

Oil development and social acceptance in Greece: The Katakolo field case

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The Katakolo oil field

- **History:** Discovered in 1982. At that time it was considered sub economic, due to the sea depth, the prices of oil and the presence of H₂S and CO₂.
- **Location:** about 3,5 km offshore of the Cape Katakolon (Elis, Greece), in a depth of 2,400-2,600 m and in water depths of more than 200 m.
- **Estimated recoverable reserves:** 3 MMbbls.
- **Exploitation:** At present, oil prices and the technology allow the exploitation from the shore by means of inclined – sub horizontal wells.

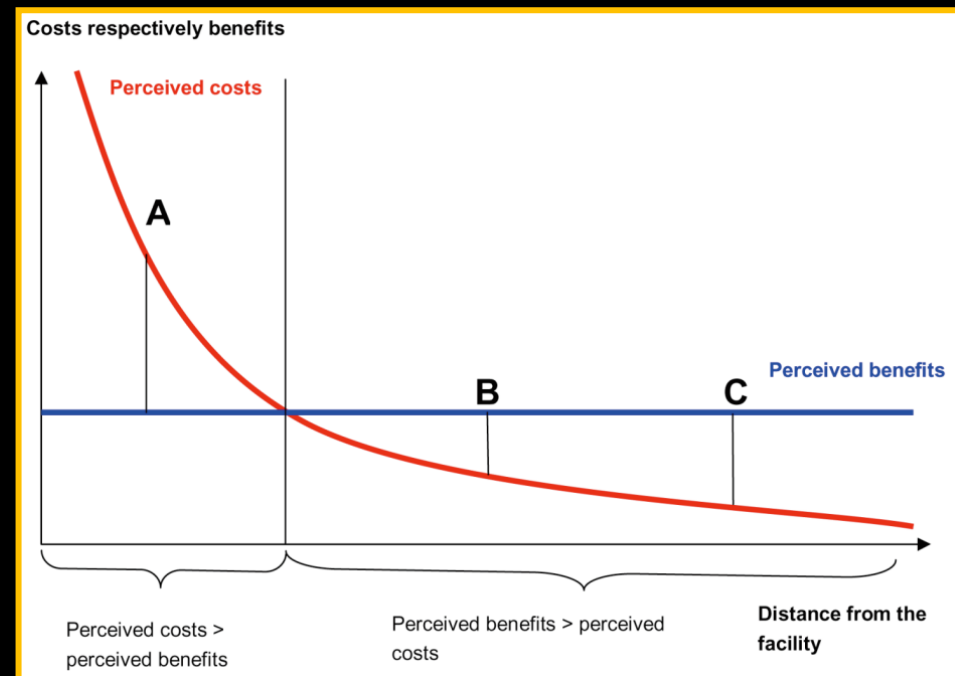
Oil drilling activities & NIMBY

- Oil drilling activities are likely to face **strong opposition** especially from people who live near the proposed development sites
- A **number of factors** affect NIMBY behaviour, e.g. mistrust of government or private actors, etc.
- Many researchers argue that challenges arise from **external costs** generated by noxious facilities, which are passed on to **surrounding communities**, while at the same time the **benefits** are distributed **throughout the economy**

Externalities & NIMBY

- **A simplified example...**

- Total utility benefits of 100,000 units to 1,000,000 residents
Utility benefits per capita: 0.1 units
- Total utility loss for 1,000 residents living close to the site 10,000 units.
Utility costs per capita: 10 units
- The project seems desirable because it provides a net benefit of 90,000 utility units. Nevertheless, it is not justified on a per capita basis for those residing close to the facility.



Scope of the survey

- The present survey aims at exploring, for the first time in Greece:
- the **determinants influencing public reactions** against the potential oil drilling activities and
 - the **acceptance of monetary compensation** to local communities in exchange for the installation of oil drilling facilities in Katakolo

Methodological approach

- The **Contingent Valuation Method** is a **direct (stated preference)** non-market valuation approach, i.e. individuals are asked to state their maximum WTP or minimum WTA for a utility change.
- It is based on a hypothetical, though realistic, scenario put to the respondents.

CVM: Criticisms

- Respondents may fail to take payment seriously because they are non-binding or may manipulate the process by distorting their true WTP (i.e. **strategic bias**)
- Respondents do not understand what they are being asked to value (i.e. **information bias**)
- WTP-WTA estimates may be inconsistent (i.e. **WTP and WTA disparity**)
- Validity (i.e. 'accuracy') and reliability (i.e. 'consistency' or 'reproducibility') of estimates, etc.

CVM: Advantages

- It is **consistent** with the theoretically framework of monetary measures of utility changes.
- It is the only method available, together with Choice Experiments, for capturing **non-use values**.
- It is applicable to **ex ante** situations.

Thus...

- It is the **most frequently and widely applied** stated preference valuation technique – It has been in use for over 40 years in over 100 countries.
- It is **widely used** through regulations by agencies with environmental responsibilities for natural resource damage assessments and policy evaluations.

Survey design

- According to the Strategic Impact Assessment report, the zone of influence includes a coastal area of 635 km² of Elis regional unit and Zakynthos Island.
- For practical reasons the survey was limited to the Elis coastal zone. In total, 300 questionnaires were completed by telephone interviews, using a randomly selected with probability proportional to the population from six selected settlements, namely Pirgos, Katakolo, Amaliada, Epitalio, Zacharo and Vartholomio.

Questionnaire design

- The questionnaire consisted of two parts.
- The **first part** included 10 questions grouped in three different categories: **(a)** respondent's opinion about oil drilling activities and their impacts on the environment, the quality of life and the economy, **(b)** the vote for or against the establishment of oil drilling activities in the area, and **(c)** the acceptance and the amount of compensation.
- The **second part** included typical demographic notes, e.g., annual income, gender, age, family status, etc.

CV question and payment vehicle

- The CV question focused on respondents' **WTA compensation** for allowing the establishment and operation of oil drilling activities.
- Respondents were told that their **community** would receive an **annual amount of money** as compensation by the oil firm (i.e. 'host fees'). The funds **collected by the local authorities** will be **returned to households** of the area in the form of municipality tax deductions.
- Respondents were asked to determine the **acceptable amount of compensation** to be offered every year to their households via municipality tax cuts for hosting the oil drilling activities.

Survey results

- **Information:** About **86%** were aware of the Katakolo oil field. Yet, only **7%** said that they were well informed about oil drilling works. About **49%** said that they were a little informed and **44%** that they were not at all informed.
- **Negative effects:** Approximately **40%** identified damages to natural ecosystem, in general, and **22%** to marine ecosystem, in particular, as the most important environmental and social impacts. Furthermore, **7%** mentioned negative impacts on tourism activities. **However, 21% believe that oil drilling activities do not cause significant problems.**

Survey results

- **Benefits:** The creation of employment is ranked first (42%), followed by the heating of local economy (28%) and the contribution to the decrease of Greek public debt (20%).
- These results coincide with the fact that almost 75% of the respondents said that the economic problem (e.g. unemployment, lack of new investments, poverty, etc.) is the most important issue that the area faces.

Voting for or against the project

- Around **80%** of the respondents **voted for the exploitation** of the Katakolo oil field.
- Furthermore, **43% of those who voted against** the oil field exploitation **said that they would change their position** if **inclined wells from the shore were used** to extract the oil.
- Logistic regression analysis showed that:
 - Individuals who believe that oil drilling activities will have a positive effect on the area and will benefit the local and national economy **are more likely to support** the project.
 - Individuals who believe that there will be negative impacts on other economic activities **are less likely to support** the project

Accepting or rejecting compensation

- About **13%** of the respondents **refused** to accept compensation claiming that “money is not enough”.
- Around **30%** of the respondents said that **compensation was not necessary** provided that strict environmental requirements are met, mentioning the socioeconomic benefits of the project.
- The rest of the respondents , i.e. **57%**, were **agreed to be compensated**.
- Logistic regression analysis revealed that WTA probability **increases** for those who voted for the project and who believe that local economy will be benefited. On the contrary, WTA probability **decreases** with household income.

Compensation amount (1)

- Respondents who accepted the compensation were asked what amount of money according to their opinion should be paid to them, on an annual basis, in the form of municipality tax deductions.
- About 23% said that they were unable to estimate the exact amount of compensation and 9% declared that they would prefer compensation 'in-kind' for the local community, e.g. infrastructure projects. Those answers were excluded from further analysis.

Compensation amount (2)

Two different scenarios were considered, as follows:

- 'Conservative' scenario

Only WTA values lower than the maximum amount of municipality taxes declared by the respondents, i.e. **2,000 Euros per year**, were included in the estimates, assuming a **100%** tax deduction.

- 'Non-conservative' scenario

Only implausibly large bids, which were identified as outliers, were removed from the sample, assuming that the 'conservative' arbitrary upper limit may not cover the reduction in respondent's utility level after the siting of oil drilling activities.

Average and total WTA

'Conservative' scenario

Statistics	Mean WTA (€)	Total WTA (€)
Non-parametric	280.9	6,320,000
Non-parametric l.b. (95% C.I.)	233.7	5,260,000
Non-parametric u.b. (95% C.I.)	328.1	7,380,000
Parametric	286.5	6,445,000

'Non-conservative' scenario

Statistics	Mean WTA (€)	Total WTA (€)
Non-parametric	510.7	11,490,000
Non-parametric l.b. (95% C.I.)	324.9	7,310,000
Non-parametric u.b. (95% C.I.)	696.4	15,670,000
Parametric	398.6	8,970,000

Conclusions

- This study attempted, for the first time, to investigate beliefs and perceptions that affect the support or opposition to oil exploitation and to examine the effectiveness of monetary compensation to local communities as a means of facilitating the installation of oil drilling activities.
- The results indicate that **more than 80%** of the respondents **would vote for the exploitation** of the Katakolo oil field. This finding may be surprising but it can be easily explained by the concerns expressed about the economic situation (i.e. almost **75%** of the respondents recognize **unemployment and poverty** as the most important issues that the area faces and **90%** of them believe that **oil drilling activities** could **create employment, heat the local economy and contribute to the decrease of Greek public debt**).

Conclusions

- Only **13%** of the respondents refused to accept compensation claiming that “money is not enough”. What was interesting though is that about **30%** of the respondents mentioned that compensation was not necessary provided that strict environmental requirements are met.
- Regarding those respondents who agreed to be compensated, the average WTA value ranges between **280 and 510 € per household per year**, which corresponds to **6.3 M€ up to 11.5 M€** per year for the Elias regional unit.
- These findings could be taken into consideration for further studies as well as for determining a fair compensation paid to host communities and for evaluating the social acceptance of oil exploitation on the grounds of cost benefit analyses.

Thank you very much for your attention...