

Natural Resource Exploration as Investment

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Paper Proposal

The environment is everywhere and is a critical input to almost every market and nonmarket activity. Yet, unlike the majority of output produced by the private business sector, many environmental services are provided without an explicit market transaction between the final user of the services and producer of the services. For those used to thinking about measured output from the expenditure side, this raises immediate concerns that the value of environment services is not only unmeasured within the current GDP and productivity statistics, but is also unmeasurable within the current framework. Furthermore, this concern has evolved into arguments that GDP is a fundamentally flawed measure of wellbeing (Stiglitz et al. 2009).

The paper starts by demonstrating that the environmental services associated with petroleum, natural gas, and minerals are already tracked in the national accounts. In particular, sections 10.106-108 of the international guidelines for national accounts (System of National Accounts 2008 or SNA 2008) recommends that mineral exploration should be tracked as a capital investment which yields services over its useful lifespan. However, environmental services associated with agriculture, recreation, or other important uses are not tracked in the national accounts. In effect, the current treatment means that measured investment and measured GDP are higher when land is used for mining rather than other purposes.

The paper then develops a production framework which tracks all natural resource exploration consistently with mineral exploration. Just like mineral exploration, other natural resource exploration would be treated as a capital investment which yields services over its useful lifespan. For example, a renewable energy provider searching for the perfect place to locate solar panels would be handled just like an oil company searching for the perfect place to drill. Put differently, this paper restricts the concept of natural resources (SNA 20008 , Sections 10.166-10.172) to unexplored regions and broadens the concept of mineral exploration to all types of natural resource exploration. By design, this production framework only requires a simple tweak to the international guidelines for national accounts and can be implemented easily.

Finally, the paper assesses the empirical impact of capitalizing all natural resource exploration on output, value added, and productivity at the aggregate and industry level. Figures 1 and 2 show preliminary estimates of investment and capital stock for selected natural resource exploration categories from 1929 to 2019. The most important finding is that both investment and capital stock for those categories have approximately tracked overall GDP. In other words, a broad welfare measure which incorporates environmental sustainability would likely track current GDP statistics in the long term.

JEL Codes: E01, O17, and Q50

Figure 1: Nominal Investment, as a share of Nominal GDP

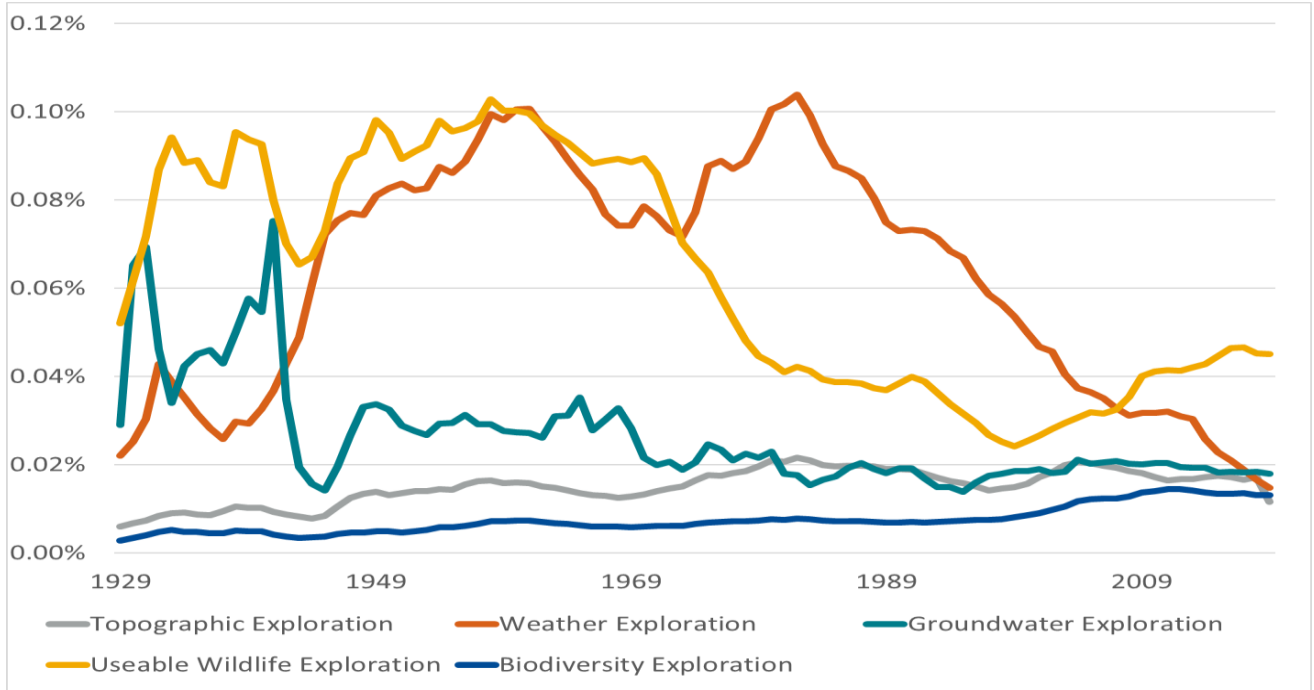


Figure 2: Nominal Capital Stock, as a share of Nominal GDP

