UNIVERSITI PUTRA MALAYSIA

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

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By
DARYOUSH KARIMI GOGHARI

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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.

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

By

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April 2002

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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

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Pengerusi: Professor Dr. Nik Mustapha R. Abdullah

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 (PERTIVOL) hanya bererti di wilayah Bushehr. Keputuan 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 kecekapan 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 penikanan (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 penyabitan kesalahan keseluruhan (OVEPROB) adalah bererti dengan tanda tidak dijangka, faktor eksogen kebarangkalian penemuan dan penyabitan 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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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 km^2 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