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Do Regulatory Policy Measures Affect Seafood Exports to the EU? Empirical Evidence from Oman

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Outline

1. Introduction
2. Objective of the Paper
3. Domestic Seafood Export Ban (An Example)
4. Empirical Model
5. Results
6. Policy Recommendations

Introduction
Oman's Fisheries Profile

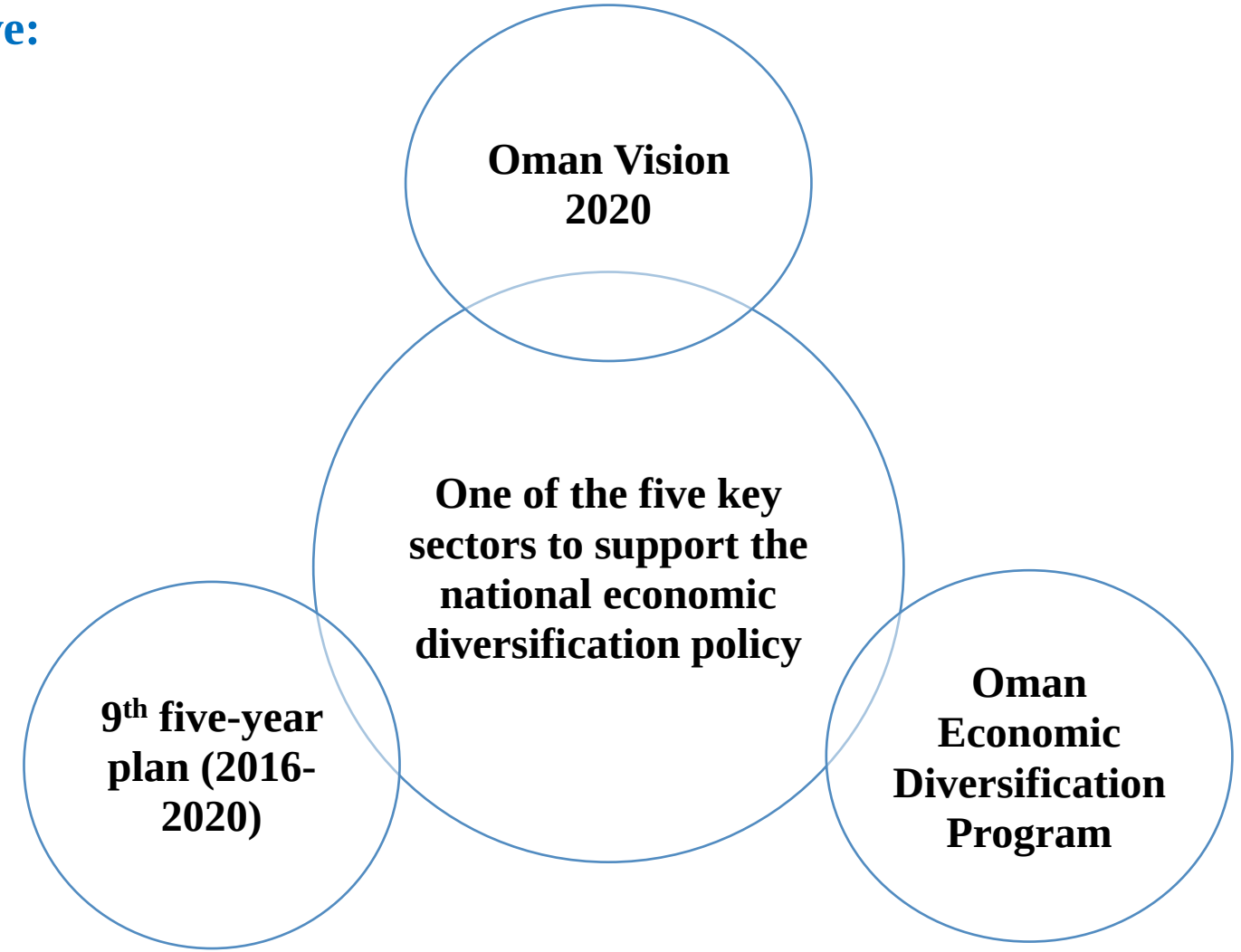
1) Socio-economic Objective:

Item	Figure
Share to GDP (2006-2015)	0.5- 0.6%
Food security (2016)	Self-sufficiency: 176%, per capita 35.7 kg/yr Direct Jobs: 47470 Indirect Jobs: 280,000
Landings (2016)	Traditional Sector (dominant) Quantity: 99.1% Value: 98.4%
Export (2016)	54% of the total production (net exporter)
No. of Processing Companies (2018)	38 with quality control number

Source: (FSB, 2016; NCSI, 2016)

Cont. Introduction
Oman's Fisheries Profile

2) Strategic Objective:



Cont. Introduction

Oman's Major Export Markets: 2000-2016

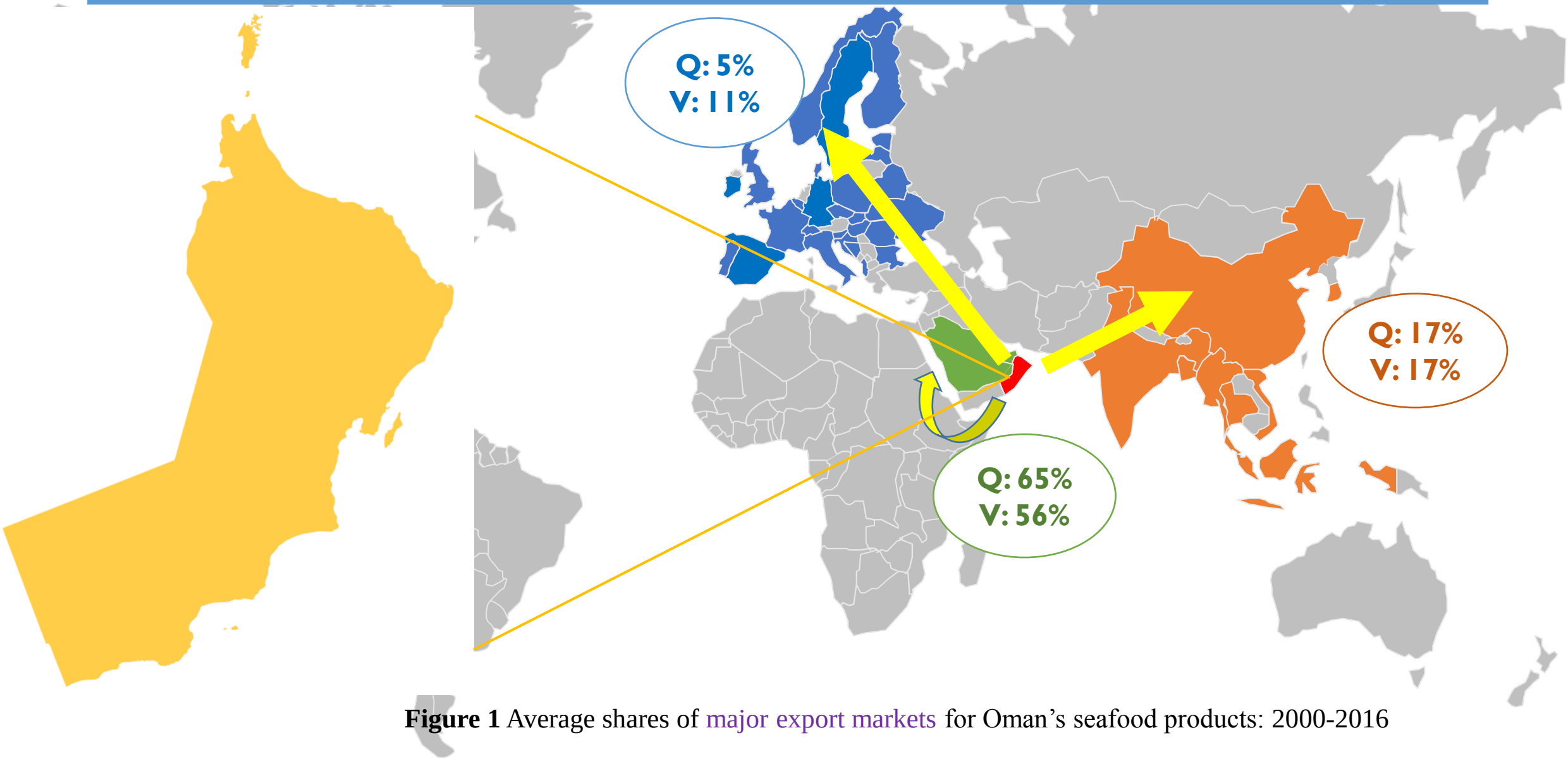


Figure 1 Average shares of major export markets for Oman's seafood products: 2000-2016

Source: (FSB, years:2000- 2016)

Cont. Introduction

Oman's Export to the EU

EU has the highest stringent quality & safety standards

EU Ban in 1998

Oman responded to international standards (HACCP)

The EU is a significant seafood export destination for Oman

Cont. Introduction

Trend of Export to EU: 2000-2016

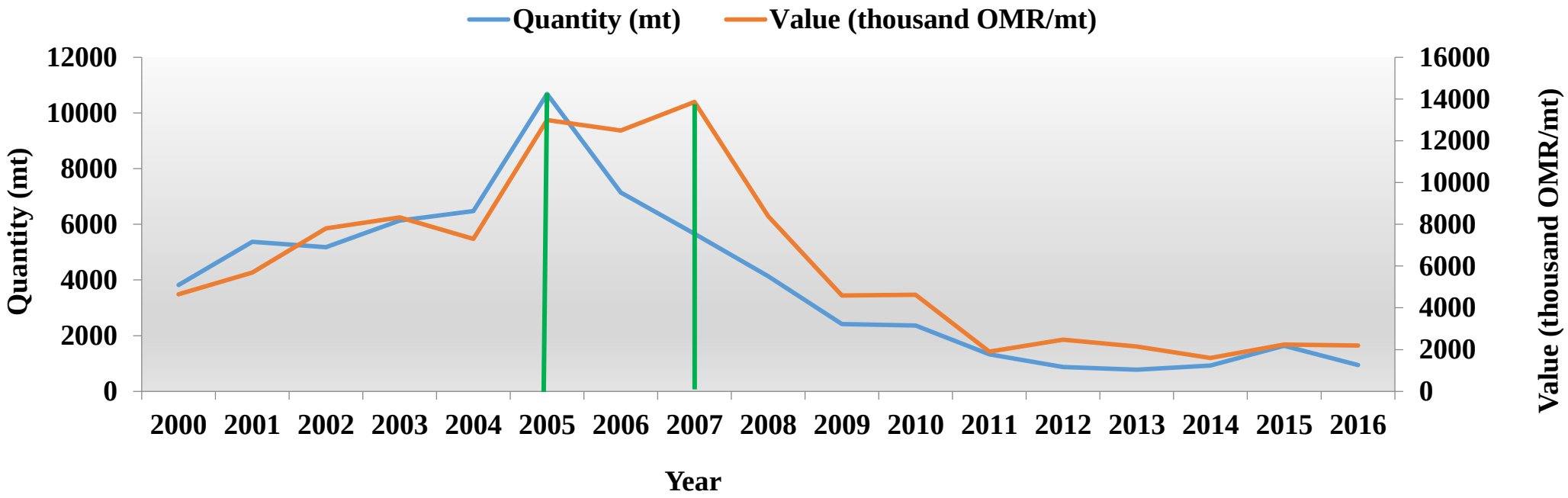


Figure 1: Quantity and value of seafood export from Oman to EU market: 2000-2016

Source: (FSB, years (2000- 2016)

This declining pattern has an important economic implication for the sector.

- **The decline of export to high value market (such as EU) has a negative impact on foreign exchange earnings.**

Objective of the Paper

To empirically examine potential effect of domestic regulatory measures (i.e. seafood export ban and trawl fishing ban) on Oman seafood export supply to the EU market covering the period 2001-2015 along with other factors (relative price, production capacity, gross domestic product and seasonality).

Domestic Seafood Export Ban (an Example)

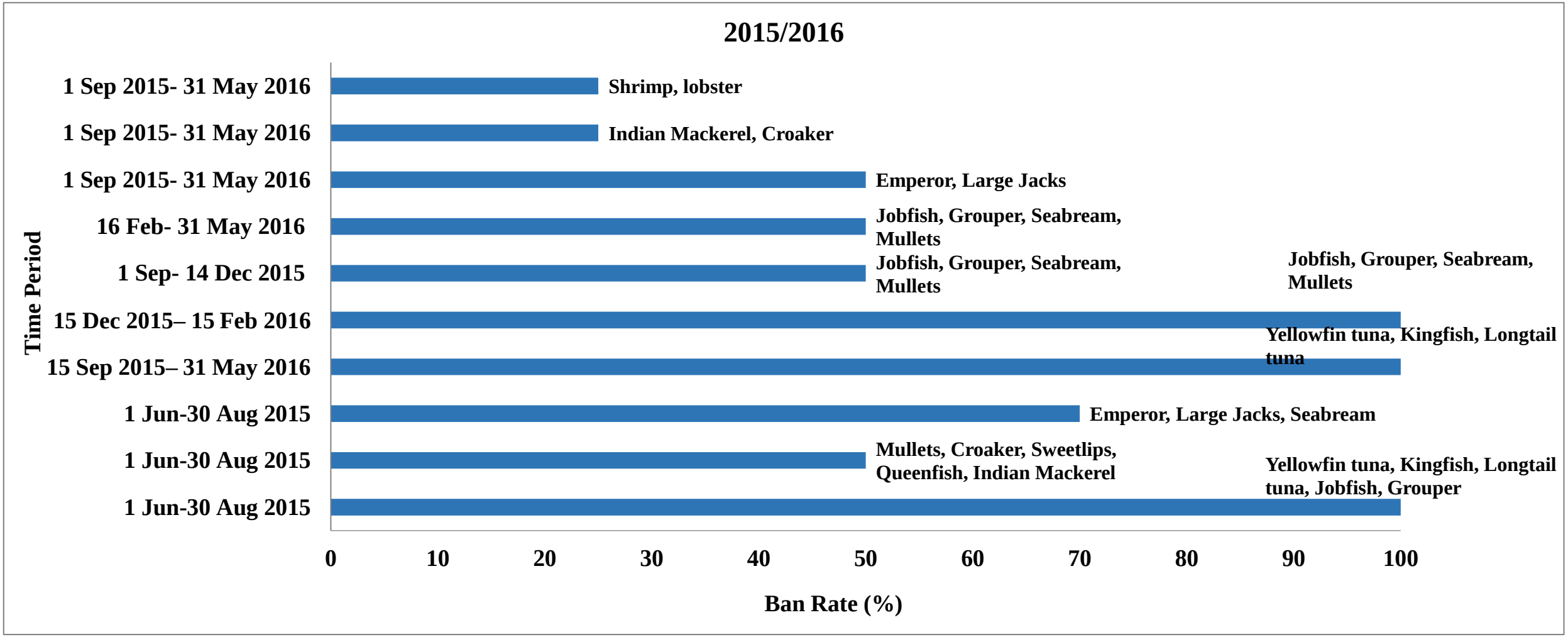


Figure 2 Seafood Species Banned from Export According to Time Periods and Ban rate (%): 2015/2016

Source: (MAF, 2017)

Empirical Model

✓ **Single-equation (Log-linear form).**

$$logQ_{EU}^{Oman} = \beta_0 + \beta_1 logRP + \beta_2 logPC + \beta_3 logGDP + \beta_4 PD1 + \beta_5 PD2 + \beta_6 SD + \beta_7 T + \epsilon$$

PD1: Domestic seafood export ban (imposed since 2011)

PD2: Demersal trawl fishing ban (imposed since 2009)

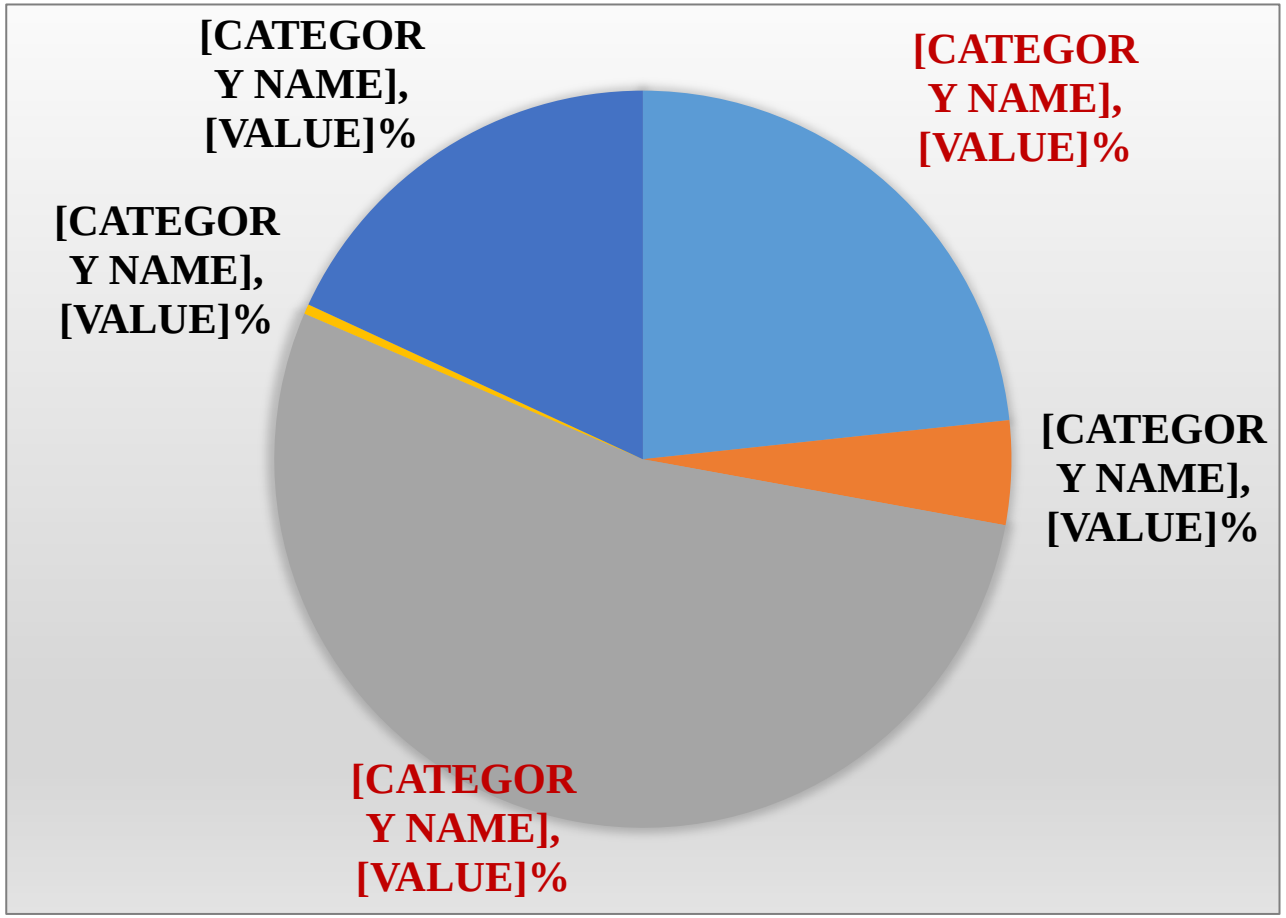
✓ **Partial Adjustment Model (PAM).**

Results (Descriptive)

Table 2 Average Growth Rate of Export to the EU Market (2001-2015)

Term	Quantity (%)	Value (%)
Amount	**-8.14**	**-6.44**

Figure 3 Average Proportion Fish Categories to the Overall Behavior of Export Quantity to the EU Market (2001-2015)



Source: (FSB, years (2001- 2015)

Cont. Results (Empirical)

Table 3 Results of the Empirical Model (Sample Size (N) = 60)

	Variable	Initial Model (with *T*)		Preferred Model (without *T*)	
		Coefficient	t-value	Coefficient	t-value
5%	$log(Q_{t-1})$	0.29	2.07	0.29	2.05
1%	$log(RP)$	1.35	2.51	1.44	2.87
	$log(PC)$	0.44	0.93	0.32	0.81
	$log(GDP)$	4.20	1.16	2.80	1.46
5%	PD_1	-0.30	-1.36	-0.35	-1.76
5%	PD_2	-0.25	-0.86	-0.36	-1.81
	SD_1	-0.05	-0.34	-0.05	-0.33
	SD_2	-0.07	-0.53	-0.07	-0.53
	SD_3	-0.18	-1.09	-0.19	-1.24
	T	-0.01	-0.46	-	-
	Constant	-40.51	-1.12	-25.81	-1.57

Cont. Results (Diagnostics)

Table 4 Results of the Model Selection Criteria

Statistical Criteria	Initial Model (with *T*)	Preferred Model (without *T*)
Summary Statistics		
Sum Square Error (SSE)	6.16	6.19
Log Likelihood Ratio (LR)	-17.08	-17.20
R^2	0.86	0.86
F-test	30.49 (p= 0.00)	34.41 (p= 0.00)
Model Diagnostics		
Normality (J-B LM)	1.60 (p= 0.45)	1.75 (p= 0.42)
Autocorrelation (D-W)	1.92	1.94
Heteroskedasticity	B-P-G: χ^2=1.58, (df= 10) (p= 0.14)	B-P-G: χ^2=7.43, (df= 9), (p= 0.59)
	ARCH: χ^2=1.00, (df= 1) (p= 0.32)	ARCH: χ^2= 0.64, (df= 1), (p= 0.42)
Model Adequacy		
Akaike Information criteria (AIC)	0.15	0.15
Schwarz Criterion (SC)	0.22	0.21
Hannan-Quinn Criterion (H-QC)	0.18	0.17
Forecast Performance		
Root Mean Square Error (RMSE)	0.33	0.32
Mean Absolute Error (MAE)	0.27	0.27

Policy Recommendations

Strategic Objective of Fisheries Sector in Oman: To maximize the export revenue

1. An effective promotional campaigns through active participation in key international seafood exhibitions should be considered to introduce other species into the EU market.

2. Adopt appropriate strategies for value added products.

3. Improve products quality and safety.

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