

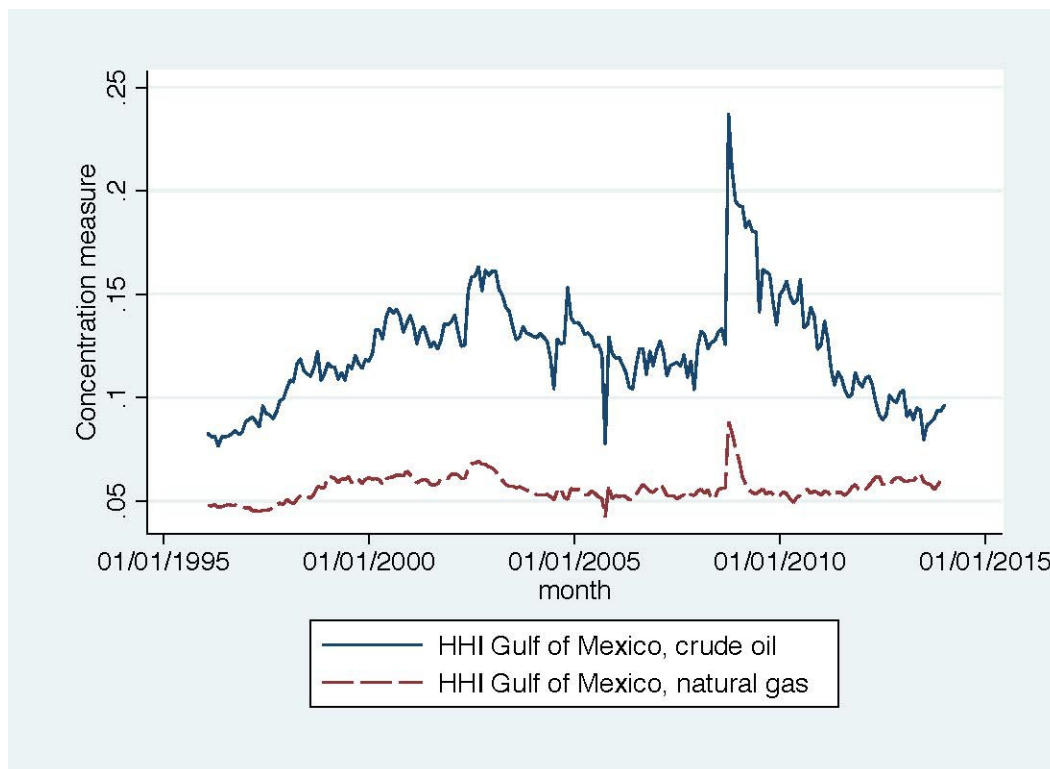
Concentration Trends in the Gulf of Mexico Oil and Gas Industry

Charles F. Mason, H.A. True Chair in Petroleum and Natural Gas Economics
Department of Economics & Finance, University of Wyoming

In this paper, I explore a recurrent theme in Morris Adelman 's illustrious career, namely the structure of oil and gas markets. Taking note of Adelman's remark in 1972, that "[t]he offshore drilling industry is perhaps the biggest single part of the complex," I focus on the Gulf of Mexico, which has been for some time an important market segment for offshore oil and gas market in the US.

In this paper I discuss concentration statistics for the oil and gas industry in the Gulf of Mexico, using the "Herfindahl-Hirschman Index" (the measure of concentration generally accepted by industrial economists). I calculate this measure for multiple stages in the production process, starting with lease markets (using annual lease data between 1954 and 2014); drilling, in both shallow water (between 2007 and 2013) and deep water (between 2009 and 2013; and in oil and gas production (using monthly data from 1996 to 2013, for the Gulf as a whole, as well as for both shallow and deep water).

In general, the evidence points towards a pattern of decreasing concentration over time. The figure below illustrates concentration patterns in oil and gas production for the Gulf as a whole, over the period from 1996 to 2013. In the 1990s, production in the Gulf was quite concentrated, and was dominated by large oil companies. But over the past decade or so this concentration has eroded, with recent levels consistent with an unconcentrated industry. Similar patterns apply for drilling and leasing as well, and are relevant to both shallow and deep water.



The overall picture for the Gulf of Mexico, both for oil and gas, is an industry with strong competition for leases, drilling and production. While concentration levels are larger in deep water than for the Gulf as a whole, these levels have been declining over time. The implied long-run levels of concentration are generally smaller than the cutoff level of .15, which places the levels in the "unconcentrated" category. These results cover a wide range of market conditions, including periods of recession, booms and busts in oil markets, technological innovation and big mergers. Finally, the evidence suggests concentration is falling over time, particularly in deep water oil and gas production. Taken as a whole, these results are indicative of a robustly competitive industry.

One possible explanation for this downward trend in concentration is the emerging role played by non-majors in the market for leases in the Gulf of Mexico. The participation by these smaller firms increased sharply in the period from 1980 to 2010, perhaps as a result of an increased tendency towards joint bidding during the 1970s.

My findings have clear implications. There are substantial volumes of hydrocarbons in the Gulf of Mexico, for which there are a steady ongoing stream of leases. The key message of this paper is that there is every reason to believe there will be strong competition for these leases, drilling that develops the leases, and production based on those acquired leases.