The Economic Impact of Mining Activity on Milos island

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• Contribution of Milos’ mining sector to the local economy
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Purpose of the study

A. Quantification of mining impact

B. Comparison of Milos economic structure to other similar islands (Paros, Sifnos, Thera)
Methodology

• Use of the **input output model**
  – Leontief, nobel prize in economic science, 1973
  – Ability to quantify the multipliers of an activity to the total of an economy
  – Direct, indirect and induced impact on GDP, employment and tax revenues

• **Time period of analysis:** 2005-2011
  – Two time periods (2005-2008 and 2009-2011) the trends of the impact and of course the crisis effect

• **Sources:** Eurostat, ELSTAT, S&B annual reports, interviews with local bodies, relevant literature

**Important consideration:** mining activity is considered as a part of the Greek industry and not a part of the primary
The I/O model

Direct effect
Final demand on the mining sector

Indirect effect
- auxiliary sectors
- other relevant services

Induced effect
households’ income spent on
- rent
- food
- other services

Total effect
- GDP
- Employment
- Taxes

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Economic Impact on National Economy

- Operation of Milos’ mines
- Impact estimation annually for 2005-2011
- Data on 2005/2008/2010: ESA tables, Eurostat
- Linear interpolation for the rest of the years
- Total economic impact = Direct + Indirect + Induced
- Gross magnitude, since potential absence of the sector would mean development of other sectors
2010 data exhibit a rather significant effect on the Greek economy...

GVA, 2010

Tax contribution, 2010

Employment, 2010
...while the typical multipliers display high sectoral productivity

Marginal increase in the final demand for the sector’s products by €1

National Economy

- Value Added: +3.4€
- Employment: +11
- Tax revenues: +3.6
- GDP: +3.4

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The impact on Milos-Kimolos’ complex...

- Series of rational assumptions based on the previous results
- **Milos and Kimolos** complex is seen as a closed ecosystem, money flows to the rest of Greece are seen as leakages
- Small size of the examined economy:
  - smaller indirect and induced effect
- Possible overestimation of contribution to GVA (earnings to the owners spent outside the local economy)
- Underestimation of the total impact since I/O model does not include:
  - Incomes and expenditures of retired employees
  - Demographic decline avoidance, preservation of local community and other similar benefits for the local economy
  - Other expenses: restoration of old mines, frequent installation of new mines
...is quite considerable almost half of the local economy is sustained through mining

53.5% of Milos’- Kimolos economy

38.5% of Milos’-Kimolos economy

Almost half of Milos’ municipality’s budget
Again, the multipliers are considerably smaller, but yet effective

Marginal increase in the final demand for the sector’s products by €1

Economy of Milos

Value Added: +1.6€

Employment: +4

Tax revenues: +1.6€

GDP: +1.6€

High sectoral productivity is proven again

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Next step: Comparison with other similar economies

- Special characteristics of the local economy despite similar geographical, climate and social characteristics with other islands
- If and to what level Milos’ economy shall be shifted towards an alternative economic model (i.e. tourism)

Comparison with

- Paros, Thera and Sifnos
Some basic characteristics

Paros island
- Economy based mostly on tourism
- Strong history on quarrying

Sifnos island
- Strong shift from mining to tourism

Thera island
- Special case due to its geological formation
- Specialization in tourism
Need for a uniform index

• Location quotients for GVA and Employment
• Island’s $r$ contribution to a variable $A$, in a geographical area $n$, divided by the economic sector $I$, is defined as:

$$LQ = \frac{(Air/Ain)}{(Ar/An)}$$

• Example regarding employment in Milos

Employment in Manufacturing in Milos/total employment in Manufacturing in Cyclades region

Total Employment in Milos/Total Employment in Cyclades

• If $LQ>1$, high specialization (in terms of employment) in Milos compared to the rest of Cyclades
Unique economic model in Milos-Kimolos, albeit similar economic characteristics with the other islands

- Different patterns in Milos compared to the rest of the islands, both in GVA and employment terms
- Milos-Kimolos: the only economy with high specialization in manufacturing

**Gross value added, 2009**

**Employment, 2009**
Conclusions

- Mining activity remains the backbone of the local economy.
- A shift in Milos’ economy to tourist activities would require a total restructuring in all levels (education, alternative choices, danger of braindrain).
Thank you for your attention

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