



UNIVERSITI PUTRA MALAYSIA

**COMPLIANCE WITH FISHERIES REGULATIONS
IN THE PERSIAN GULF, ISLAMIC REPUBLIC OF IRAN**

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**By
DARYOUSH KARIMI GOGHARI**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra
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Doctor of Philosophy**

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To my beloved:

Late father and dear mother

for their true love, constant trust and principles that guide my life

My wise wife, Fereshteh

for her devotion, understanding and support during all difficulties

My Sweet children, Fatemeh, Morteza, and Mohammad-Reza

for making everything worthwhile

My dear brother and sisters

and

**to all fellow mankind, who attempt to improve the knowledge of human for peaceful
environment and a peaceful world.**

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in
fulfilment of the requirements for the degree of Doctor of Philosophy

**COMPLIANCE WITH THE FISHERIES REGULATIONS IN THE
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By

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Faculty: Economics and Management

Noncompliance behaviour of Iranian fishers with the fisheries regulations in the Persian Gulf is examined in this study. A formal theoretical model and analytical framework that was useful in the understanding of compliance behaviour of individuals with fisheries regulations are developed. By using a standard questionnaire and a stratified random sampling method, a total of 566 fishermen from three Iranian provinces located on the coast of the Persian Gulf were interviewed. The factors include deterrence, moral, social influences and legitimacy variables that can explain the observed noncompliance with zoning regulation for shrimp fishery were examined. A Probit and Logit econometric techniques were used to estimate the violation decision by Iranian fishermen in the study area while the Tobit model was used to estimate the total number of fishing days in Shrimp Fishing Zone (SFZ). The model was classified into two types: the basic and the extended model. In general, the Probit estimation technique performs better than the

Tobit technique. The Probit model exogenous probability variables however gives better results than the Probit model using raw probabilities.

The results indicated that deterrence, moral, and legitimacy factors determined the violation decision of individual fishers to fish in the prohibited zone. The social influence factor (PERTVIOL) was only significant in the Bushehr province. The results also indicate that the deterrence variables, moral development, and legitimacy factor are more important than the social influence factor in explaining the compliance behaviour in the study area.

From the economic perspective, moral development and legitimacy variables can complement the efficiency goal in any enforcement program by reducing the need for large expenditures on enforcement inputs to secure compliance. The results showed that using exogenous variables directly in the extended model to explain the violation decision in the individual provinces provide a good result for provinces of Khuzestan and Bushehr. The number of Fishing days (DAY) appears to play a very important role in explaining the violation decision of fishermen in the Khuzestan and Bushehr provinces. The other important variables are the horsepower of fishermen boats (POWER), the morality variable (MCODE), and number of times that fishermen have seen the enforcement personnel at the sea (FBOATNO). The legitimacy variables also have considerable role in explaining compliance behaviour in the cases of Khuzestan and Bushehr provinces.

Although the overall probability of detection and conviction (OVEPROB) variable was significant with an unexpected sign, the exogenous variables of probability of

detection and conviction came out significant in most the regressions runs with expected signs. It cannot be denied that it plays a very important role than the other (such as moral obligation and legitimacy) variables in securing compliance. Thus, enforcement resources should be utilized together with positive reinforcement of the normative variables. Nevertheless, enforcement inputs will have a deterrence effect on the violators and other fishermen thus reducing the overall violation rate. The capacity of enforcement resources in the Persian Gulf area is limited. There is need to reestablish the enforcement institutions and resources. The government should therefore pay attention to enhancing enforcement resources in the area of study to deter violators.

Abstrak tesis dikemukakan kepada Senat, Universiti Putra Malaysia bagi memenuhi keperluan untuk Ijazah Doktor Falsafah

**KEPATUHAN KEPADA PERATURAN-PERATURAN PERIKANAN DI
TELUK PARSI, I.R. IRAN**

Oleh

Daryoush Karimi Goghari

April 2002

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Fakulti: Ekonomi dan Pengurusan

Sikap ketidakpatuhan nelayan-nelayan Iran terhadap peraturan-peraturan perikanan di Teluk Parsi diteliti dalam kajian ini. Satu model teoritikal formal dan rangka analitikal yang berfaedah untuk memahami sikap kepatuhan individu kepada peraturan-peraturan perikanan dibentuk. Dengan menggunakan soal-selidik piawai dan kaedah persampelan strata, sejumlah 566 nelayan daripada 3 buah wilayah di Iran yang terletak di perairan Teluk Parsi telah ditemubual. Faktor-faktor meliputi pencegahan, moral, pengaruh sosial dan pembolehubah perundangan yang mampu menerangkan ketidakpatuhan kepada peraturan zon perikanan udang telah dikaji. Satu teknik ekonometrik Probit dan Logit telah digunakan untuk mengganggarkan keputusan pelanggaran undang-undang oleh nelayan-nelayan Iran di kawasan kajian manakala model Tobit telah digunakan untuk menaksir jumlah bilangan hari perikanan kawasan perikanan udang (SFZ). Model dikelaskan kepada dua jenis: model asas dan model lanjutan. Umumnya, teknik penaksiran Probit adalah lebih baik daripada teknik Tobit. Model Probit yang menggunakan pembolehubah

kebarangkalian eksogen walau bagaimanapun memberikan keputusan yang lebih baik daripada model probit yang menggunakan kebarangkalian mentah.

Keputusan menunjukkan bahawa pencegahan, moral dan faktor-faktor perundangan menentukan keputusan pelanggaran undang-undang individu untuk menangkap ikan di kawasan larangan. Faktor pengaruh sosial (PERTTVOL) hanya bererti di wilayah Bushehr. Keputusan juga menunjukkan bahawa pembolehubah pencegahan, pembangunan moral, dan faktor perundangan adalah lebih penting daripada faktor pengaruh sosial dalam menerangkan sikap kepatuhan di kawasan kajian.

Daripada perspektif ekonomi, pembangunan moral dan faktor perundangan mampu melengkapi matlamat kecukupan dalam mana-mana program penguatkuasaan dengan mengurangkan keperluan kepada perbelanjaan yang besar untuk input-input pelaksanaan bagi memastikan kepatuhan. Keputusan menunjukkan bahawa penggunaan pembolehubah eksogen secara langsung dalam model lanjutan bagi menerangkan keputusan pelanggaran undang-undang di wilayah yang dikaji memberikan keputusan yang baik bagi wilayah Khuzestan dan Bushehr. Bilangan hari perikanan (DAY) memainkan peranan yang penting dalam menerangkan keputusan pelanggaran undang-undang oleh nelayan di wilayah Khuzestan dan Bushehr. Pembolehubah penting yang lain ialah kuasa kuda bot nelayan (POWER), pembolehubah moral (MCODE), dan kekerapan nelayan melihat pegawai penguatkuasa di laut (FBOATNO). Faktor perundangan juga mempunyai peranan yang besar dalam menerangkan sikap kepatuhan bagi wilayah Khuzestan dan Bushehr.

Walaupun faktor kebarangkalian penemuan dan penyabitkan kesalahan keseluruhan (OVEPROB) adalah bererti dengan tanda tidak dijangka, faktor eksogen kebarangkalian penemuan dan penyabitkan kesalahan adalah bererti dalam hampir semua analisis regresi dengan tanda yang dijangka. Tidak dapat dinafikan bahawa ianya memainkan peranan yang amat penting daripada pembolehubah lain (seperti tanggungjawab moral dan perundangan) dalam memastikan kepatuhan.

Oleh itu, sumber-sumber penguatkuasaan perlu digunakan secara bersama dengan pengukuhan positif bagi pembolehubah-pembolehubah normatif. Walau bagaimanapun sumber-sumber penguatkuasaan akan mempunyai kesan pencegahan kepada mereka yang melanggar undang-undang dan nelayan-nelayan lain seterusnya mengurangkan kadar pelanggaran undang-undang. Keupayaan sumber-sumber penguatkuasaan di Teluk Parsi adalah terbatas. Terdapat keperluan untuk menubuhkan semula institusi penguatkuasaan dan sumber-sumber. Oleh itu, kerajaan sepatutnya memberikan perhatian untuk menambahkan sumber-sumber penguatkuasaan di kawasan kajian untuk mencegah mereka yang melanggar undang-undang.

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TABLE OF CONTENTS

	Page
DEDICATION.....	ii
ABSTRACT.....	iii
ABSTRAK.....	vi
ACKNOWLEDGMENTS.....	ix
APPROVAL SHEETS	xi
DECLARATION FORM	xiii
LIST OF TABLES.....	xvii
LIST OF FIGURES.....	xix
LIST OF ABBREVIATIONS.....	xx
CHAPTER	
1 INTRODUCTION.....	
1.1 National Economy of Iran	1
1.1.1 Gross Domestic Products (GDP) and Gross National Products (GNP)	2
1.1.2 Employment	3
1.1.3 Inflation	5
1.1.4 Role of Fisheries in Iranian Economy	5
1.2 Persian Gulf Fisheries	15
1.2.1 The Geographical Features of the Persian Gulf	16
1.2.2 Regional Socio-Economic Indicators	19
1.2.3 Persian Gulf's Fishery Resources	20
1.3 The Iranian Fisheries	22
1.3.1 Northern Fisheries	24
1.3.2 Inland Fisheries and Aquaculture	27
1.3.3 Southern Fisheries	28
1.3.4 Importance of Iranian Shrimp Fishery	36
1.4 Fishery management and Regulations	38
1.4.1 Enforcement Units	40
1.4.2 Enforcement Sanctions	42
1.4.3 Enforcement Resources and Expenditures	44
1.5 Statement of the Problem	45
1.6 Objectives of the Study	48
1.7 Significance of the study	49
1.8 Plan of the Study	50
2 REVIEW OF LITERATURE	
2.1 Introduction	52
2.2 Studies on Criminal Behavior and Law enforcement	53
2.3 Economic Theory of Compliance Behavior	56
2.3.1 Becker's Model on Compliance	57
2.3.2 Extension of Becker's Model	59
2.4 Importance of Fisheries Regulations	61
2.5 Fisheries Regulation Compliance and Law enforcement	64

2.6 Compliance with Fisheries Regulations in Asia	72
2.7 Some Studies on Tax Compliance	75
2.8 Perspectives from other fields of Social Sciences	78
2.9 Conclusion	84
3 RESEARCH METHODOLOGY	
3.1 Introduction	85
3.2 Analytical Framework	85
3.2.1 Analysis with the Absence of Shrimp Fishery Regulation	86
3.2.2 Analysis with the Presence of Shrimp Fishery Regulation	89
3.2.3 Compliance Behavior under Risk Aversion	95
3.2.4 Morality and Legitimacy factors	97
3.2.5 Extrinsic factors of Violation	101
3.2.6 Comparative Statics Results	103
3.2.6.1 Total condition	104
3.2.6.2 Marginal condition	107
3.3. Model Specification	110
3.3.1 The Violation Model	110
3.3.2 The Econometric Models	113
3.3.3 Estimation Techniques	119
3.3.3.1 The Tobit Model	120
3.3.3.2 The Probit Model	122
3.4. The Study Area and the Data	125
3.4.1 Study Area Selection	125
3.4.2 The Questionnaire and Data Collection	127
3.4.3 Sampling Procedure and Sample size	128
3.4.4 Data Assessment	130
3.4.5 Missing Responses	130
3.5 Conclusion	131
4 RESULTS AND DISCUSSION	
4.1 Introduction	133
4.2 Profiles of Respondents in the Study Area	134
4.3 Statistical Results of the Violation Decision (VR)	138
4.3.1 Probit Estimation, Basic Deterrence Model using Raw Probabilities	138
4.3.2 Probit Estimation of VR, Extended Model using Raw Probabilities	141
4.3.3 Probit Estimation of Basic Deterrence Model using Exogenous Determinants	145
4.3.4 Probit Estimation of VR, Extended Model using Exogenous Determinants	148
4.3.5 Probit Estimation of the Legitimacy variables only	153

4.4 Statistical Results of the Number of Illegal Fishing Days (ILGDAY)	157
4.4.1 Tobit Estimation of Basic and Extended Models using Raw Probabilities	159
4.4.2 Tobit Estimation of Basic and Extended Models using Exogenous Variables	161
4.5 Statistical Results of Compliance Model for the Individual Provinces	165
4.6 Conclusion	173
5 SUMMARY and CONCLUSIONS	
5.1 Introduction	175
5.2 Summary of Findings	175
5.3 Policy Implications	178
5.3.1 Probability of Detection and Conviction	179
5.3.2 Fishing Effort	180
5.3.3 Moral Obligations and Social Influence Factors	181
5.3.4 Legitimacy Variables	182
5.3 Directions for Future Studies	183
REFERENCES	186
APPENDICES	200
BIODATA OF AUTHOR	259

LIST OF TABLES

Table	Page
1.1 Major Economic Groups in GDP	3
1.2 Total and Economically Active Population of Iran	4
1.3 World Marine Fishery Production and Fish Production of Iran, 1989-1998	6
1.4 Coastal Area Economic Indicators, 1998	8
1.5 Distribution of Fish Production in the Southern, Northern, and Inland Waters, 1989-1998	10
1.6 Main Exported Fish Products, 1989-1998	11
1.7 Marine Fish Landings by the Persian Gulf Countries, 1998	20
1.8 Total and Coastal Population of the Persian Gulf Countries, 1998	21
1.9 Northern Fishery of Iran, Key Economic Indicators, 1989-1998	27
1.10 Inland and Aquaculture Fishery of Iran, Key Economic Indicators, 1989-1998	28
1.11 Southern Fishery of Iran, Key Economic Indicators, 1989-1998	29
1.12 Southern Fish Production and its Annual Growth Rate, 1989-1998	30
1.13 Fisheries Production by Southern Provinces, 1999	32
1.14 Changes in Composition of Licensed Fishing Vessels in the Southern Fishery, 1989-1998	34
1.15 Fisheries Employment by Southern Provinces, 1999	35
1.16 Production and Export Performance of Iranian Shrimp, 1989-1998	36



1.17	Production and Export Performance of Iranian Shrimp, 1990-1998	37
1.18	Number of arrested violators by Provinces, 1998	44
1.19	Distribution of Enforcement Resources, 1992-1998	45
3.1	Definition of the Dependent and Independent Variables	117
3.2	Expected Signs of the Variables	124
3.3	Total Population and Sample size in the Study Area	129
4.1	A Profile of the Study Area	134
4.2	Probit Estimation of the Violation Decision, Basic Deterrence Model using Raw Probabilities	139
4.3	Probit Estimation of the Violation Decision, Extended Model using Raw Probabilities	142
4.4	Probit Estimation of the Violation Decision, Basic Deterrence Model using Exogenous Variables	146
4.5	Probit Estimation of the Violation Decision, Extended Model using Exogenous Variables	149
4.6	Probit Estimation of the Violation Decision, using Legitimacy Variables only	155
4.7	Tobit Estimation of the ILGDAY, Basis and Extended Models using Raw Probabilities	159
4.8	Tobit Estimation of the ILGDAY, Basis and Extended Models using Exogenous Variables	162
4.9	Probit Estimation of the Violation Decision in the Individual Provinces, Basic Deterrence Model using Exogenous Variables	166
4.10	Probit Estimation of the Violation Decision in the Individual Provinces, Enriched Model using Exogenous Variables	168

LIST OF FIGURES

Figures		Page
1.1	Contribution of the Fisheries Sub-sector in National Economy	8
1.2	Contribution of Fish Consumption to Total and Animal Protein, 1966-1996	12
1.3	Contribution of Fish Consumption Expenditure in Rural and Urban Areas	13
1.4	Distribution of Expenditure on Fish Products, 1997	14
1.5	Map of the Islamic Republic of Iran Showing the Persian Gulf and Oman Sea	18
1.6	Organization Chart of Iranian Fisheries Company (SHILAT)	23
1.7	Southern Fish Production and its Growth Rate	31
1.8	Distribution of Fishing Effort in the Persian Gulf	33
1.9	Distribution of Arrested violators in the Study Area, 1992-1997	43
3.1	Profit Maximizing Problem in the Absence of Zoning Regulation	88
3.2	Expected Profit Maximizing Problem in the Presence of Zoning Regulation, Effects of Increase and Decrease in Marginal Probability (p) or Sanction (F)	94
3.3	Map of the Persian Gulf Showing the Study Area	126

ABBREVIATIONS

CBI	Central Bank of Islamic Republic of Iran
CDSD	Comprehensive Development Studies Department
CPUE	Catch Per Unit of Effort
DFFA	Deputy of Fishing and Fishermen Affairs
DRPD	Department of Resource Protection Division
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organization of the United Nations
FFYDP	First Five Year Development Plan
FV	Fishing Vessel
GCC	The Cooperation council for the Arab States of the Persian Gulf
GRP	Glass Reinforced Plastic
GRT	Gross Registered Tonnage
HP	Horse Power
IFRTO	Iranian Fisheries Research and Training Organization
MSY	Maximum Sustainable Yield
PG	The Persian Gulf
ROPME	Regional Organization for the Protection of the Marine Environment
SCI	Statistical Center of Iran
SHILAT	Fisheries Company of Iran
SFYDP	Second Five Year Development Plan
SFZ	Shrimp Fishing Zone
WD	World Bank

CHAPTER 1

INTRODUCTION

Iran is a large country in West Asia covering a total area of 1648000 km² with a strategic regional role in the Middle East. The total population was about 66 million in 1998 with a growth rate of 2 percent per annum. There are 28 provinces in Iran, seven of which are in the coastal areas. Three coastal provinces are in the north on the coast of Caspian Sea and four of them lies in the southern part of Iran on the coast of the Persian Gulf and Sea of Oman. Iran has a coastline of 2900 km, of which, 1950 km is in the south and about 900 km is in the north on the coast of Caspian Sea.

1.1 National Economy of Iran

Since 1987, Iran has undergone a process of economic transition, changing from a government-controlled economy towards a more liberal and market-oriented economic structure. The main development resulting from the recent policies had been the privatization of many government economic activities. Key factors contributing to the government's decision - making have been the enormous population growth, as well as the attempt to optimize the management of the economy by privatization (Abzigostar, 1996). According to Iranian constitution, the

economy consists of three sectors: The public sector, the cooperatives, and the private sector. However developments in the economy after the revolution (1979) favored an immense growth of the public sector. Since 1989 when the first five-year development plan began the tendency has been to unload some of the responsibilities from the public sector into the other two.

Another key social development factor has been the rapid urbanization, job opportunities, living standards, and better facilities in urban area. This pattern has placed a strong emphasis, in policy terms and on greater sharing of the nation's wealth through the promotion of regional development, including those communities particularly dependent on fishing (Abzigostar, 1996).

1.1.1 Gross Domestic Product (GDP) and Gross National Product (GNP)

An indication of the economic importance of fishing in a national level can be shown by its share in the GNP (Coull, 1993). GNP is defined as the total market value of all goods and services produced in the nation's economy in one year (Edgmand, 1983). GDP is the main macroeconomic variable, and defines the total market value internally by the nation and by foreigners who work or invest in the country (Blanchard, 2000). In Iran, there is a little difference between GDP and GNP, indicating relative unimportance of external earnings (Table 1.1).

Table 1.1: Major Economic Groups in GDP (billion Rials constant 1982 price).

Year	1980	1985	1989	1992	1994
GNP	9560	12058	9797	12986	13582
GDP	9556	12072	9782	12879	13181
Share of Agriculture in GDP (%)	20	21	28	26	28
Share of Manufacturing in GDP (%)	10	10	14	16	16
Share of Oil in GDP (%)	9	14	19	20	19
Others (%)	60.8	51	39	38	37

Source: SCI, 1985- 1996. Note: US\$1 = 7910 Rials.

Table 1.1 shows that the Iranian economy is heavily dependent on oil, accounting for 19 percent of GDP in 1994. However, the economy is gradually diversifying with a rising share of other main groups such as agriculture and manufacturing. Table 1.1 also shows that the agriculture sector is the most important contributor to the economy, varying from 20 percent of GDP in 1980 to 28 percent in 1994.

1.1.2 Employment

The total population of the country was some 53 million in 1988, rising in 1998 to around 65.7 million people with a growth rate of around 2.8 percent per annum. However, the population is not evenly distributed throughout the country. About 57% lives in the large urban centers, and the remaining 43% of the population are rural inhabitants, distributed throughout the 28 provinces. These range from the most densely populated provinces around the Caspian Sea (in the north) and western