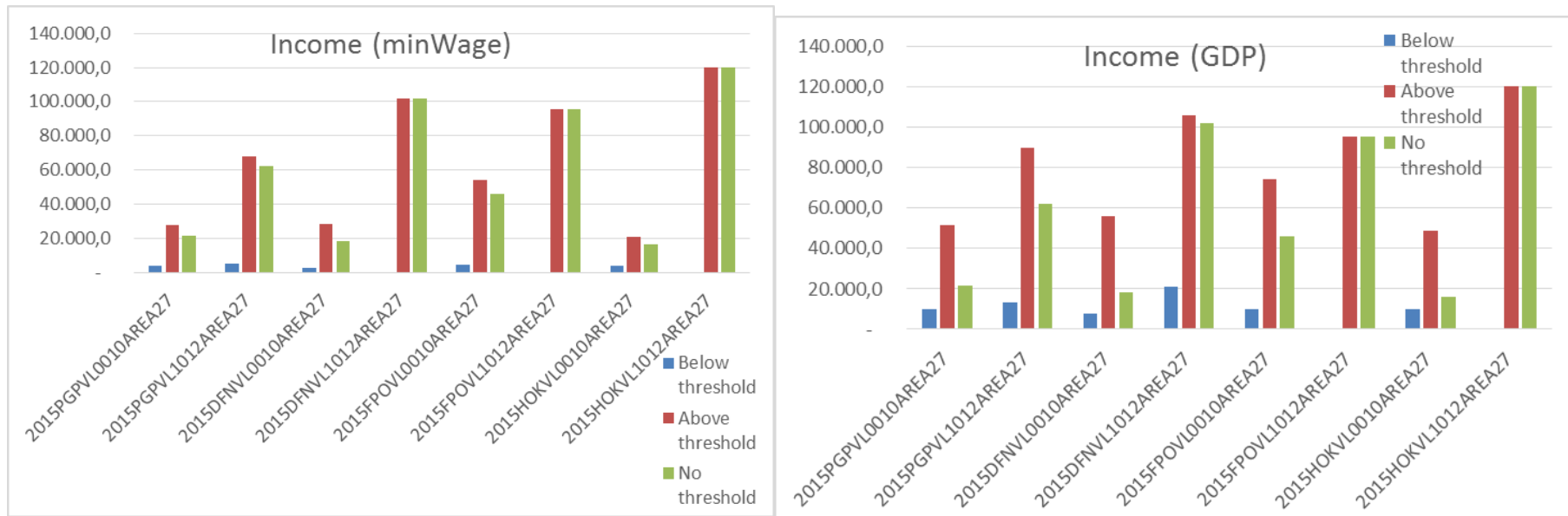


GDP threshold when applied slips the vessels with an average totseadays between 40 and 125 days. In this last segment, this level of activity is quite the same than the vessels above the threshold or even the overall average.

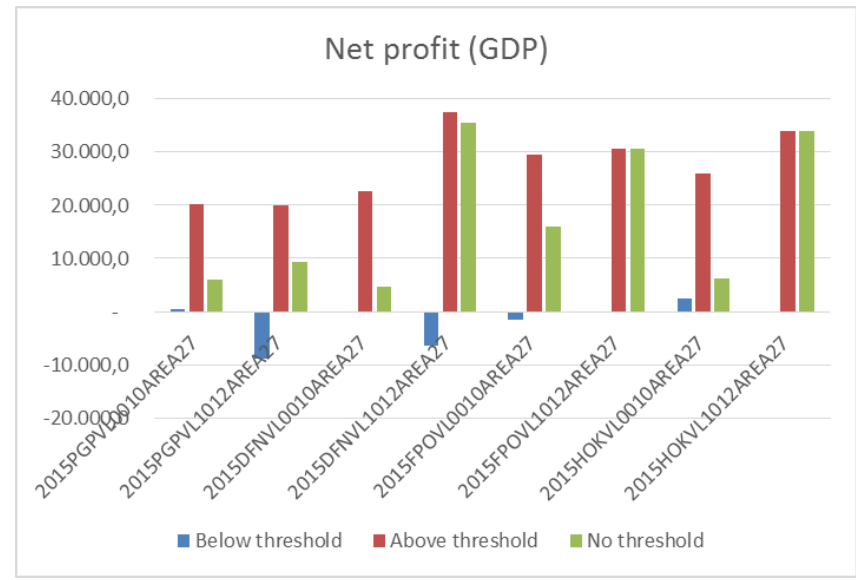
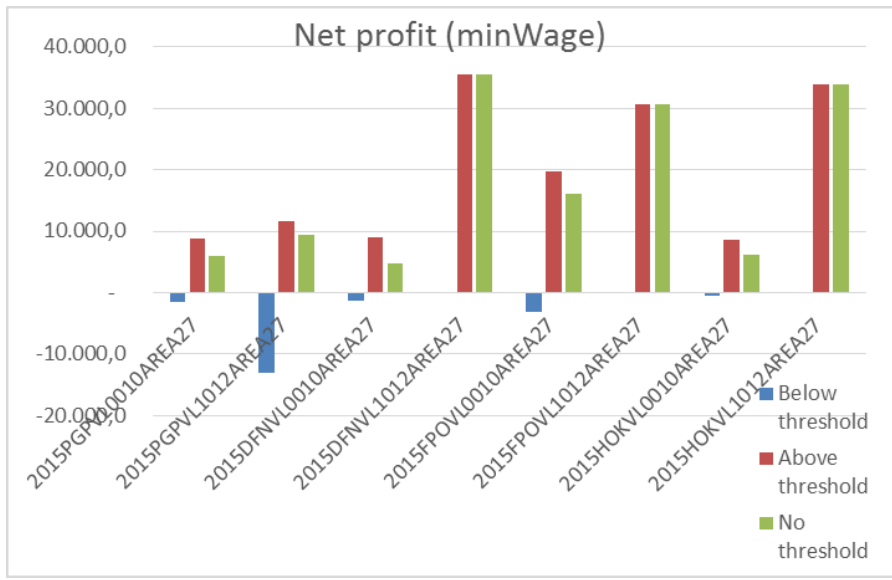
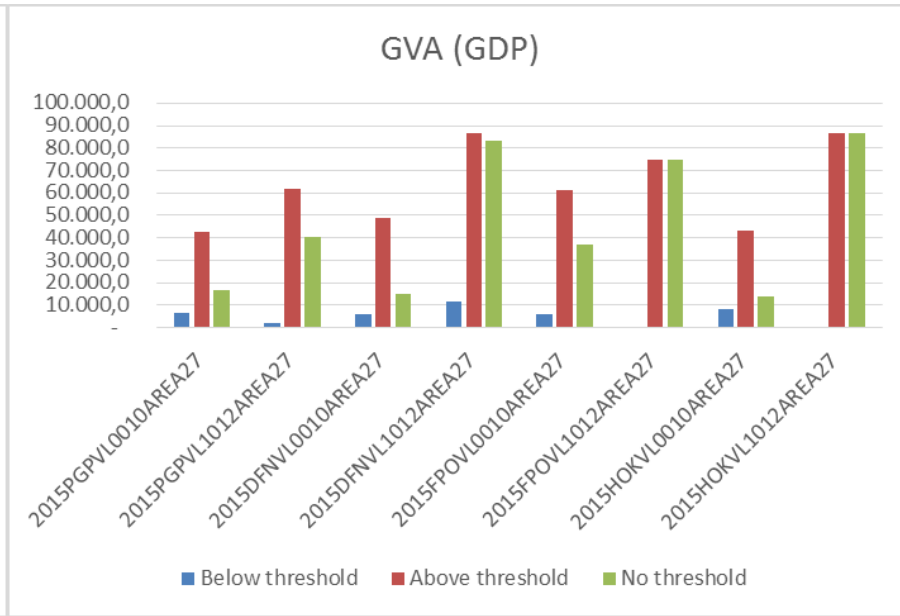
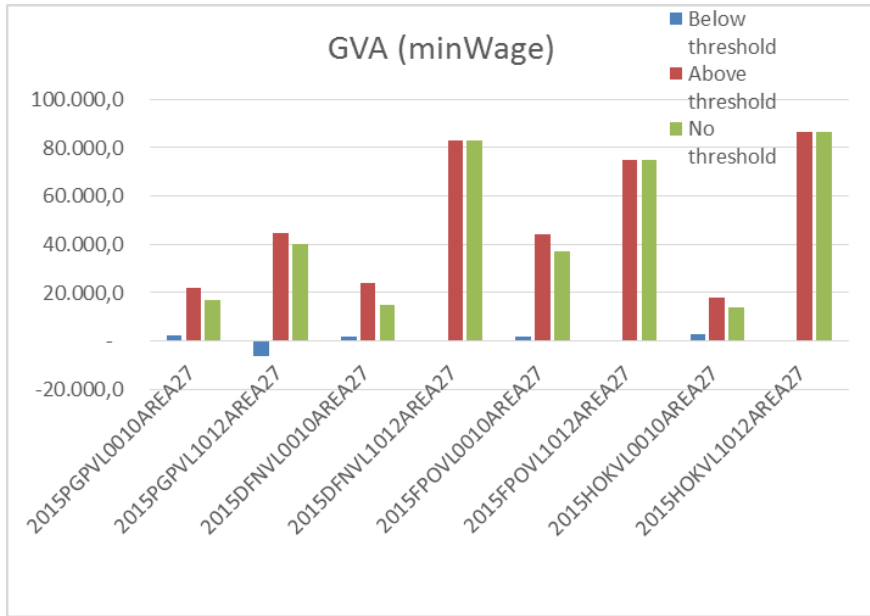
It seems that is a very high value to be used. Nevertheless, the minimum wage threshold leave below it vessels with less than 40 sea days in average. In this way, the result is an increase on the average days above the threshold, meaning that less active and more active vessels have inverse influence in overall value.



Again, the effect of the GDP threshold has a big impact in TotHarmFTE, once it splits vessels with similar averages of FTE below and above the threshold. Minimum wage threshold gives more reliable results once the vessels below it are characterized for low FTE's. Moreover, in the segments affected by the threshold, the FTE for the vessels above is slightly higher than the FTE for all segment.



In general, the average income increases when a threshold is applied of the vessels with low contribution for the segment average are separate. Once more, the threshold minimum wages have better results in the way that the averages income of the vessels above the threshold are not so different from the segment averages without threshold.



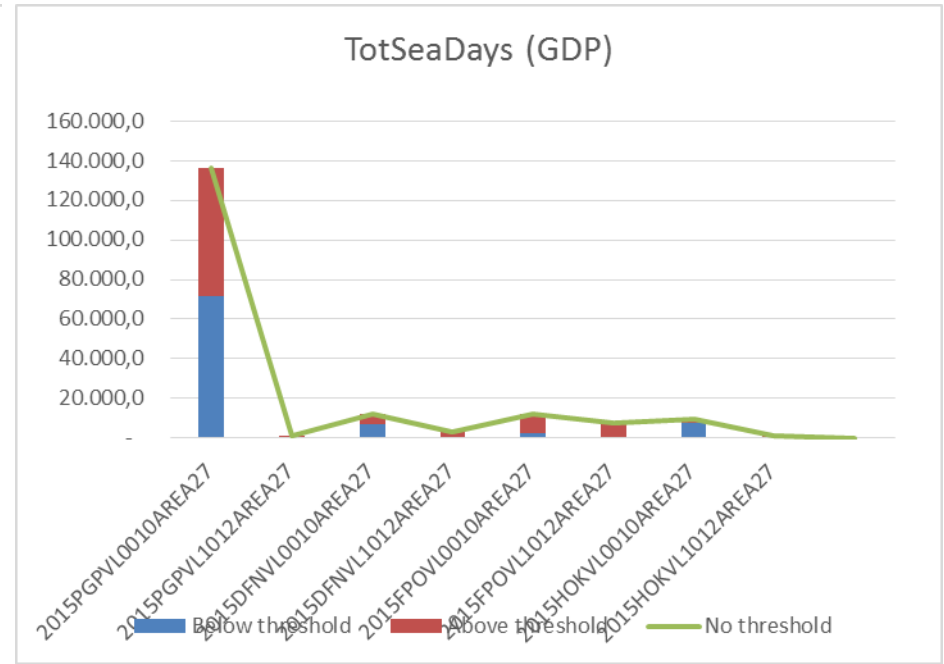
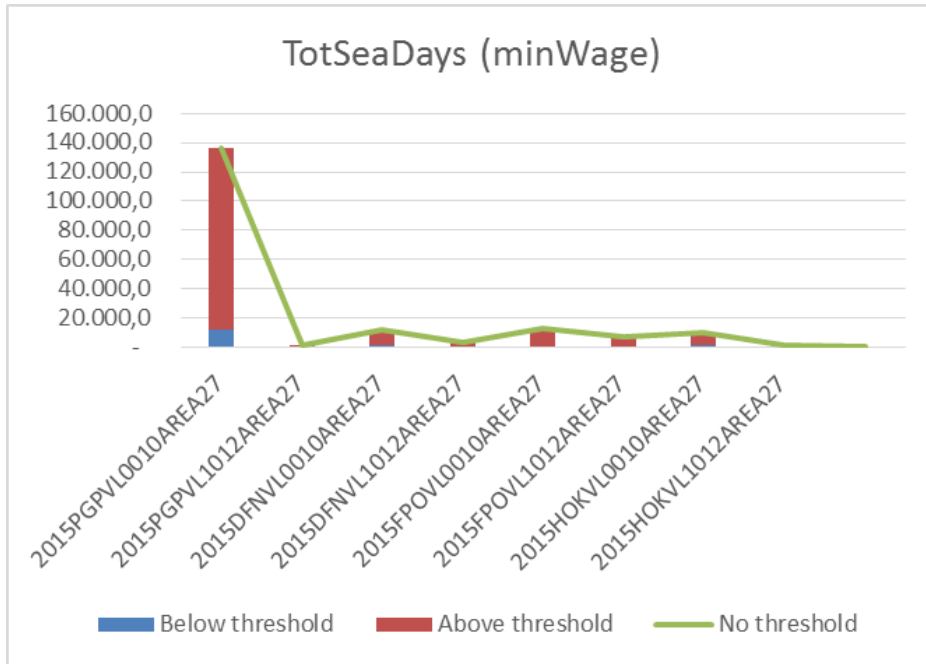
The minimum wage returns the vessels with low or negative GVA below the threshold and above the threshold the values are slightly higher as expected, showing that only the vessels with low activity and low FTE, with no contribution to the average income and with negative or close to zero GVA and negative profit are the only ones being split to stay below the threshold.

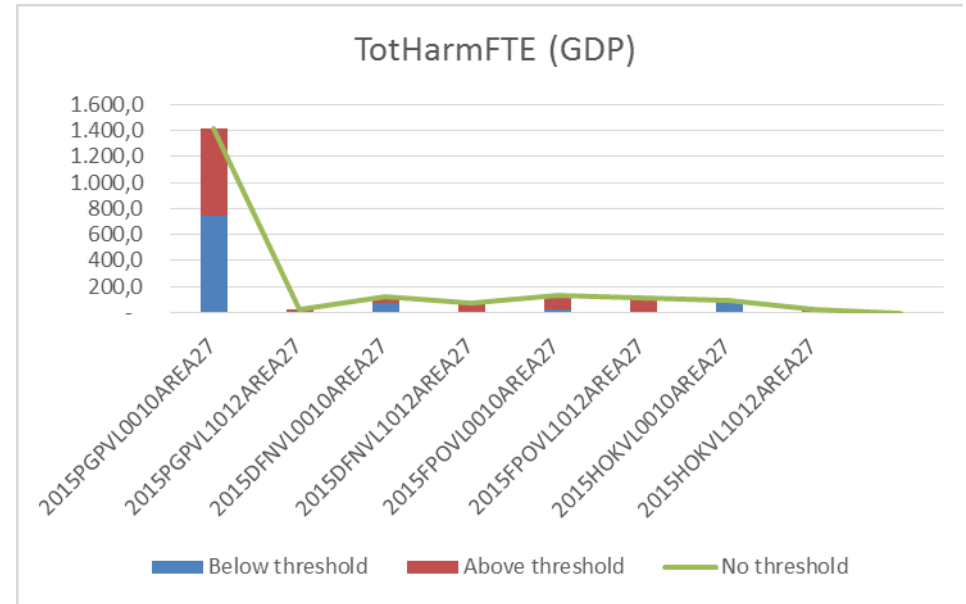
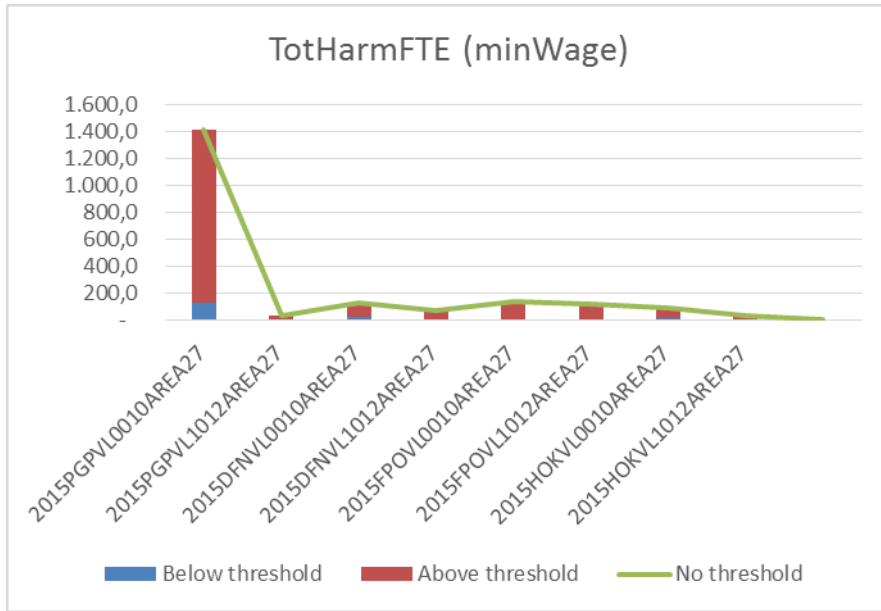
In conclusion although the present exercise indicates that an application of a threshold close to annual minimum wage could get more reliable estimates in fleet segments, is important to stay in view how it can be implemented. In case of Portugal, 3 regions have SSF with different pattern of activity, gears in use or target assemblages from where derive different social economic performance. Some more tests, with the whole fleet are needed to evaluate is a common threshold is possible to be applied to the 3 regions.

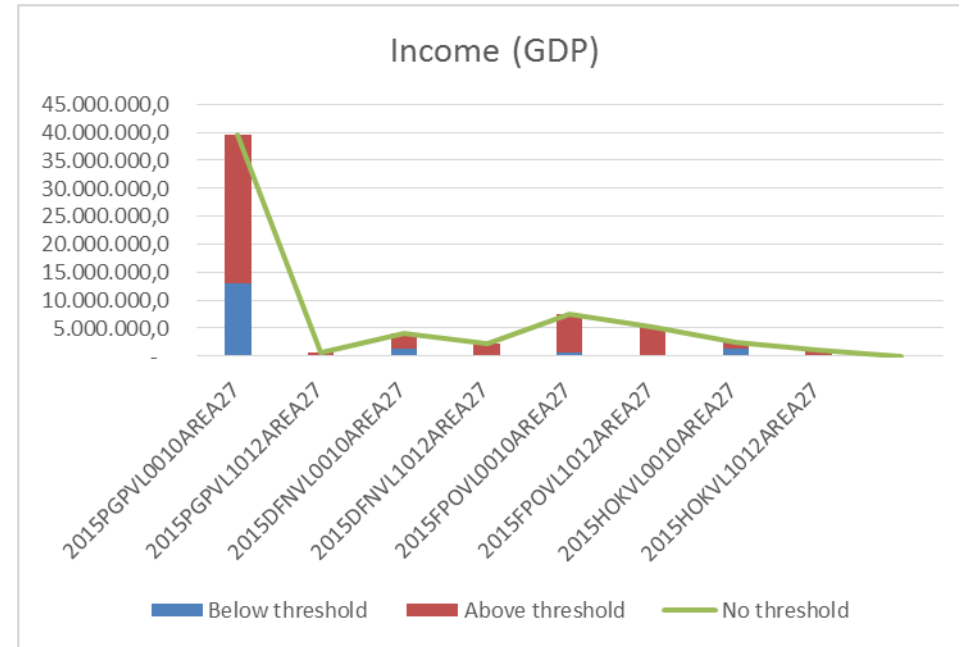
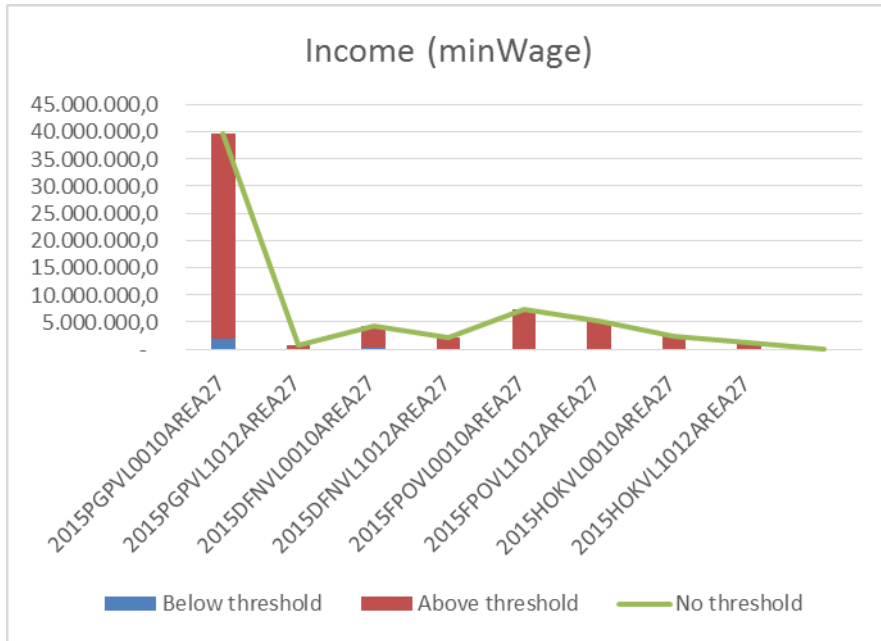
Main concern is about the application of not equivalent threshold between MS placing in risk the comparability.

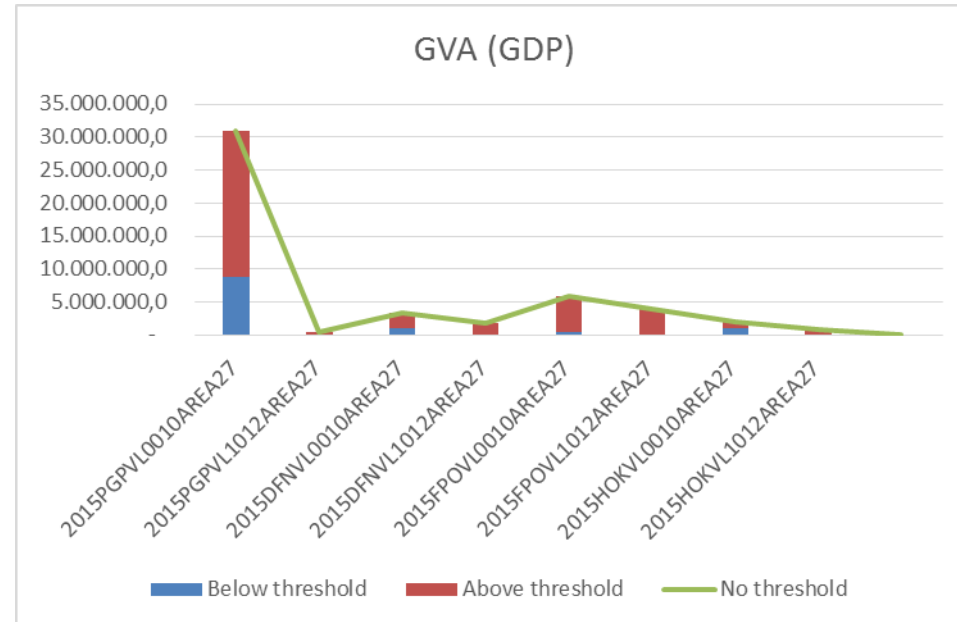
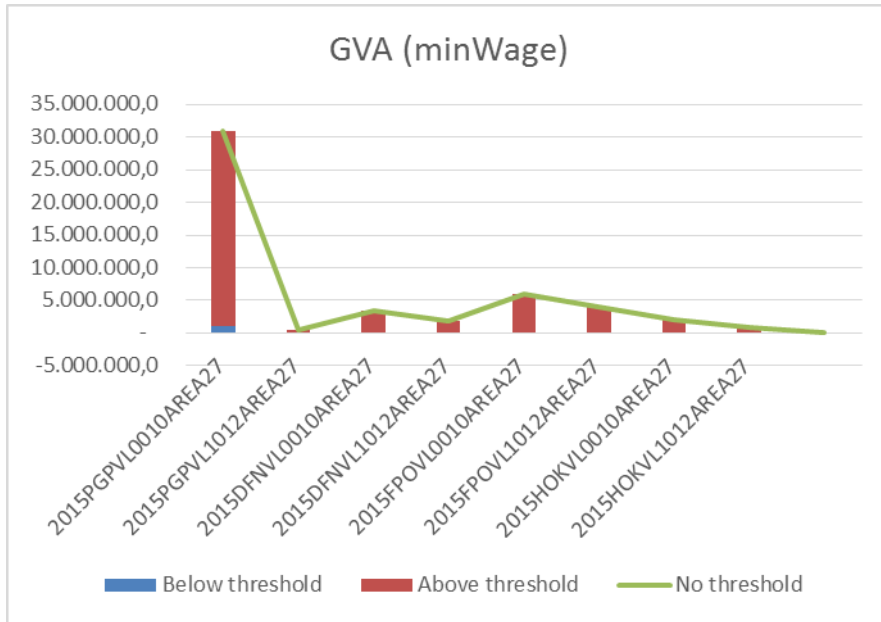
Figure : Estimated averages for the segments under analysis, with and without the use of a threshold.

Effects on totals









Analysing the effect of threshold in the total values estimated it can be assumed that the minimum wage don't have a big impact on totals, but GDP can affect the totals mainly in the segment PGP0010.

Figure : Estimated totals for the segments under analysis, with and without the threshold.

Effect on quality of estimates

Not applicable once PRT had all data estimated for this exercise.

The Netherlands

Data available:

Effort, landings and economic data was fit in the provided excel file corresponding to:

- active fleet from the segments using pasive gears below 12 meters. These were in total 252 vessels.
- Reference year was 2015.

Despite the possibility to test all data, the goal was stablish on analyse of fleet segments below 12 meters and only for passive gears.

Thresholds applied:

18.022 €	PRT minimum Wage per year (source: Eurostat)
37.120 €	PRT Relative GDP PPS (EU28=100) (source: Eurostat GDP per capita in PPS, data from 1 st June 2017)

Results

Fleet composition

		GDP -threshold			minWage - threshold		
		Below threshold	Above threshold	%below	Below threshold	Above threshold	%below
PGP	VL0010	206	17	92%	186	37	83%
PGP	VL1012	20	9	69%	16	13	55%

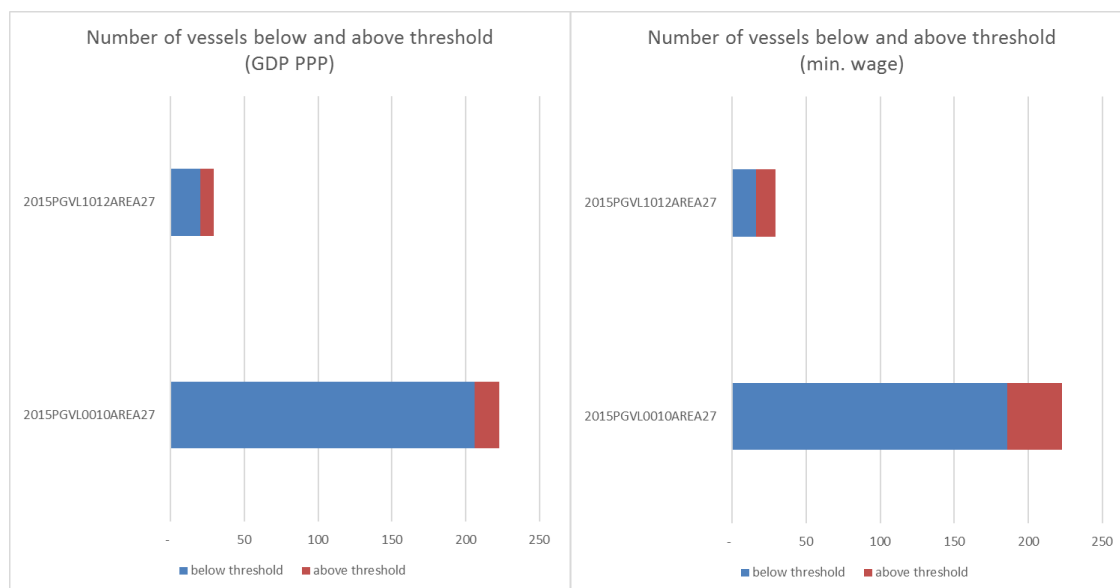


Figure: Number of vessel below and above the threshold after application of a threshold of GDP and minimum wage

With the application of the GDP value more than 69% of the vessels stays below the threshold: PGP0010 – 92%; PG1012 – 69%). With this threshold, confidentiality issues are raised in the segment of PGP1012. Using the Minimum wage for threshold, The percentage of vessel below the threshold is lower and no confidentiality issues arise.

Confidentiality issues

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold GDP or minimum wage.

		GDP		minWage	
FISHING_TEC		Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
H	VESSEL_LENGTH				
PG	VL0010	0	0	0	0
	VL1012	0	1	0	0

Effect on average values

In the figures below the left hand side show the graphs for the PMPVL0010 using the high threshold (€ 36,250) and on the right hand side the graphs for the PGPVL0010 using the low threshold (€ 20,000).

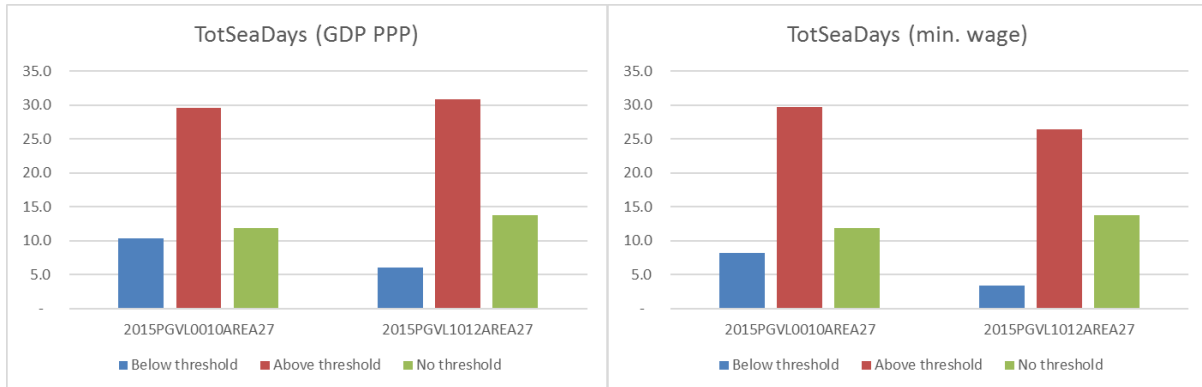


Figure 2: Estimated averages Sea Days per vessel, with and without the use of a threshold.

The figures on TotSeaDays per vessel show the differences in activity level between the group above and below the thresholds. Without threshold the less active vessels reduces the average activity significant. Introducing the threshold shows that for both segments the vessels above the threshold are commercial fishing vessels with an average average activity level of about 30 days at sea per year. That is even more significant in the figures on labour input per vessel (TotHarmFTE).

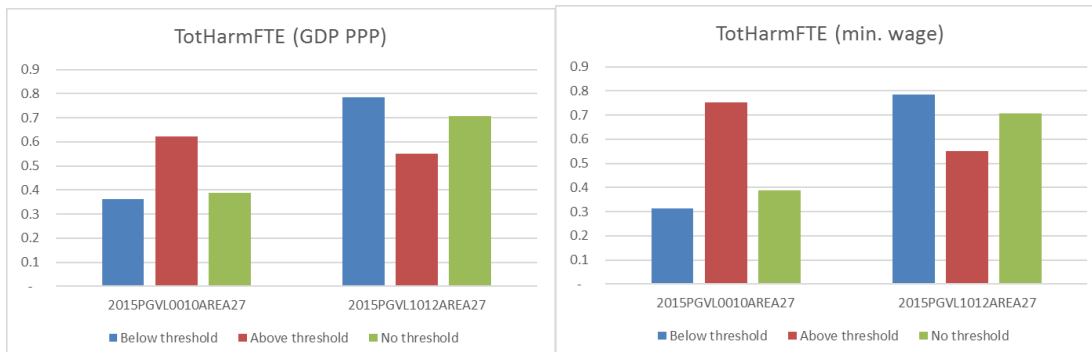


Figure 3: Estimated averages FTE (2000 hours) per vessel, with and without the use of a threshold.

The TotHarmFTE figures show that for the segment of vessels below 10 meters the average labour input for the vessels above thresholds is close to one full time job, but for the vessels below threshold the "labour input" is more or less part time or leisure fishery. For the smaller segment of vessels between 10-12m the difference is much smaller and the difference is reversed.



Figure 4: Estimated averages Income per vessel, with and without the use of a threshold.

The figures on income and Gross value added (GVA) shows very clearly the insignificance of the economic activity by the vessels below thresholds for the smaller vessels. For the larger vessels the difference is smaller. The income for vessels below the threshold is also significant because of the high other income.



Figure 5: Estimated averages Gross Value Added per vessel, with and without the use of a threshold.

Effects on totals

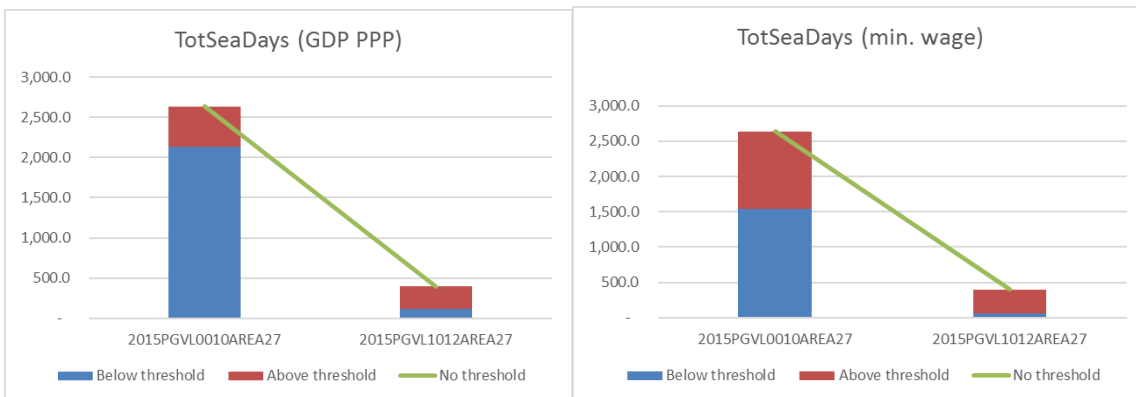


Figure 6: Estimated total Sea days for the segment, with and without the threshold.

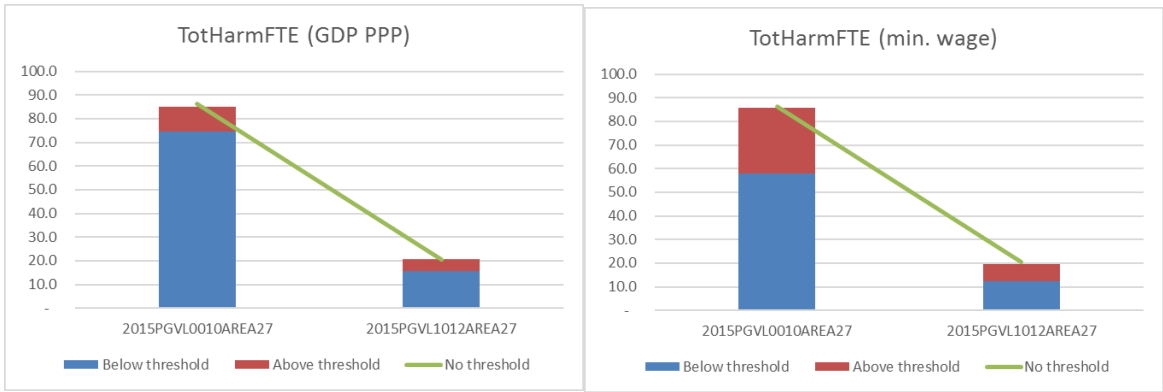


Figure 7: Estimated total Harmonized FTE for the segment, with and without the threshold.

In case the GDP PPP threshold is applied more than 80% of the effort and employment is of vessels below the threshold for the segment PGVL0010. For the segment PGVL1012 the effort of vessels below the threshold is low, but the employment is relatively high. This is also due to the high uncertainty in this estimate, due to low observations.

In case the lower minimum wage threshold is used, the effort and FTE of the vessels above the threshold is higher: around 30-40% for the smaller vessels and upto 80% of the larger vessels.

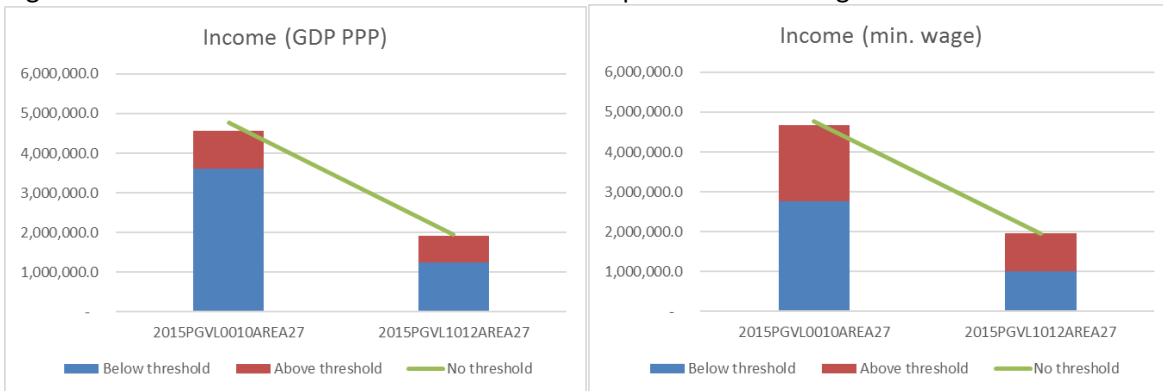


Figure 8: Estimated total Income for the segment, with and without the threshold.

The total income for the 223 PGVL0010 vessels adds up to 4.7 Million Euro, of which around 40% comes from 17 vessels with value of landings above the lower threshold. For the larger PGVL1012 group the approx 50% of the total income comes from the vessels above the lower threshold.

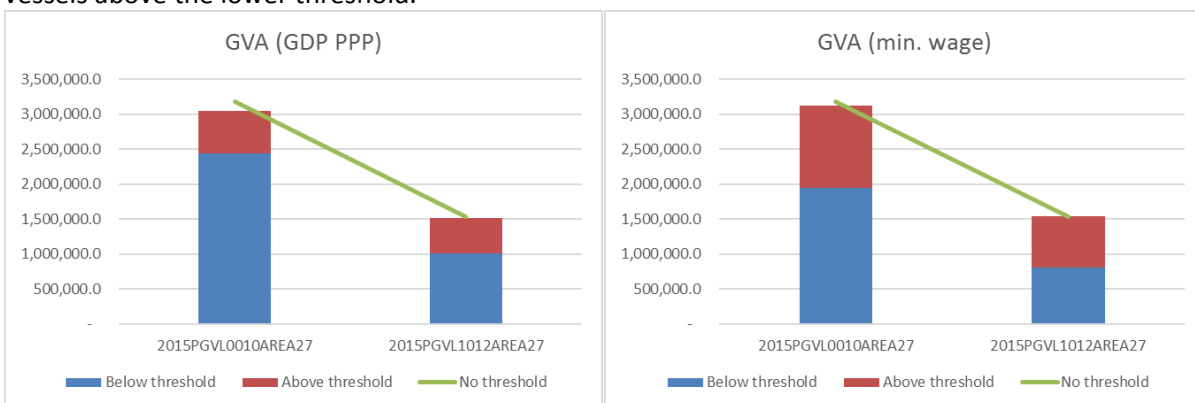


Figure 9: Estimated total Gross Value Added for the segment, with and without the threshold.

Results for the GVA show a similar pattern as those for the income.

Effect on quality of estimates

In case of the two segments analysed, the use of threshold does not improve the quality of the final estimates.

The variability in the group of vessel above the threshold is much lower than the overall variability in the segments (Fig 9.). This is the case for nearly all indicators and for both applied threshold levels. Only in case of the employment in the segment PGVL1012 the variability in the vessels above the threshold is larger, than in the total.



Figure 9: The variability in the value of some economic indicators (Expressed as the CV) in the whole segment and in the group of vessels above the threshold.

This lower variability in the group of vessels does not result in lower uncertainties in the estimates of the totals in case the segments are stratified using the thresholds (Fig. 10). In almost all cases the CVs become slightly higher in case the thresholds are applied. This is due to the fact that the number of observations in the group of vessels above the thresholds is relatively low, introducing extra uncertainty when the threshold is applied. In case the thresholds would be implemented, this would mean that extra attention should be given to this group of commercially active vessels in order to attain good quality estimates.

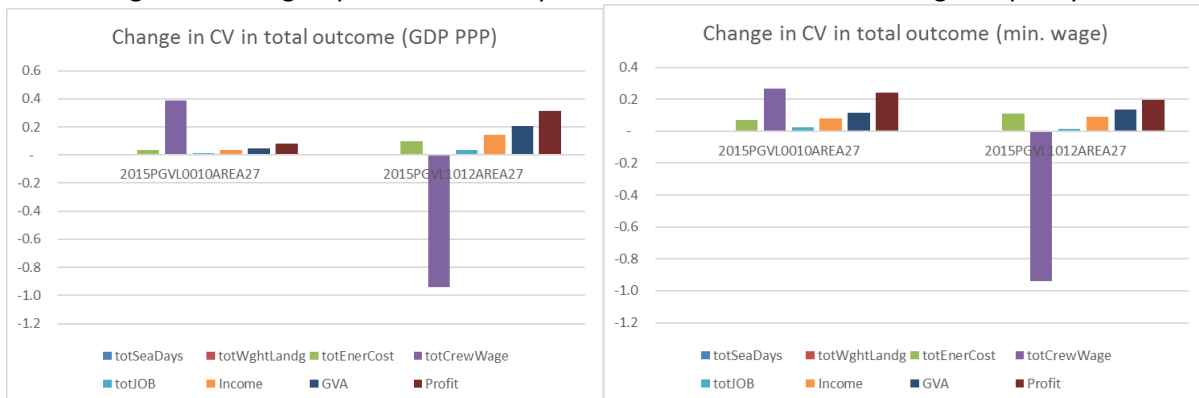


Figure 10: Effect of the use of a threshold on the quality of the estimate (Expressed as the CV) of the total segment (including both vessels with revenues above and under the threshold).

United kingdom

Data available: individual estimates, produced by Seafish at individual vessel level and based on census/survey data, provided by MMO for capacity, landings and effort, were available for the analysis.

Methodology and estimation procedures: economic data estimation procedures and segmentation, used for stratification and production of estimates for each individual vessel, could be found in Seafish economic reports, which are available online:

<http://www.seafish.org/research-economics/industry-economics/seafish-fleet-economic-performance-data>

Thresholds applied:

There is not threshold applied during the data collection to exclude any part of the population, however during estimation procedures, to reduce bias and improve estimates for other fleet segments, vessels with revenue <£10 000 are separated in 2 groups:

- Low activity over 10m
- Low activity under 10m

For which estimates are produced separately.

In this analysis 2 reporting thresholds have been used:

1. 31,320 Euro relative GDP PPS level for UK;
2. 16,546 Euro minimum wage².

Fleet composition

For the purpose of this analysis only data for small scale vessels <12 m length, which have been fishing in 2015, have been selected, however analysis have also been produced for the years between 2008 and 2014.

In terms of number of vessels, vessels <10 m length using DFN, HOK an FPO fishing techniques accounted for most of UK vessels analysed. Each of these groups have been represented by more than 500 vessels. The figures below represent how reporting thresholds would divide each analysed fleet segments into subsets.

² The minimum wage in UK is set at hourly basis and is equal to £7.5 per hour

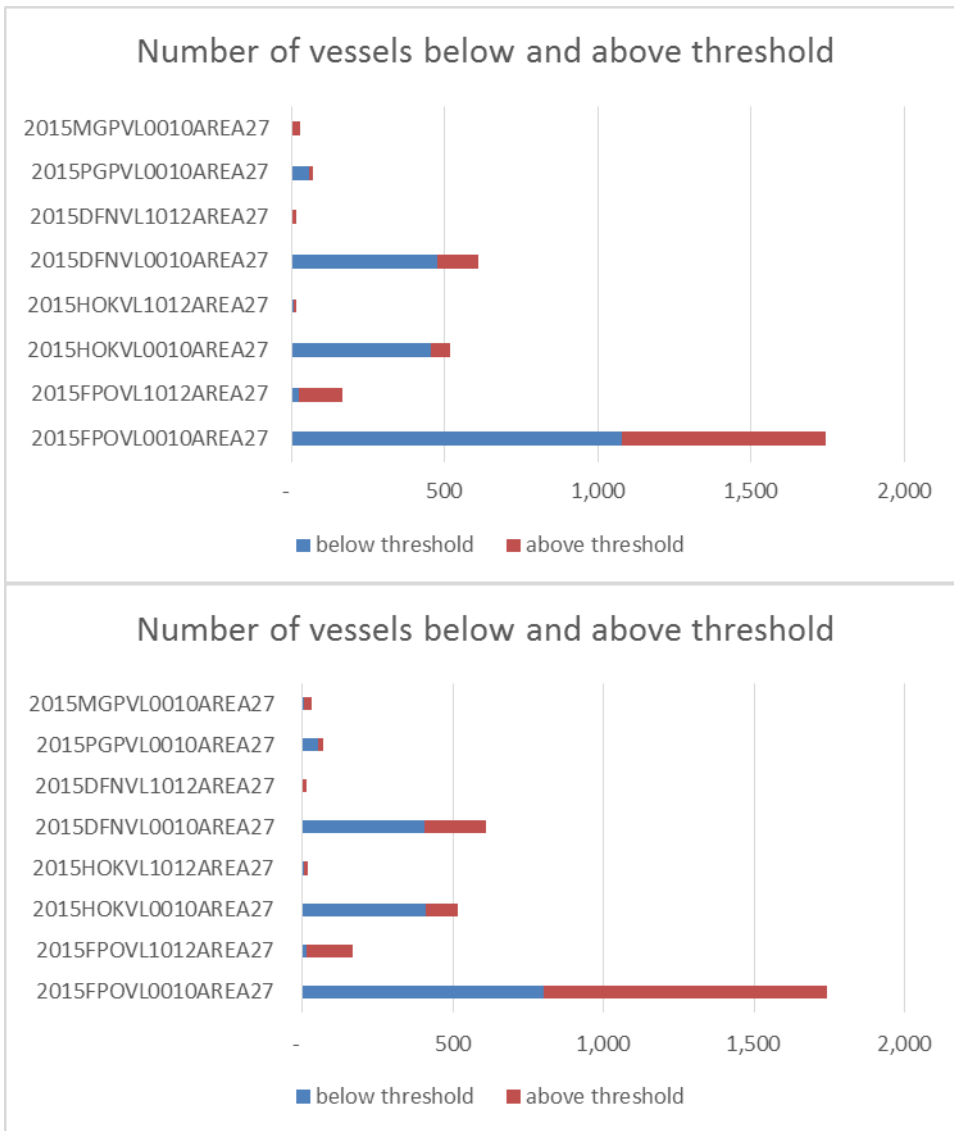


Figure 1: Number of vessel below and above the threshold after application of a threshold of GDP (above) and minimum wage (below)

When analysing the influence of thresholds on the number of vessels it is also important to take into account other characteristics of each of the fleets, e.g. effort and value of landings and how these indicators would be distributed between sub strata of each individual fleet segment (see Figure 2 and 3).

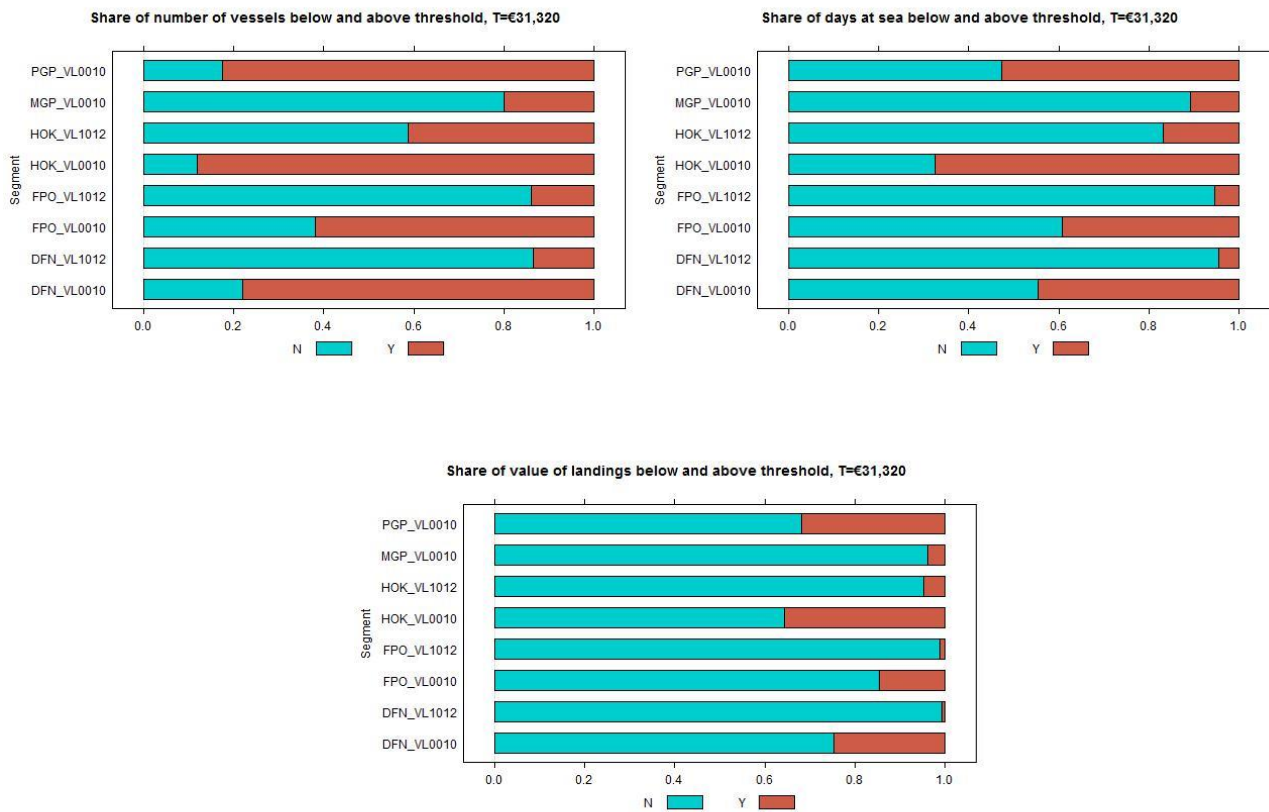
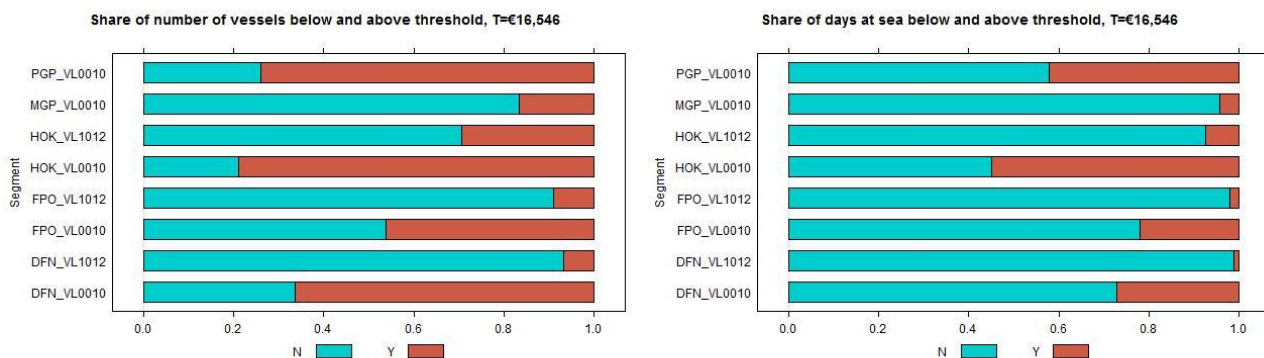


Figure 2: Share of vessels, effort and value of landings below and above the GDP PPS threshold applied to UK 2015 data set.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

As we could see from the analysis of shares in terms of vessels, effort and value landed in the cases of both thresholds the number of vessels below threshold might be quite significant and even exceed 50% of fleet, however value of landings never reach that level. That means, that a significant number of vessels within some UK fleets has very low value of landings and inclusion of these vessels in the analysis could reduce averages estimated for these variables.



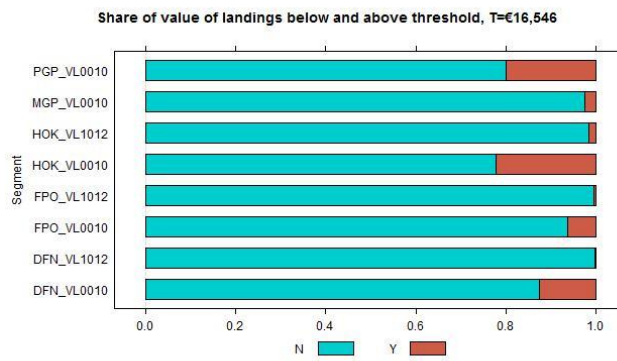
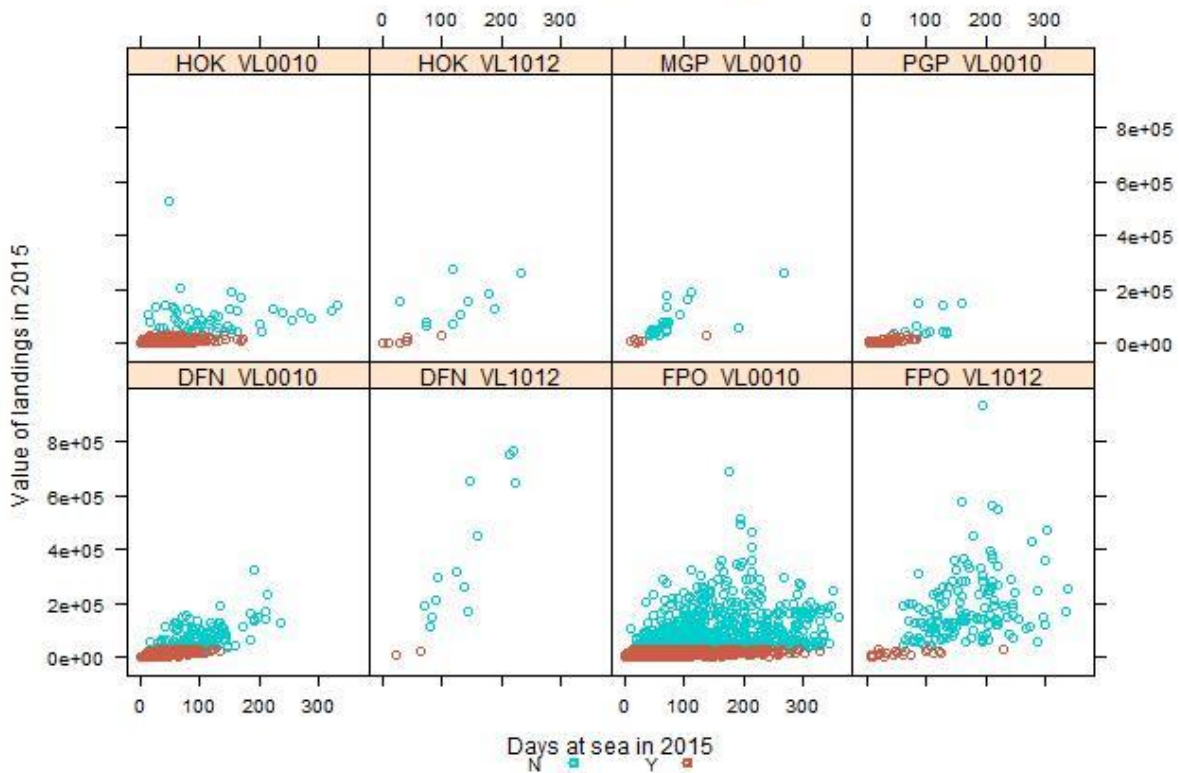


Figure 3: Share of vessels, effort and value of landings below and above the minimum wage threshold applied to UK 2015 data set.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

XY plots in the figure 4 are showing distribution of value of landings (X axis) to the effort (Y axis), which is measured in days at sea. As we could see some of the vessels within each strata have considerably high effort and relatively low income, which might be driven by the luck of data, or low values sold. It must be noted that effort is estimated for small scale fleets based on sales notes.

Distribution of value of landings in the population, T=€31,320



Distribution of value of landings in the population, T=€16,546

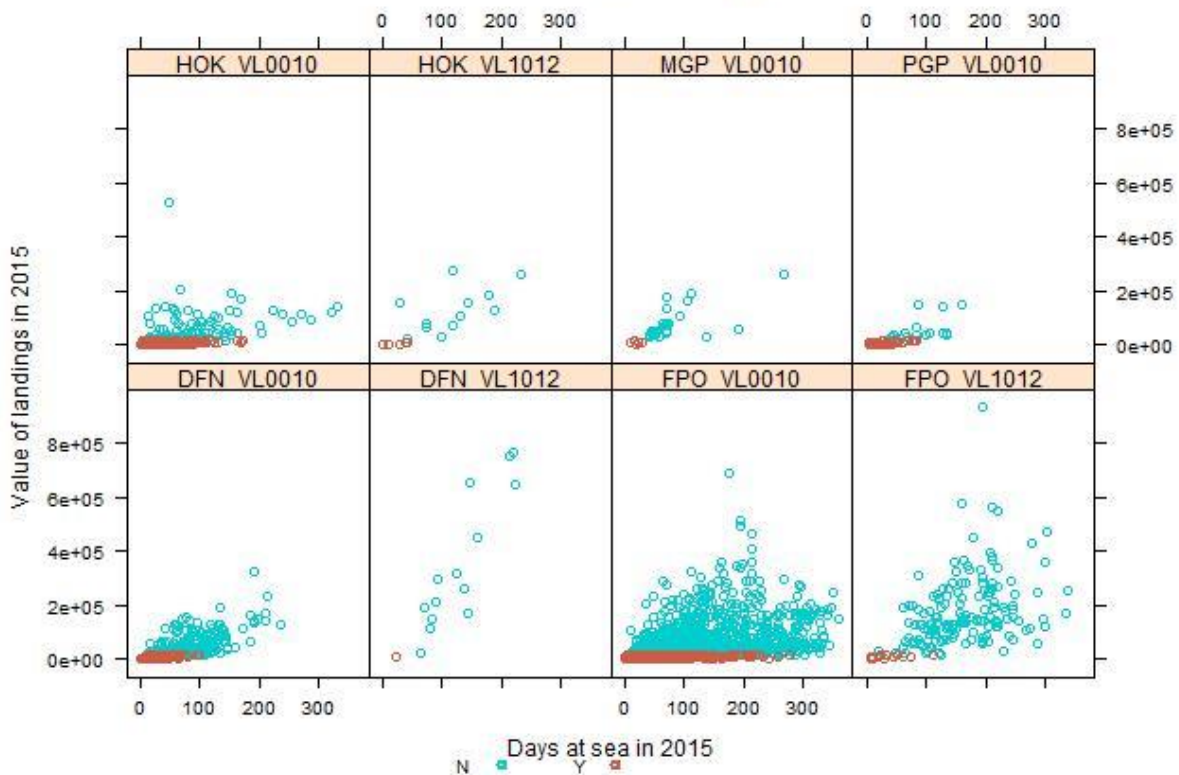


Figure 4: Distribution of value of landings vs effort by vessels below and above the threshold after application of a threshold of GDP PPS (above) and minimum wage (below)

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

The revenues in the UK small scale fleet also depend on availability of the resources and assess to the quotas. For some species in some regions vessels are provided with quota allowances and licenses to catch certain species, while some vessels don't get access to those fishing rights and are catching non quota species. According to Seafish individual vessel level data, within fleets analysed, there were 35 different species and groups of species, identified as top species in terms of value of landings per vessel. Therefore variability of effort and value of landings could be related to diversity of vessels and their activities around UK coast.

Confidentiality issues

In both cases application of the thresholds could create additional confidentiality issues for fleets with lower number of vessels (see tables below and figure 4).

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold GDP PPS

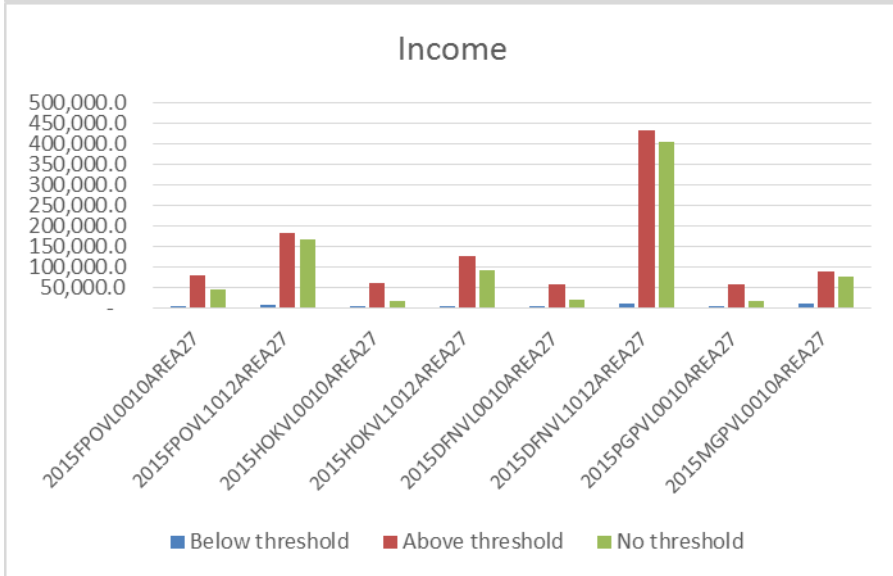
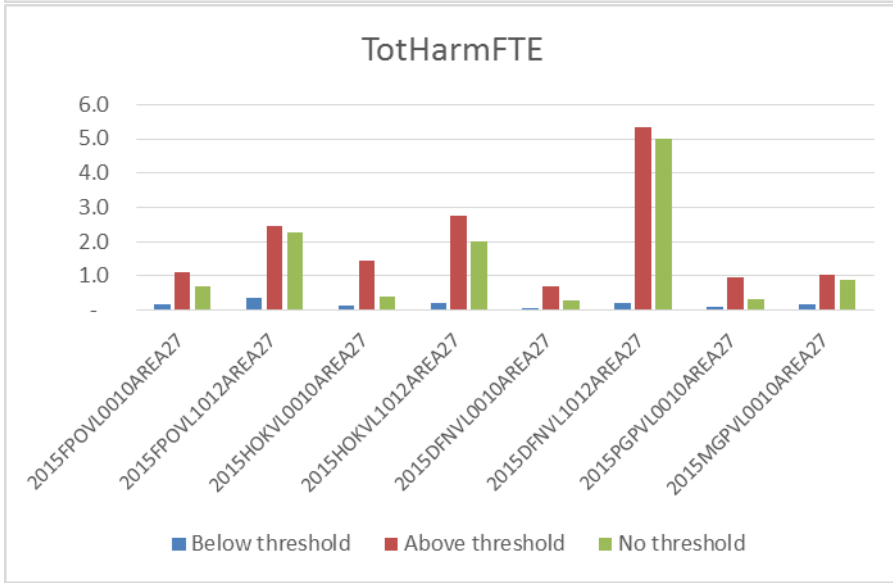
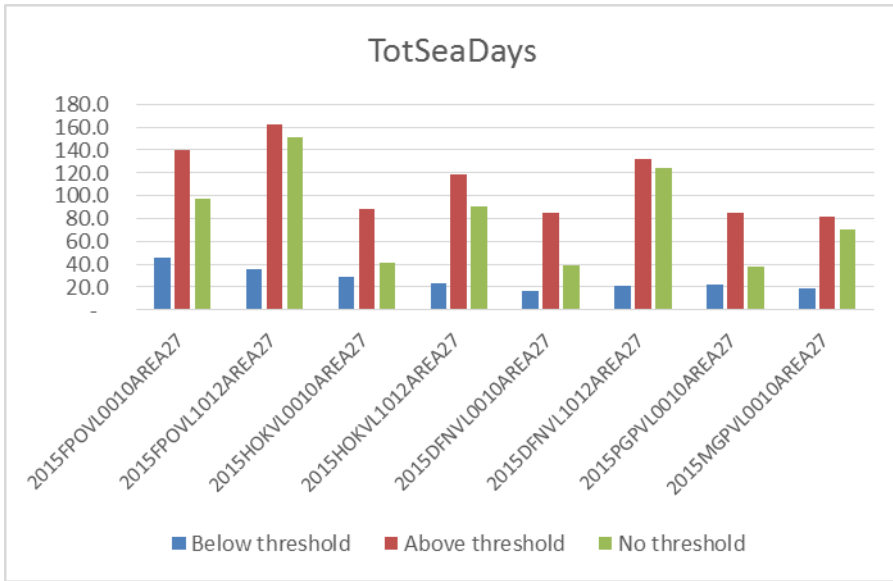
FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
DFN	VL1012	1	0
HOK	VL1012	1	0
MGP	VL0010	1	0

Table 1: Segment year combinations with less than 10 vessels for which confidentiality can be a problem when applying threshold minimum wage

FISHING_TECH	VESSEL_LENGTH	Sum of problem with confidentiality below threshold	Sum of problem with confidentiality above threshold
DFN	VL1012	1	0
HOK	VL1012	1	0
MGP	VL0010	1	0

Effect on average values

As it is mentioned in the text before the overall average per vessel within each of the strata could be affected as number of vessels below thresholds is rather significant in some cases and usually less active vessels spend less days at sea, receive less revenue and employ less people as presented below.



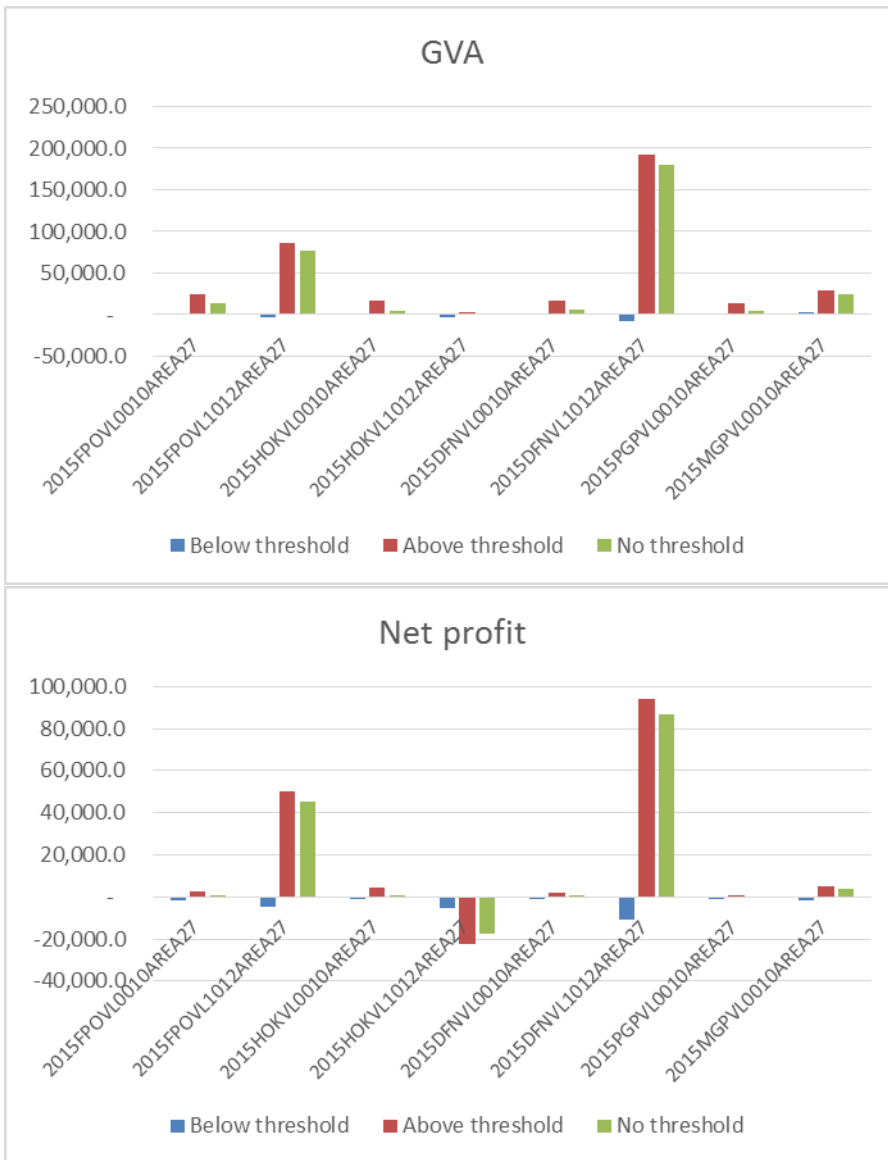
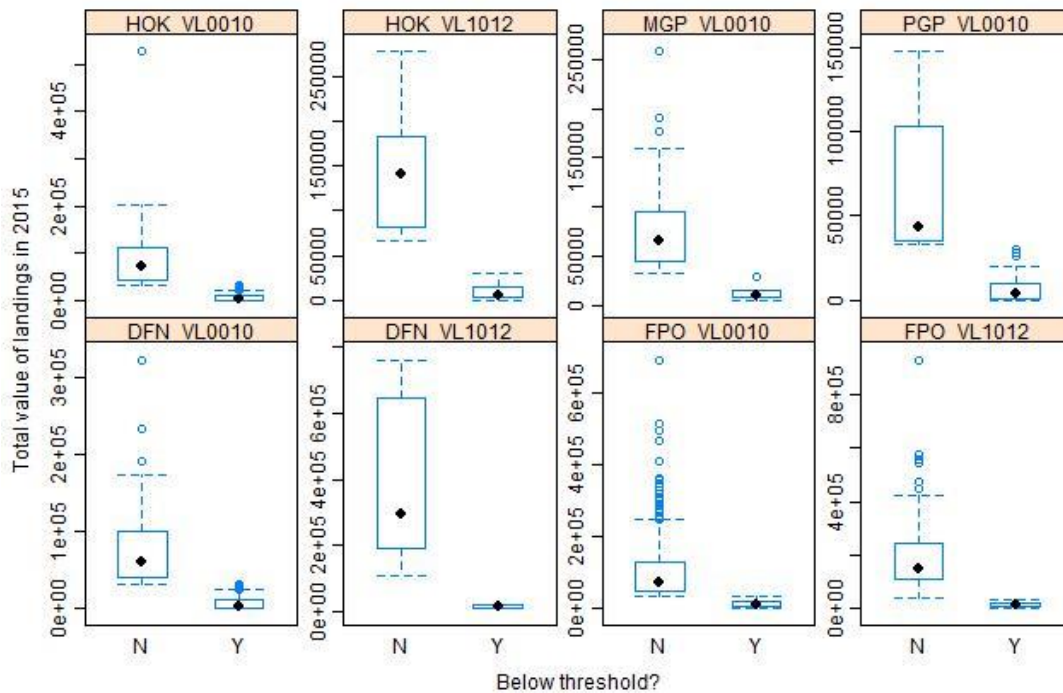


Figure 5: Estimated averages for the segments under analysis, with and without the use of a threshold. Analysis below shows the distribution of values and variability of the data within each fleet segment analysed. All vessels below threshold are attributed to the group 'Y' and all vessels above threshold are attributed to the group 'N'. As we could see from the figure 5 and 6 the average value of landings within each strata of fleet segments analysed might be significantly different, especially in case of bigger vessels. At the same time variability of annual value of landings is rather high in the groups above thresholds applied.

Distribution of value of landings below and above threshold, T=€31,320



Distribution of value of landings below and above threshold, T=€16,546

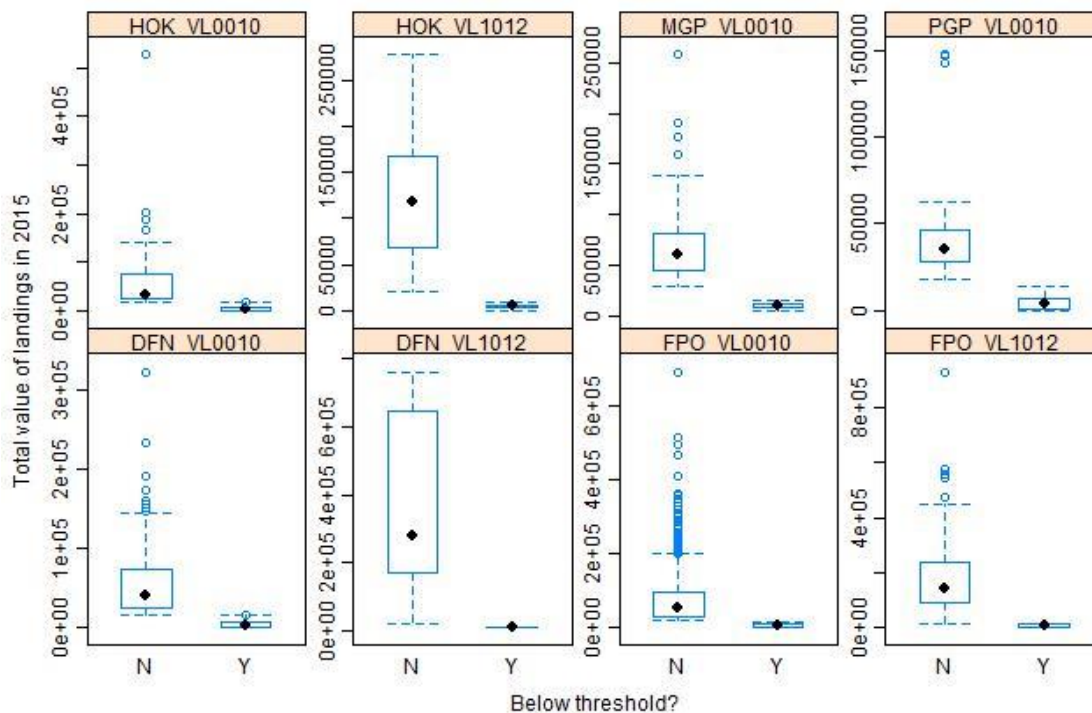
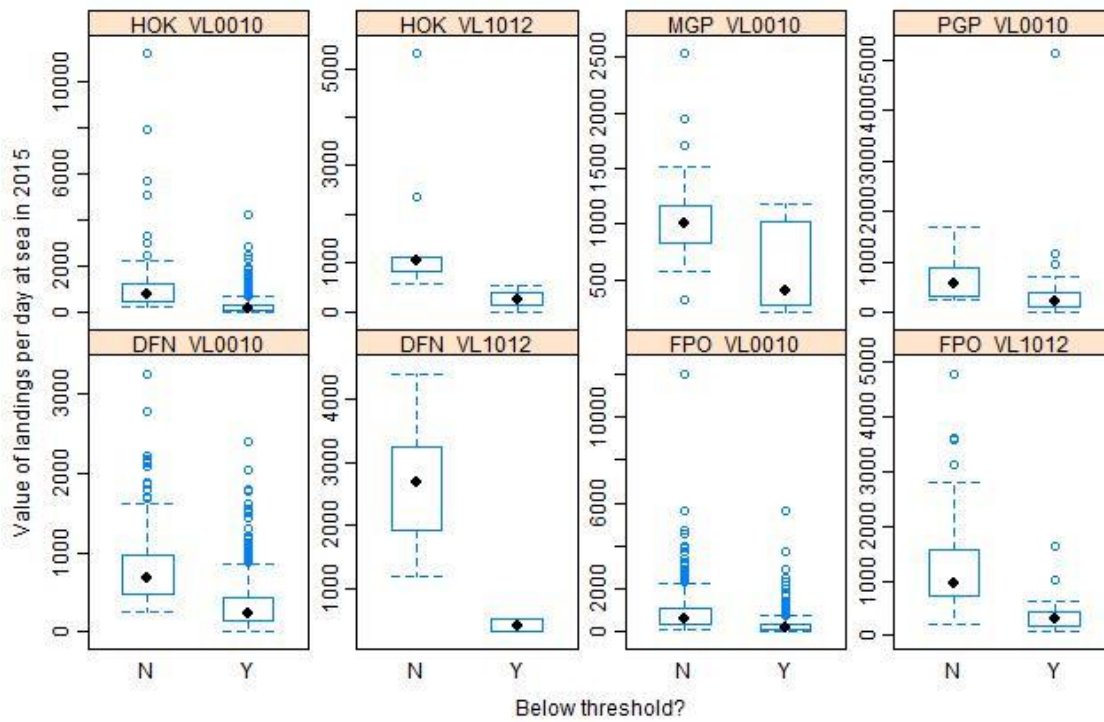


Figure 6: Value distribution within the strata, below and above thresholds.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

As we could see in the figure 7, analysing distribution of average value of landings per day at sea within each strata, there are vessels with similar revenues per day at sea above and below the threshold and variability of data is a bit lower within each strata, however indicator is still highly variable.

Distribution of value of landings per DAS above and below threshold, T=€31,320



Distribution of value of landings per DAS above and below threshold, T=€16,546

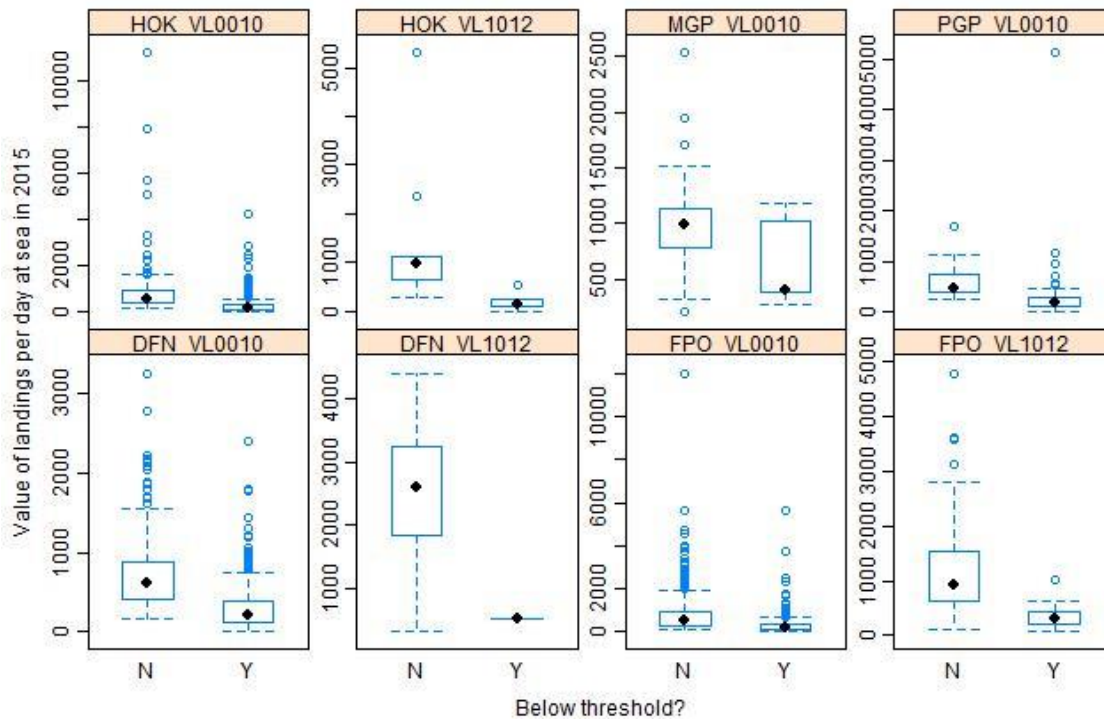
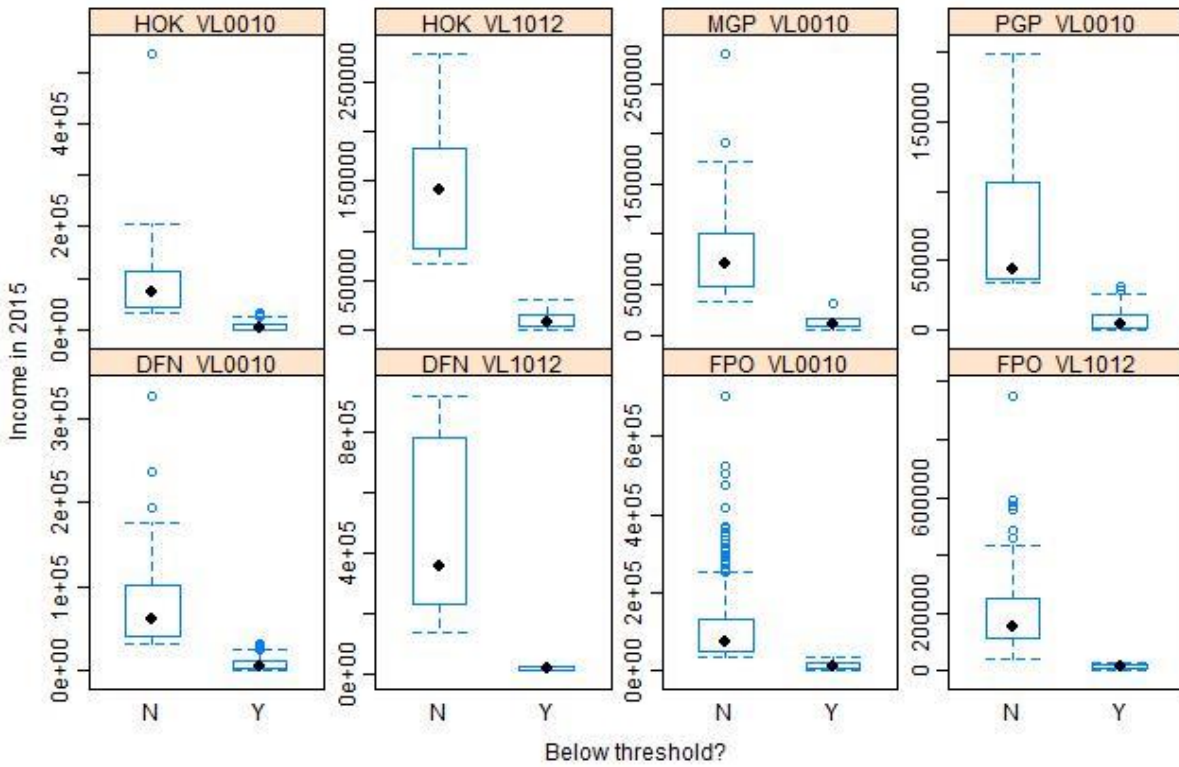


Figure 7: Estimated value of landings per day at sea in 2015 for the segments and its distribution within the strata, below and above thresholds.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

Distribution of income above and below threshold, T=€31,320



Distribution of income above and below threshold, T=€16,546

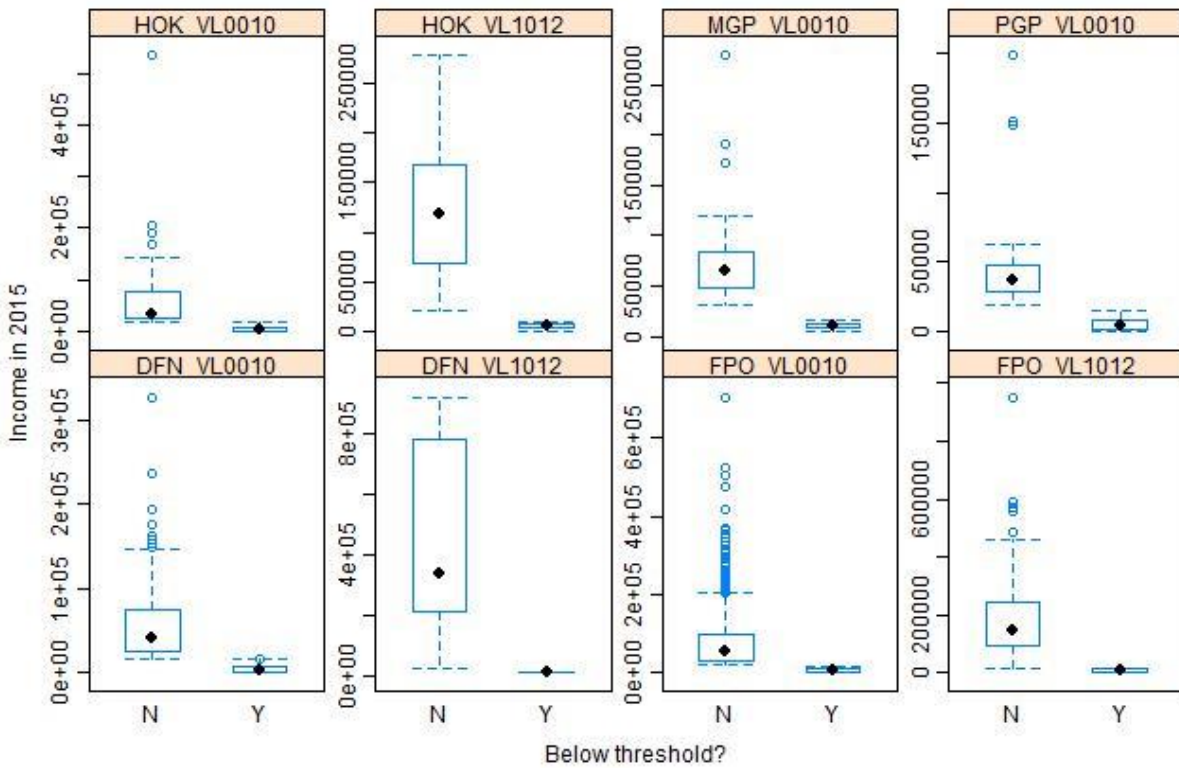
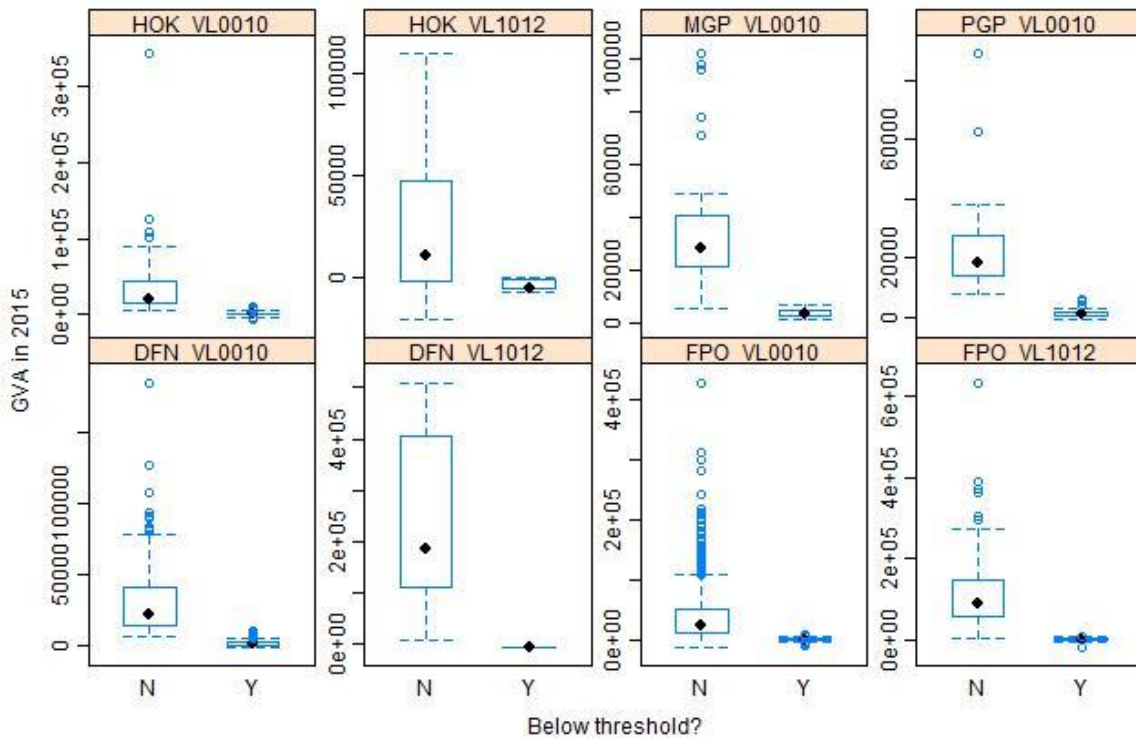


Figure 8: Estimated total income per vessel in 2015 for the segments and its distribution within the strata, below and above thresholds.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

Distribution of GVA above and below threshold, T=€16,546



Distribution of GVA above and below threshold, T=€31,320

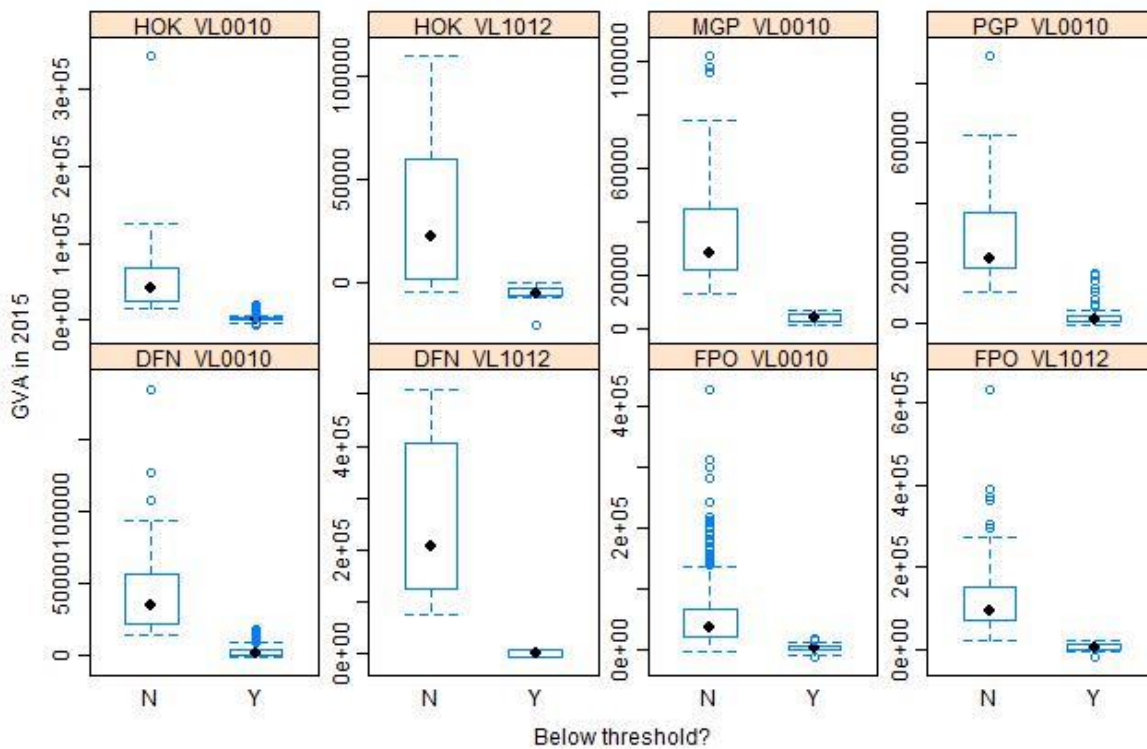
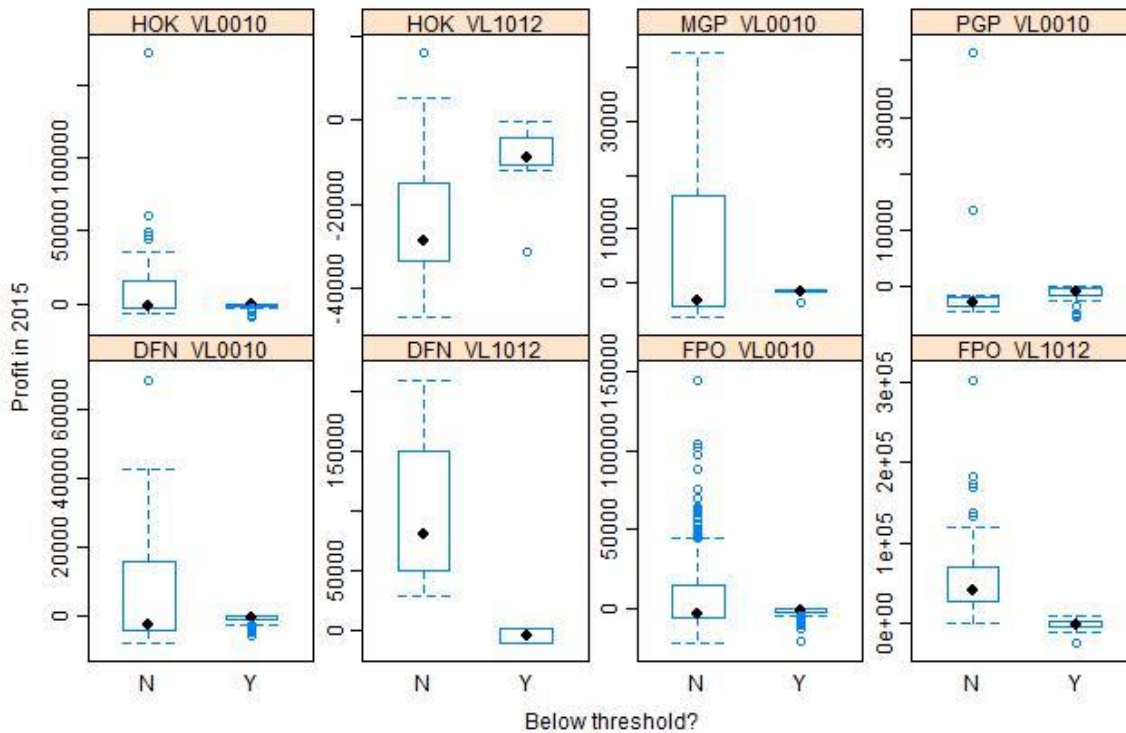


Figure 9:

Estimated GVA per vessel in 2015 for the segments and its distribution within the strata, below and above thresholds.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

Distribution of profit above and below threshold, T=€31,320



Distribution of profit above and below threshold, T=€16,546

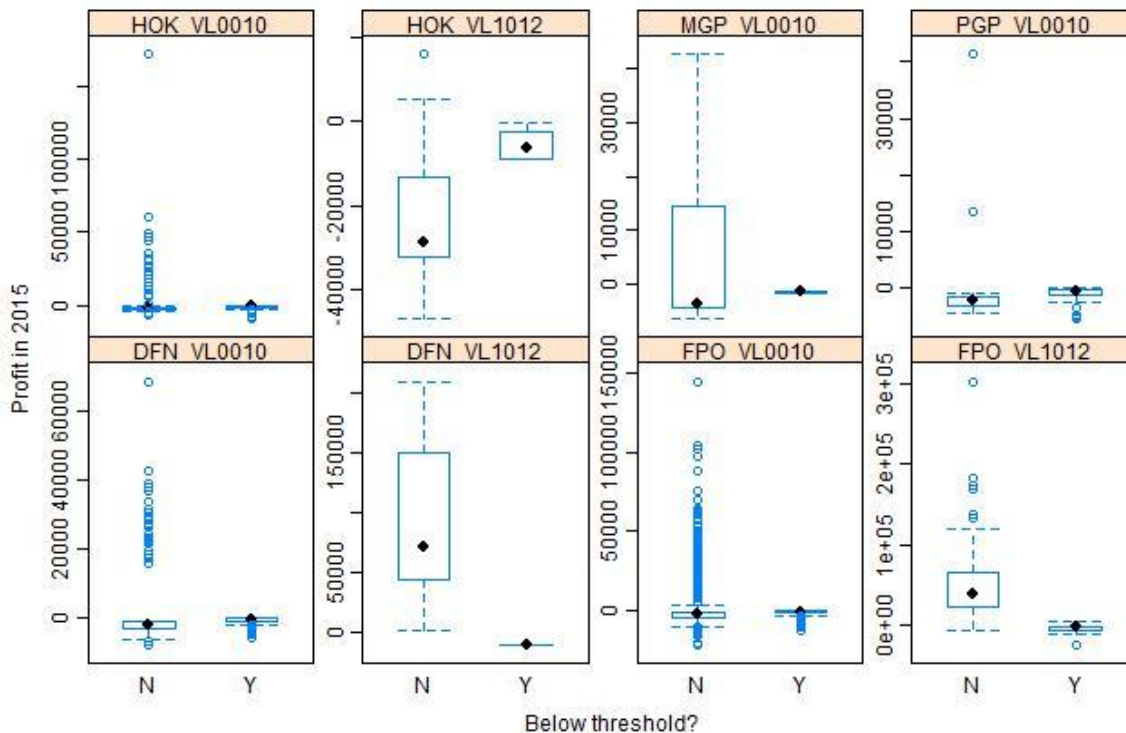


Figure 10:

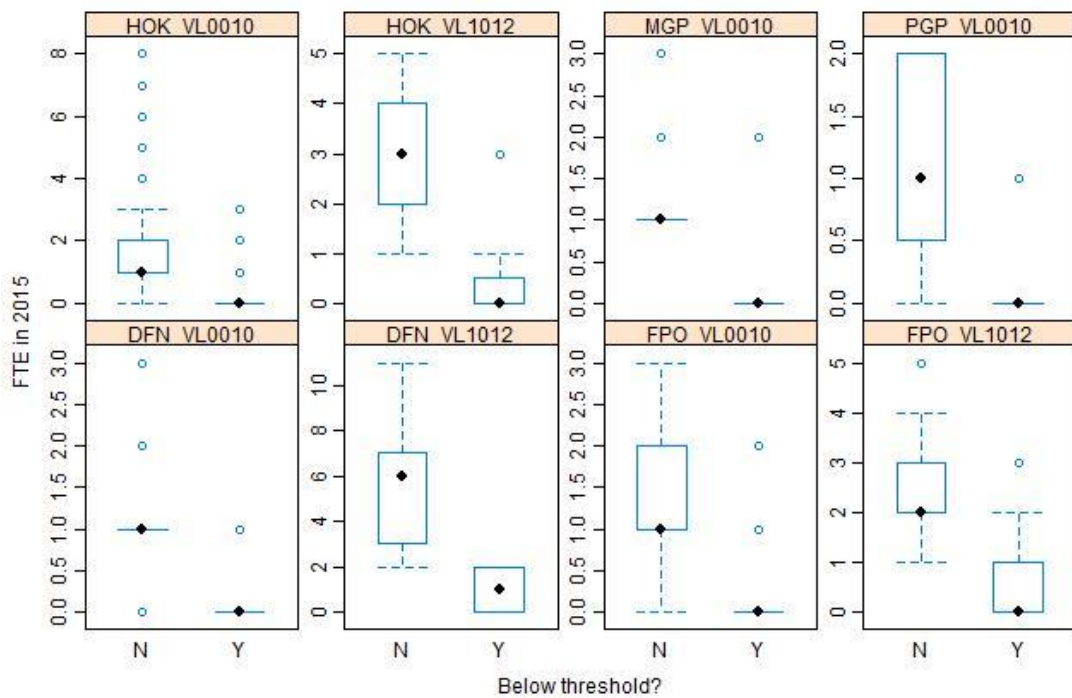
Estimated profit per vessel in 2015 for the segments and its distribution within the strata, below and above thresholds.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

As we could see from the figure 10 the profit indicator could be higher or lower within each data set and strata, meaning that less active vessels might be more profitable than more active vessels,

especially when major fleets are experiencing losses. It also might be driven by estimation procedures applied by Seafish and attribution of each individual vessel to Seafish and DCF fleet

Distribution of FTE above and below threshold, T=€31,320



segments.

Distribution of FTE above and below threshold, T=€16,546

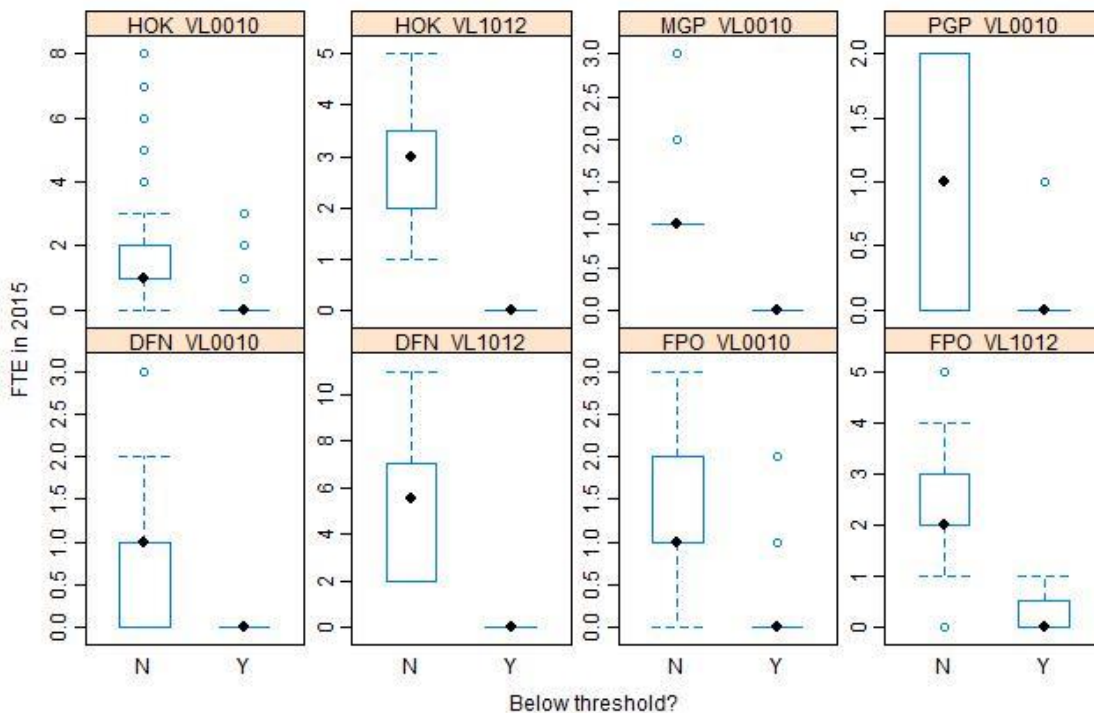
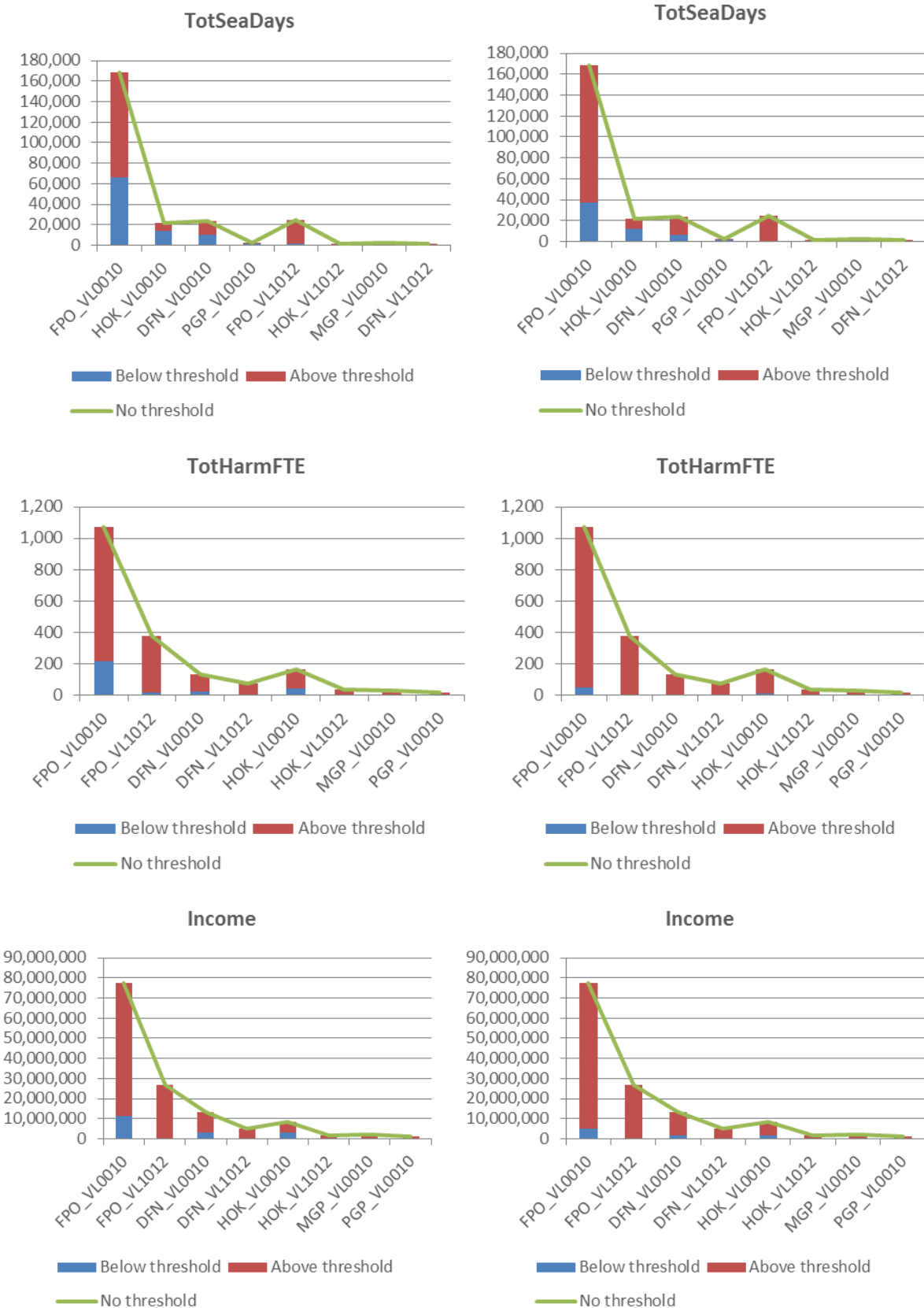


Figure 1: Estimated employment (FTE) in 2015 for the segments and its distribution within each strata, below and above thresholds.

* Y – values represented by vessels below threshold; N – values represented by vessels above threshold.

Effects on totals

There is no effect on results of this chapter as results of estimation have been provided for the analysis at individual vessel level and estimation procedures were applied before the analysis and followed Seafish methodology and stratification.



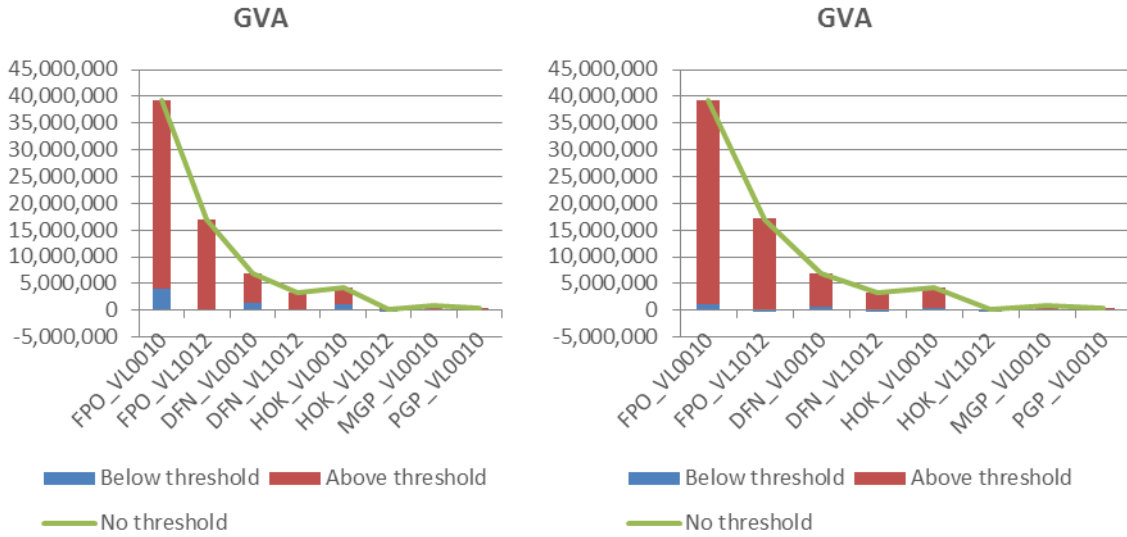


Figure : Estimated totals for the segments under analysis, with and without the threshold.

Effect on quality of estimates

There is no effect on quality of estimates in case of UK data, as all variables, estimated by Seafish, were included in this analysis.