

Summary and conclusions

The purpose of this report is to analyze how the Swedish government best can utilize its mineral resources from an economic perspective. Our focus is on profit sharing between the government and private firms, and on how the government's share should be handled. Our starting point is that mineral resources in Sweden belong to the whole Swedish (current and future) population. As a representative of the people, we view the Swedish government as being responsible for using the mineral resources in a way that maximizes total welfare in society. In this sense we take the state's property right to the resources as given and do not further analyze various issues of equity and alternative property right regimes. Moreover, we do not analyze potential negative effects of mining on local culture and the environment (though we note that they may be important ingredients in the governments decision to maximize social welfare).

Historically, the mining sector has been an important industry in Sweden as a creator of employment opportunities, as a source of income for the state, and – perhaps most importantly – as a driver of technical change. The industry gradually declined up to the 1990:s and was considered a “sunset industry”, but has, as a result of increasing international demand for metals and historically high mineral prices, grown substantially over the past decade. According to the industry's own forecasts, demand for metals is expected to stay high also in the future. The value of the currently produced minerals is around 50 billion SEK on a yearly basis (around 1.5% of GDP). The expected expansion in the next decade lies between a doubling and possibly up to a tripling of volumes. The value of this expansion largely depends on future metal prices but an increase to 100-150 billion is not unrealistic (3-4% of GDP). The mining industry in itself is capital intensive and consequently the direct effect on employment is limited. According to the most optimistic

expansion scenario between 20 000-35 000 new jobs could be created if one includes both direct and indirect effects. This positive scenario requires that metal prices remain high. If they would fall, the industry would be substantially smaller.

Our analysis and main suggestions for the sector is built on a framework that accommodates both the possibility of high future profits and a scenario in which profits will be low. We want to emphasize that it is important to have a system that is feasible for all parties regardless of the outside circumstances. In particular, we stress that a system that is very favorable for exploration and mining firms may be hard to sustain politically in a situation where these firms make very large profits.

Companies within the mining industry need to make large up front investments with long time horizons. Factors like political stability, unclear rules and corruption therefore inhibit investments in many other countries. Likewise, undeveloped infrastructure and shortage of skilled labor often constitute a problem. Sweden does not suffer from these shortcomings and is therefore very competitive in an international perspective. In addition, current Swedish taxes on minerals are also low in an international comparison.

As part of our analysis we describe the Norwegian model for oil and gas. There are important differences between oil and minerals but there are also important similarities. Both are non-renewable resources which require large investments before they can be extracted. Furthermore, for both industries there is substantial uncertainty regarding the outcome of exploration and investments, but there is also potential for large profits. The important difference between Norwegian oil and Swedish minerals is the scale. Not even under the most optimistic scenario can we expect the mineral industry to come close to dominating the Swedish economy like the oil industry does in Norway. This, however, does not change the fact that there are important analogies between how Norway handles its oil wealth and handling of minerals in Sweden. Most of our economic arguments are independent of the size of the industry and the time the industry can be expected to last.

We analyze three alternative regimes by which the government can get a share of the mineral profits – auctioning of exploration rights, various combinations of taxes and subsidies and finally state owned exploration and mining firms.

Our conclusion is that the main focus for the future should be to tax profits on top of the normal corporate tax, combined with the same level of subsidies for costs of exploration and mining. Such a system is similar to the one used in Norway for oil exploration. Under the condition that the industry as a whole makes profits, this structure implies that the government gets a large share of the profits while, importantly, in total the system remains neutral for the investor since the state takes part of both the risks and profits – the expected returns per unit of investment are unaffected. This reasoning can be applied to the structure of the system in general. Measures which facilitate exploration and lower costs for mining companies (like supplying good geological information and infrastructure) can be seen as lowering the probability of unfavorable outcomes and therefore motivate a larger extent of taxation, in case profits are high, without distorting the expected returns on investment.

An alternative to equal rates of taxation and subsidies would be to have a tax applied to very high profits (a so called “super-tax”) which is used in, for instance, Australia and Canada. Such a tax would work well under a broad range of circumstances but if exploration is mainly motivated by a small probability of making a very profitable finding then such a tax may be distortionary and hence lead to less exploration activity.

Furthermore, it is important for the state, in its role as an owner, to encourage LKAB, to expand its exploration activities. The benefit of state-owned mining firms is that the issues of taxation become irrelevant as the profits accrue to the state in any case. There are well-known problems of state ownership, yet there are no indications that LKAB would be an inefficient corporation. Hence, an expansion of its activity, through continued exploration and opening of mines, seems feasible. This resembles the situation with Statoil which has been expanding its operations successfully while being owned by the Norwegian state.

As for exploration rights, these should also henceforth be given for a fee based on the size of the area to be explored and the time span. These fees are not primarily to be seen as a source of income but rather to avoid strategic considerations whereby firms may monopolize larger areas with negative competition effects. It is also important to keep developing the geological databases and demand exploration companies to report their results even if they do not find anything valuable. The more complete the information is,

regarding which minerals can be found in various parts of the country, the more attractive Sweden becomes as a target for exploration investments.

Finally, the report discusses whether it would be appropriate to establish a sovereign wealth fund, where the state's profits from the mining industry are invested. Such resource funds exist in many countries including Norway. In Sweden there is the Nuclear Waste Fund which is motivated by intergenerational equity. If one considers Swedish minerals to belong to all current and future generations, then the purpose of a resource fund is to decouple the decision of when to explore and extract from the decision of who should get parts of the profits. A resource fund would also add transparency for how the profits are used in comparison to more ad-hoc possibilities for income distribution over time such as infrastructure investments and reducing government debt which are subject to more political discretion. We note that Sweden meets two out of three criteria usually used for evaluating the necessity of a resource fund – firstly Sweden is sufficiently economically developed and secondly there are potentially large government revenues to be had from mineral extraction. The third criteria for establishing a fund is that the revenues are temporary. This is harder to evaluate. If future prices remain high and new findings lead to large revenues over a very long horizon then the motivation for a fund becomes weaker. However, if one believes that these large revenues will only last for a limited amount of time (which could be the case if the currently high prices fall after a few decades) then this strengthens the argument for a resource fund.

The trade-off facing the government is often portrayed as a choice between generating high government income through taxing the mineral sector but at the expense of lower total mining activity, or getting lower government revenues by keeping taxes low but instead getting various positive effects, such as creation of employment, which follow of an expansive and profitable mining industry. Our most important conclusion is that, if the system is constructed properly, these two alternatives need not be mutually exclusive. There are constructions, which have proven successful in Norway, by which the state can tax mining companies when outcomes are positive, while subsidizing losses when outcomes are negative, which imply that the expected returns on investment are unaffected. Thereby it is possible to get both an expansive mineral industry and a large generation of government revenues.