

## Summary

### **Recurring discussions**

Air traffic taxes and duties are a recurring subject of discussion. Tax proponents argue that it is unfair to exempt the international aviation sector from fuel excise taxes and to charge the sector a zero-rate of VAT. Such taxes do however apply in some cases to other transport modes, which leads to competitive imbalance. Others raise the environmental argument: air travel is in fact too inexpensive because airline ticket prices do not include all the environmental costs. Taxes could be used to remedy this situation. To the first argument, opponents counter by stating that the aviation sector in the Netherlands bears the full costs of the requisite infrastructure and air traffic control services, which for other transport modes is often not the case. As for the environmental argument, opponents argue that air travel makes an essential contribution to the economy and employment.

### **Overview**

In this report, the KiM Netherlands Institute for Transport Policy Analysis aims to provide an overview of the relevant information required for determining if taxes are the most appropriate instruments for achieving certain objectives and for being implemented in certain situations. KiM makes no pronouncements regarding the relative desirability or undesirability of tax implementation. Moreover, this study does not express an intention on the part of the Ministry of Infrastructure and Environment to impose new taxes on the aviation sector. Rather, this report endeavours to answer the following questions:

- Which taxes and duties apply to the Dutch aviation sector?
- Are there various motives behind implementing tax measures in the Dutch aviation sector, and, if yes, what are those motives?
- To what extent does the aviation sector bear the total social costs and how does this compare to other competing transport modes?
- In order to protect the environment, is it more effective to introduce taxes and duties or to implement alternatives, such as an emissions trading system?
- What is the most efficient way to spend tax revenues?
- How do specific tax and duty measures affect the aviation sector and the environment?
- If the government wants to promote Amsterdam Airport Schiphol's competitive market position, which tax and duty systems are most suitable?

### **Current taxes and duties in the Dutch aviation sector**

Airline companies must pay various taxes in order to be permitted to land at and depart from Amsterdam Airport Schiphol. Chief among these taxes are a noise duty that partially finances insulation regulations, and a spatial planning compensation duty that finances certain expenditures in the area of spatial planning. Additionally, airline companies pay airport fees and tariffs for air traffic control services, although these cannot be regarded as taxes, but rather as reimbursements for services rendered.

In accordance with bilateral air service agreements, the international aviation sector is exempted from paying excise tax on kerosene worldwide. Excise tax on kerosene

could however be charged among mutually consenting EU member states, but to date this has never been pursued. Domestic flights in the Netherlands are however subject to excise tax on kerosene, but this usually only applies to general aviation. In addition, the Dutch government charges VAT on domestic flights. For international flights, however, the so-called zero-rate of VAT applies. For freight transport and business-related passenger transport, the end user (consumer) ultimately pays VAT on the added value in this step of the production chain. For non-business-related passenger transport, the person travelling is the end user which leaves the transport service untaxed.

### **Motives for levying taxes**

Various possible motives exist for imposing tax measures on the aviation sector, including, for example, to generate income for financing goods and services that the government (partly) pays for. A second motive is to account for all the various social costs, such as, for example, those pertaining to environmental pollution and noise disturbance. In addition, economic efficiency can play a role; namely, differences in tax burdens (for example through subsidies) can lead to the creation of an uneven competitive playing field among the various transport modes. Finally, socio-economic distributional factors can play a role: middle and higher income earners make more than average use of air transport.

### **Advantages and disadvantages of taxes as an instrument**

Using taxes as a policy instrument for achieving environmental goals offers various advantages and disadvantages. With regard to environmental standards and laws, taxation offers the advantage of giving manufacturers the choice of paying environmental taxes or generating less pollution. This results in a reduction of environmental pollution in areas where this can be most affordably achieved. In addition, taxes serve as a constant incentive to use innovation as a means to further reduce environmental pollution levels.

In certain situations, however, taxes can be less effective than environmental standards, including in cases where pollution causes more damage at one location than at another. Additionally, as also applies to environmental standards, taxes can adversely affect competitive market positions, which, for an international sector such as aviation, is especially the case when regulations only apply to the Netherlands or to the European Union. Worldwide regulations are not disadvantageous in this respect, although the competitive position is indeed weakened compared to other transport modes.

### **Emissions tax or emissions trade?**

Specifically in reducing the emission of pollutants, the trade in emission rights (cap and trade) provides an alternative to emission taxes. Emission rights give people the right to emit a certain amount of pollutants. The total quantity of emission rights is limited or capped, but by trading these rights the quantity of rights per company can rise or fall depending on the opportunities available for reducing emissions.

As of 2012, all flights travelling to and from EU airports must comply with the EU's existing CO<sub>2</sub> emissions trading system. For emissions trading, the price per single emission is not fixed, yet the total volume of emissions is not allowed to rise above a certain emissions ceiling. The height of this ceiling, compared to the current

emissions volume, determines how scarce the emissions rights will be. The scarcer they are, the higher the price.

Theoretically, many parallels exist between emissions tax and emissions trade instruments. In both cases, if the instrument is to be used most effectively, it is important to know what costs are associated with the extra quantity of emissions, and what costs are associated with extra quantity of avoided emissions. As long as extra emissions cost more than extra avoided emissions, it is, from the societal perspective, prosperity increasing to reduce more emissions. This reasoning applies to the point at which so many emissions have been avoided that both costs are comparable to each other. This point then is the optimum level of the tax rate or the optimum height of the emissions ceiling.

It is difficult in practice to determine exactly how both price curves will develop. Emission trading systems are characterized by their ability to cap pollution volumes, but at uncertain costs. These costs could be too high or too low compared to the optimum level. Taxes, conversely, are characterized by fixed costs per extra quantity of emissions, although the results are uncertain. This means that it is uncertain whether there is too much or too little reduction as compared to the optimum level.

From a scientific perspective, it is not immediately clear which of the two mechanisms is generally preferable. When the damage costs from an extra quantity of emissions rise faster than the costs of an extra quantity of avoided emissions, it is probably more beneficial, from a societal perspective, to limit this damage with the greatest degree of certainty possible. This can be achieved by using an emission ceiling to help to set a limit. If the damage costs from an extra quantity of emissions rise slower than the costs of an extra quantity of avoided emissions, it is then probably more beneficial to use a tax to cap the emissions avoidance costs. However, a great deal of practical knowledge is required to determine which of these situations applies. If such knowledge is unavailable, the choice taken on the political level will depend on which certainty (volume of emissions or costs) is most desirable. In addition, other considerations can also play a role, for example the costs associated with implementing and enforcing this type of instruments.

### **Spending tax revenues**

From an economic perspective, the most effective way of increasing prosperity is to spend revenues generated from new environmental taxes (or from auctioned rights) on lowering the marginal rates of other taxes, for example income taxes. This provides extra social welfare benefits, in addition to the desired environmental effects.

In addition to social efficiency, the effects on competitive market positions or social support levels also play a major role in political discussions about spending tax revenues. In order to protect competitive sectoral market positions from differences in tax rates, and in order to enhance a sense of fairness, the government could choose to invest (a part of) the income generated from tax measures in the affected sectors.

One option is to spend the revenue on additional measures aimed at reducing emissions. This will raise the level of environmental effectiveness and likely also the

social support levels, but this can lead to lower social efficiency. This is because only the more expensive measures, which the airline companies themselves regard as unprofitable, will be left over. However, this does not apply to regulations that promote innovation, provided that this innovation offers positive effects for society as a whole and that the innovation would not have occurred without financial contributions from the government.

### **Effects of specific measures in the aviation sector**

Tax measures, or similar measures, such as emissions trading, affect the demand for flights and the emission of air pollutants. This report examines the effects of the following measures:

- excise tax on kerosene;
- emission tax (in various forms);
- aviation tax;
- trade in emissions rights.

It is difficult to compare the effects of the above measures, both in terms of individual studies and across different studies. The starting points and assumptions generally vary from one another. Therefore it cannot be concluded that one type of tax is always preferable to another type. This depends on the objective, whether it be for example environmental protection or promoting competitive market positions, as well as on the exact design of the additional tax. The tax rate and associated price incentives, as well as the geographical reach of a given measure, are important factors in this. In conclusion, one must also take into account the possibilities for airline companies and/or consumers to avoid taxes by adapting their behaviour in desirable (or undesirable) ways.

In order to minimize undesirable avoidance behaviour and have the smallest possible effect on competitive market positions, the aim should be to achieve the largest possible geographical reach (not only in the Netherlands). In addition, it is possible to differentiate the tax according to motive (business, leisure time) or segment (passengers, freight) in such a way that the least price sensitive groups bear the heaviest tax burden. One disadvantage of this approach, however, is that it could have an adverse effect on perceptions of fairness.

If the starting point for implementing taxes is to maintain the competitive market position of Amsterdam Airport Schiphol to the greatest extent possible, then the optimum tax rate is dependent on the motive for implementing the tax. If the motive is to generate income, then an aviation tax is the most suitable option, because the income generated over time will remain constant. It is however crucially important for the competitive market position that such an aviation tax also applies in the Netherlands' neighbouring countries, so that it does not become financially advantageous for Dutch citizens to fly from neighbouring countries.

If the motive is to account for all the various social costs, then EU or worldwide emissions taxes or tradable emissions rights are the more efficient options, as they ensure that companies reduce emissions where this can be done most affordably and they serve as a constant incentive for the further reduction of emission levels. Of these two instruments, emission trading is probably the more beneficial option for the aviation sector, because emission trading offers the possibility to reduce

emissions also outside the sector. This will be more affordable than using a tax to ensure the same environmental effect is reached within the sector.

The economic efficiency and socio-economic distribution motives are more difficult to translate into choices for specific taxes. Of particular concern here is to prevent specific tax design from creating an uneven playing field among competing markets, or creating situations that many will regard as unfair.