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OPEC and the international oil market: Can a cartel fuel the engine of economic development?

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Abstract

The OPEC cartel was formed to promote two economic goals, one microeconomic — low oil market volatility — the other macroeconomic — promotes economic development of its members. These goals create a tension since the cartel's single tool is output quotas. Using this dual micro/macro perspective we analyze oil exporting countries' behavior. We find that the effects of the cartel's choices will be reflected in oil market stability, long-term macroeconomic development, and international oil market structure. If an oil producing country cares about both oil industry profits and macroeconomic stability, the goal of output stability may be inconsistent with cartel membership.

JEL classification: F4; L1; O1; Q4

Keywords: Oil market volatility; Oil market structure; Economic development

> OPEC is an international Organization of eleven developing countries which are heavily reliant on oil revenues as their main source of income. Membership is open to any country which is a substantial net exporter of oil and which shares the ideals of the Organization.
>
> Since oil revenues are so vital for the economic development of these nations, they aim to bring stability and harmony to the oil market by adjusting their oil output to help ensure a balance between supply and demand.
>
> OPEC

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The OPEC cartel was formed to promote two economic goals, one microeconomic — the minimization of the volatility of oil markets — the other macroeconomic — the promotion of the economic development of its member countries. These two goals create a tension since the cartel has only a single tool, output quotas, with which to achieve these goals. Thus, it is forced to weight them. The effects of its choices will be reflected in the stability of the oil market, in long-term macroeconomic development, and in the states' decisions to join or withdraw from the cartel, that is, in international oil market structure. Using this dual micro/macro perspective we analyze OPEC's sometimes perplexing (see Griffin, 1985; Griffin and Xiong, 1997; Loderer, 1985) behavior.

Specifically, in this paper we ask a straightforward question — is it possible for OPEC to achieve its stated goals? That is, can an international resource cartel using the standard microeconomic pricing and enforcement mechanisms provide a macroeconomic environment conducive to development and growth? Since the oil sector represents an important share of national income for oil exporting, developing countries, instability in the oil market also can lead to instability in output, and through the Phillips curve, instability in other macroeconomic indicators like inflation; in other words, it can lead to macroeconomic instability. Thus, has OPEC been a useful tool explicitly to achieve oil market, and, implicitly, macroeconomic stability? If the answer to both these questions is no, what is the rationale for OPEC to continue to exist? That is, can oil exporting developing countries improve their development prospects by joining an oil cartel? If so, since all substantial oil exporters can choose to join, why do some important exporting countries like Mexico, Oman, Angola and, perhaps, Russia, whose production and development levels are similar to other countries in OPEC, choose to stay in the fringe? What induces countries like Ecuador to enter and then exit shortly thereafter? Why do Mexico, Russia, Egypt and Kazakhstan find membership inconsistent with their domestic macroeconomic policies if membership is, indeed, intended to promote economic development?

There are two important features of the international oil market worthy of mention. First, the OPEC cartel meets twice a year and in extraordinary sessions whenever necessary. In these meetings, the cartel analyzes the state of the international oil market, and sets quotas for its member states (see www.opec.com). Thus, OPEC tries to move (preempt) the market rather than be moved by it. OPEC's production represents about 40% of total world oil production. Among non-OPEC producers, Russia's production is 12% of world production, and no other country produces even 5% of the total. This means that the international oil market operates as a Stackleberg oligopoly where the OPEC cartel plays the role of the leader. A final important feature that distinguishes the oil cartel from most (if not all) other cartels is that governments, not firms, make the decision about joining the cartel, and it is government ministers who set production quotas.

Taking these features as assumptions, we answer the above questions in the context of a simple model in which oil producing countries choose either to join OPEC or remain part of the fringe. Equilibrium is stable and thus cartel members have no temptation to cheat. OPEC acts as a Stackleberg leader, and reacts to market shocks by setting output quotas for its members. We find that if oil producing country governments care predominately about high oil sector profits, the standard microeconomic assumption, then joining the cartel is the optimal strategy. But countries in the cartel will have more volatile oil production than those in the fringe and, thus, via the link between the oil sector and the macroeconomy, higher macroeconomic instability. Therefore, if these same governments care about macroeconomic stability as well as oil sector profits, then the choice to join the cartel will depend on the intensity of this preference: the more a government cares about macroeconomic stability, the less inclined it is, in general, to be a cartel member.