2020 Research report summary

Swedish Energy and Environmental Taxation – A Reform Proposal

Runar Brännlund
Bengt Kriström

SNS

Summary

WE PROPOSE WAYS to improve the Swedish system of energy taxation. Our main proposal is based on established economic theory, a substantial number of previous studies on the subject, and an extensive empirical analysis. We mainly focus on the energy tax system per se, but we also include less far-reaching proposals, essentially involving abolishing inefficient climate policy instruments (which are part of the system of energy taxation or closely related to it). Our main proposal entails abolishing energy taxes altogether, extend the use of environmental taxes, and use VAT for revenue neutrality. This means that we simply scale up the three existing VAT rates by the same factor. These proposals are visionary and can only be implemented in the longer term.

In simple terms, our overall proposal is good for the economy and benefits low-income households in sparsely populated areas in Sweden. In addition, by implementing the ideas suggested here, we are able to achieve Sweden's climate goals in a less costly manner.

We use the National Institute of Economic Research's general equilibrium model (EMEC) to obtain a detailed description of how the different parts of the economy may be affected by our main proposal. These descriptors include GDP, distributional effects (for high- and low-income households in three different regions), and value added in different sectors. To assess our additional suggestions on how to improve climate and energy policy, we mainly rely on published research.

The Swedish Energy Tax System

In the Swedish energy tax code, the carbon tax, and the sulfur tax are defined as energy taxes. To avoid confusion, we define them as environmental taxes. For example, energy tax and

carbon tax are levied on gasoline. We denote these energy tax and environmental tax, not as two different energy taxes on gasoline. An environmental tax is an efficient policy instrument that supports reducing the use of all resources in the economy, including environmental and natural resources. However, many other taxes tend to be distortive, which is why simultaneously reducing the energy tax and increasing the CO2 tax on gasoline might be a good idea, even if the final price for the customer remains the same. This is because less CO2-intensive fuels will enjoy a comparative advantage.

Abolish the Energy Tax, Adjust the VAT

We suggest abolishing the energy tax, which is to be financed by a change in the VAT. Our tax swap also includes additions and adjustments to environmental taxes where this is justified. This proposal is supported by the following arguments.

The Swedish energy tax system, as currently structured, is harmful to the economy. It needs to be modernized and streamlined. Fossil fuels today constitute an important tax base, but with current policy objectives (all vehicles being fossil-free by 2030), this tax base will soon be a thing of the past. Furthermore, the energy tax system is extremely complex with a plethora of exemptions and special rules that simply hurt the economy.

Our main proposal is consistent with a fundamental notion in economic theory, namely that it is beneficial moving from narrow to broad tax bases. The use of fossil fuels will increase in the short term (since the tax is lower), but the associated environmental problems can be addressed with suitable economic instruments, such as the CO2 tax. This natural extension of the main notion propelled us to add suggestions on how we can sharpen existing environmental policy instruments. We provide several examples of malfunctioning/inefficient environmental policy instruments that can be abolished without any negative consequences. Indeed, Swedish energy and environmental policy has in recent years been characterized by the introduction of a large number of ineffective policies, a claim supported by reports from the National Institute of Economic Research and the National Audit Office.

We present – and evaluate – a proposal that can best be viewed as a vision of how the tax system can change in a way that benefits both the economy and the environment. Yet, we are far from the first to make these kinds of proposals. The material available on how and why the energy tax system looks the way it does is very extensive and it is unavoidable to conclude from all this material that the Swedish energy tax system needs to undergo a thorough reform.

»Abolishing« the energy tax here means that tax rates are

set at zero or at the minimum level allowed by the EU. This is to be combined with environmental taxes in order to manage negative externalities (here mainly negative side effects on the environment as a result of production/consumption). For example, an appropriate adjustment to the CO2 tax can be made to prevent CO2 emissions from increasing in the sector not part of the EU ETS (European Emission Trading Scheme). Yet, we prefer international cooperation (e.g., within the EU). Other options include congestion charges and distance-based taxes adapted to local conditions (e.g., certain types of air pollution, noise, and road wear and tear). In our calculations, we (in some scenarios) adjust the CO2 tax in order to achieve the Swedish policy objectives concerning CO2 emissions from the domestic sector (more or less the transport sector).

We find theoretical support within the basic economic theory of taxation. We find empirical support for the proposition that the economy works better. Furthermore, we also find that the reforms do not have decidedly negative distributional and environmental consequences. However, it is difficult to capture the total value of abolishing a complex energy tax system. For example, we have not included the reduction of administrative costs. Due to the complexity involved, these are probably significant.

Merging the current three VAT rates into one single rate would bring additional benefits. However, we have not carried out detailed calculations with regard to such a scenario as our focus is on energy and environmental taxation and not on how VAT can result in efficiency gains per se. This is why we simply scale up the current three VAT rates.

Abolish Unjustified Taxes and Subsidies

A number of recently introduced policies may be abolished without negative consequences: the Swedish aviation tax, the so-called bonus-malus system (taxing/subsidizing cars according to CO2 efficiency), both introduced in 2018, and the tax on plastic bags introduced in 2020. Furthermore, there are several examples of overlapping regulations. The aviation tax is one such example, since there is already a price on CO2 emissions via EU ETS (the EU carbon trading system). In addition, there is no reason (from an environmental economics perspective) to subsidize activities already covered by emissions trading or the CO2 tax (one such scheme is called the »Climate Leap Program«).

The tax on plastic bags is an interesting example of how things can go wrong. It is an example of when a label (»an environmental tax«) is used to legitimize tax increases. The recently abolished subsidy for electric bicycles is another example of inefficient climate policy. These two examples share

one key feature: the tax/subsidy does not address the underlying environmental problem. Perhaps unsurprisingly, the introduction of these two measures was not supported by a thorough cost-benefit analysis.

As already suggested, we are far from the first to argue that the energy tax system should be reformed (this also applies to the ideas concerning patching up and fixing certain parts of the system). For example, our ideas are similar to the proposals in the Government Commission SOU 1997:11 on a reformed energy tax system and Peter Birch Sørensen's study on how to improve the Swedish tax system in general.

Impact Estimates

We have analyzed our basic proposal by using different empirical methods. In the most detailed empirical analysis, we describe two proposals based on two different climate policy choices. Scenario BAS abolishes all Swedish energy taxes by 2030 and adjusts VAT to offset the loss in tax revenue. Scenario BAS_EL abolishes the energy tax on electricity by 2030, supplemented by a VAT increase. In these scenarios, climate policy develops according to what we currently know regarding present and future policies. In the CLIMATE scenarios, we adjust the carbon tax to achieve the 2030 climate target (which will not be achieved as a result of the currently known policy packages).

EFFECTS ON GDP AND EMISSIONS

VAT must be increased by approximately 2 percentage points (the three current VAT rates are scaled up by the same factor), but considerably less if only the electricity tax is abolished. This result remains more or less the same regardless of empirical approach. With the help of the National Institute of Economic Research's general equilibrium model (EMEC), we obtain a detailed description of how the different parts of the economy are affected by our proposals. GDP is higher in BAS and BAS_EL compared to the baseline scenario. Our proposed change thus seems to increase production (or income). Achieving the climate target set for 2030 comes at a price tag in the order of SEK 40 billion per year, but this cost will be lower in BAS_KLIMAT and BAS_EL_KLIMAT compared to a reference scenario where climate targets are met (CLIMATE). Thus, we achieve our climate targets in a less costly manner.

In the period of transition (to electricity), BAS implies increasing carbon emissions in the transport sector, a consequence that can be addressed by means of international cooperation. For example, there are mechanisms in the EU that cover sectors not participating in emissions trading, the so-called ESR sectors. If Sweden decides to achieve its policy

targets without using international cooperation for the ESR sectors, BAS_KLIMAT and BAS_EL_KLIMAT are still better economically speaking.

To sum up: our proposal benefits the economy and implies a more efficient climate policy, regardless of whether or not the 2030 goals are to be achieved.

DISTRIBUTIONAL EFFECTS

Certain households, especially low-income households in sparsely populated areas, benefit from lower consumer prices on fuels, yet the increase in VAT means an increase in consumer prices on food and other goods. All households benefit from lower consumer prices on electricity. Overall, the proposals benefit low-income households, which is in line with an extremely robust result in energy economics research: energy taxes tend to be regressive (an increase affects low-income households more in relative terms and the average income is lower in sparsely populated areas). Note that we have also taken the other side of the coin into account. Since households own firms, changes in profits will affect household incomes. In addition, household income also includes net payments from the public sector.

As far as we can tell, the distributional impacts are broadly neutral, although households in rural areas tend to be the winners. It should be stressed that this result depends on the precise structure of government transfers. When using EMEC, we have tried to neutralize the effects of total transfers from the public sector to the households. This is not a trivial exercise as the public sector operates in the market economy. The price of goods and services will change, thereby affecting public sector spending and, consequently, the government budget constraint.

According to EMEC, abolishing the energy tax benefits firms that pay energy tax. A clear winner is the agricultural sector. Furthermore, EMEC shows that the electricity sector also expands. Since Sweden has comparative advantages in the production of electricity, this could partly explain why our proposal benefits the economy as a whole.

Pros and Cons

Our main proposal is not necessarily consistent with existing international agreements in the field of taxation. Indeed, a change in the Swedish energy tax system cannot be implemented independently of the Energy Taxation Directive (ETD). Furthermore, a VAT increase presently has limited parliamentary support, not least when it comes to an increase in the VAT that applies to food. Increased border trade in fossil fuels between neighboring countries is an issue. We foresee

some tensions within Nordic cooperation on climate policy. However, the electrification of the transport sector is occurring swiftly, and the problem is transitory in nature. After all, current Swedish policy objectives include all vehicles being fossil-free by 2030. We also note that emissions from the use of fossil fuels increase in scenarios without binding climate targets. The CO2 tax is an effective instrument for managing this problem, although international cooperation is to be preferred. Fossil fuels also give rise to problems of a local (e.g., air quality in large cities) and regional (e.g., sulfur emissions) character. These problems can be addressed by using environmental taxes, although regulations can sometimes be justified. While we do not find detrimental distributional effects in our calculations, such issues can be addressed in a more comprehensive manner than what has been possible here. At the same time, note that there is a kind of built-in distributional effect from a VAT increase: the consumer price of potatoes will increase less than the price of lobster (all else equal). However, the price increases on food and other goods and services subject to a lower VAT can be seen as a disadvantage.

Perhaps a more substantial disadvantage is that we would have yet another example of the »bumpiness« of Swedish energy policy. Investments have been made conditional on current energy efficiency, energy and environmental policy objectives, some of which would probably not have been made had energy taxation been known to change in line with our proposal. In economic terms, however, these investments are to be regarded as sunk costs. For example, the proposal changes the relative prices on heating, probably to the detriment of biofuels. As far as possible, however, these effects are integrated into EMEC.

Gradual Implementation

These considerations suggest that our proposal needs to be introduced gradually. One advantage of our proposal, which is not easy to quantify, is that market actors can get a clear picture of the direction in which energy policy is heading. This will make it easier for market actors to make long-term decisions.

Since our proposals essentially entail a reduction of the consumer price of energy, one may ask how this corresponds to our energy policy objectives. The overall objectives cover ecological sustainability, security of supply, and competitiveness. A concrete goal is energy efficiency: Sweden's energy use should be 50 percent more efficient in 2030 compared to 2005, expressed as added energy in relation to GDP. It should be noted that this is an *intensity target* that has little or nothing to do with »efficiency« in the technical or economic sense.

As far as ecological sustainability is concerned, specific pol-

icy instruments represent our most important tool, and our proposal does not compromise the integrity of our ecological systems. Competitiveness is a subtle concept that can be defined in many ways. It lacks definitive meaning in the long run since exchange rates will adjust. Yet, Sweden is an energy-intensive open economy, and it is difficult to argue that lowering a tax on energy will be detrimental to competitiveness. Security of supply is yet another somewhat elusive concept that is also difficult to quantify. A reasonable point of departure is to address this issue at the European level, much in the same way that we addressed security of supply in agriculture (buffer stocks were abolished after Sweden entered the EU).

Our proposal implies that it will be more difficult to achieve energy efficiency targets, but this is not a decisive disadvantage. Information gaps are often highlighted as an argument for energy efficiency targets, but this argument does not have strong empirical support. Moreover, the argument can be applied to all markets and justify efficiency targets on a range of goods and services. Our analysis simply assumes that energy markets operate reasonably well.

In conclusion, there are pros and cons, not least in terms of the short-term feasibility of our main proposal. Still, we see no disadvantage in discussing proposals that improve how the Swedish economy operates and reduce energy poverty. To be sure, low-income households in sparsely populated areas rarely benefit from changes in the energy taxation code. Our proposals can also be seen in light of the discussion on the modernization of the EDT (the system is from 2003). Perhaps there is room for improvements in line with the ones we have proposed at the European level as well.

About the authors

Runar Brännlund is a professor of economics at the Umeå School of Business, Economics and Statistics, Umeå University

Bengt Kriström is a professor of resource economics at the Swedish University of Agricultural Sciences