

PART IV

Chapter 16

Current use of cost-benefit analysis

It is important to take stock of the extent to which developments in environmental CBA have found their way into actual assessment. This chapter looks at this from the perspective of a number of OECD countries across policy sectors such as energy, transport and environmental policy, via questionnaire responses. What this finds is that there are large variations in the extent to which CBA is being carried out, and the extent to which various environmental impacts are being taken into account in these analyses, across economic sectors and across analytical contexts. For example, energy sector investments and policy proposals are relatively well covered in CBAs, but there is far narrower coverage of non-climate environmental impacts in those assessments. Cataloguing such use is important. Of course, it does not of itself provide answers to inevitable questions about why CBA is used in one context but not another. Nor did the responses provide a clear picture of the influence of CBAs on the final decisions. It must also be recognised that use and influence are moving targets in the sense that both are probably evolving reasonably rapidly given developments in environmental CBA.

While the preceding chapters have discussed the theory of cost-benefit analysis, the present chapter describes the current use of cost-benefit analyses (CBA) in assessments of public investment projects in selected sectors; transport and energy in particular. It also describes the use of CBA in *ex ante* assessments of a range of public policies, and in *ex post* assessments of both investment projects and public policies. The chapter is primarily based on responses to an OECD questionnaire developed for the preparation of this chapter, with responses provided by Delegates to the Working Party on Integrating Environment and Economic Policies, under OECD's Environment Policy Committee, supplemented by information provided by various other contacts in member countries.¹ The chapter also draws upon responses to a similar 2014 questionnaire, used in the preparation of Smith and Braathen (2015).²

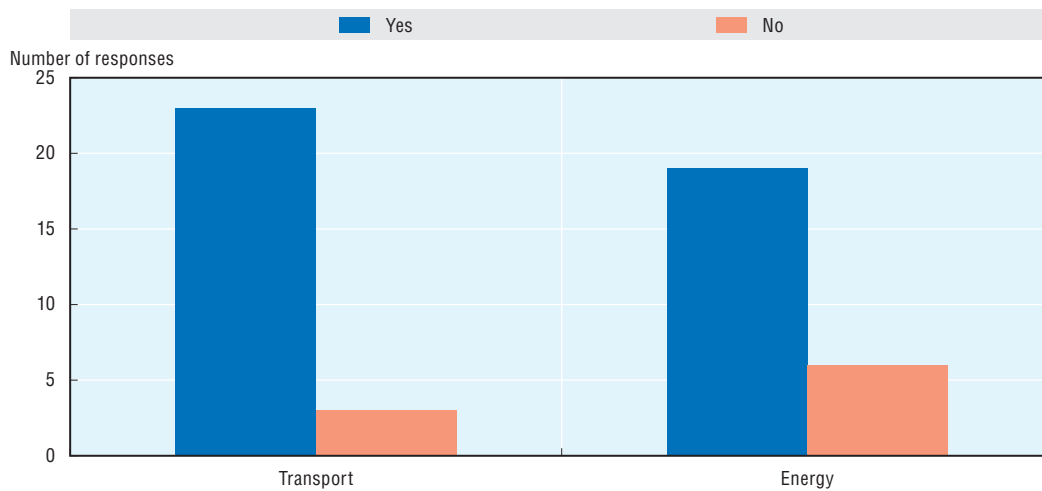
Out of the responding countries, 24 indicated that general guidelines on the preparation of CBAs, across different sectors and types of assessments have been prepared. 19 respondents indicated that these guidelines had a compulsory status at the national level, while 5 said they were more advisory. 6 respondents said that these guidelines also had a compulsory status vis-à-vis lower levels of government; 7 said their status in such a context was advisory, while 6 respondents indicated that the national guidelines had no status vis-à-vis lower levels of government. 9 OECD member countries have not responded to either of the two questionnaires. The reasons for not responding can vary from country to country, but one can assume that on average, the use of CBA is less developed in the countries that have not replied.

16.1. Current use of cost-benefit analysis in *ex ante* assessments of public investment projects³

The questionnaire addressed *ex ante* cost-benefit analyses of public investment projects in two sectors with potentially large environmental impacts: the transport sector and the energy sector. The replies received indicate that CBAs in general play a more important role in assessments of investment projects in the former than in the latter of these sectors, and that environmental impacts are given more attention in the transport sector assessments than in the CBAs carried out regarding public investments in the energy sector.

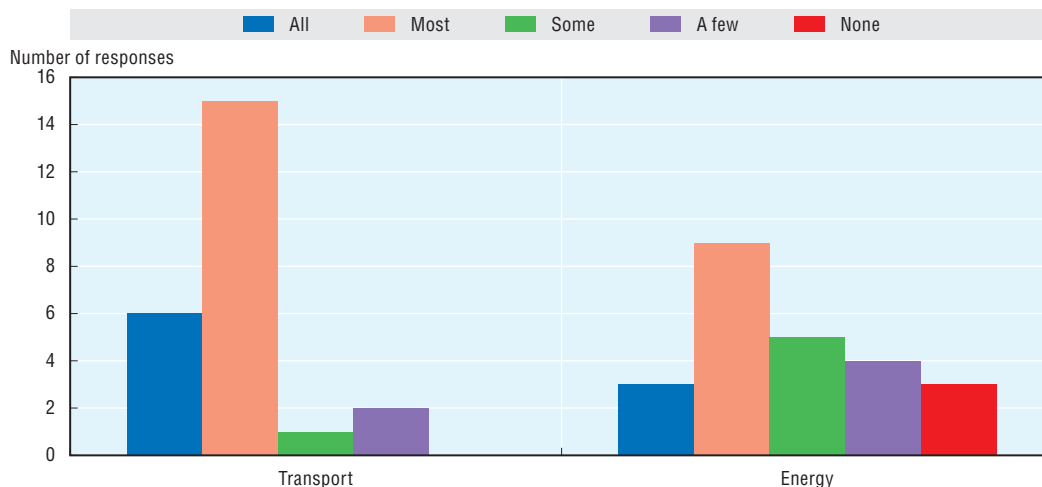
In both sectors, there are commonly clear criteria for how to do CBAs;⁴ in 88% of the replies regarding the transport sector and in 76% of the replies regarding the energy sector, cf. Figure 16.1.⁵

In many cases it is indicated that the level of detail required in the CBA varies, e.g. with the size of the project. For example, in relation to transport sector projects, Denmark indicated that “the level of detail depends on the stage of planning in which the CBA is included. In general, the level of detail shall be proportional with the size of the project in terms of cost and the level of information needed to take a decision”. France indicated that the required level of detail “depends on the size of the potential investment. All state projects are supposed to be subject to *ex-ante* socio-economic assessment but the

Figure 16.1. **Are there clear criteria for how to do CBAs of investment projects?**

requirements depend on their size". Israel indicated that "small-scale projects which are safety related or local projects based on social-economic criteria are also exempted from a full economic evaluation". Ireland's "Common Appraisal Framework for Transport Projects and Programmes" sets out expenditure thresholds, which determine what level of analysis is required. New Zealand stated that CBA is required for all improvement projects larger than NZD 300 000, and that evidence of value-for-money is required for all other projects.

All or most of the transport sector investment projects had been subject to a CBA during the last 3-5 years in around 88% of the countries responding. The similar share regarding energy sector investments was 50%. Three countries replied that no energy sector investment project had been subject to a cost-benefit analysis during this period, cf. Figure 16.2.

Figure 16.2. **What is the share of cases in the last 3-5 years that have been CB-analysed?**

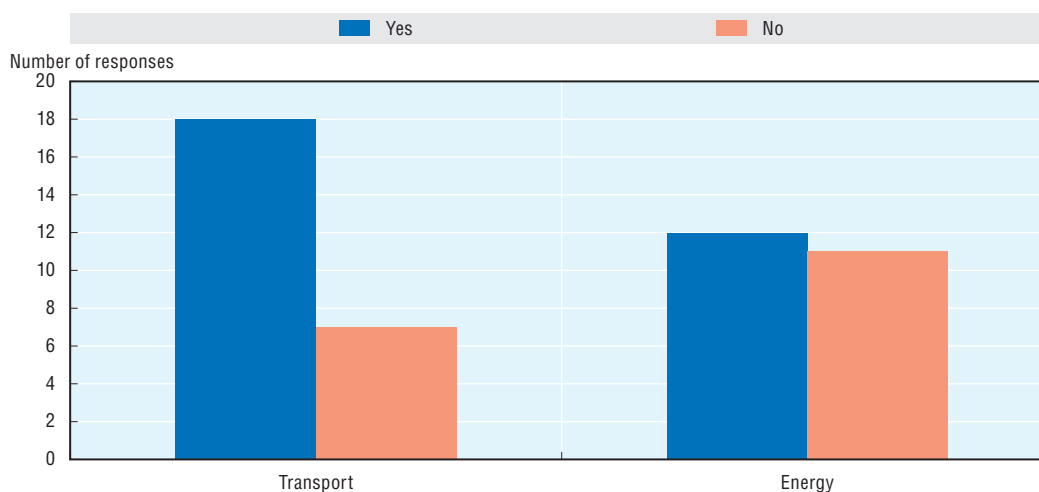
Box 16.1. Project assessments in a federal state

The vast majority of investments in the transportation sector in Canada are administered by provincial and municipal governments. A great part of these investments are infrastructure investments, which are supported under the New Building Canada Fund announced in 2014 and the Investing in Canada Plan announced in federal Budget 2016 and Budget 2017. While transportation projects, as well as other eligible categories of projects, are required to meet federal programme criteria under these programmes, including benefits and outcomes, there are no specific federal requirements for a cost-benefit analysis. Although it is possible that similar considerations are taken into account in provincial and territorial infrastructure projects, the limited information provided by the provinces does not suggest a formal requirement or consistent application of a standardised approach at the provincial level.

Environmental impacts in CBAs

Looking at the way environmental impacts are addressed in the CBAs, the differences between the two sectors are quite noticeable. For example, a large majority of the CBA guides that cover public transport sector investment project include clear rules for how to assess changes in greenhouse gas emissions; in the energy sector, this share is slightly above 50%, cf. Figure 16.3.

Figure 16.3. Are there clear criteria for how to include GHGs in CBAs?

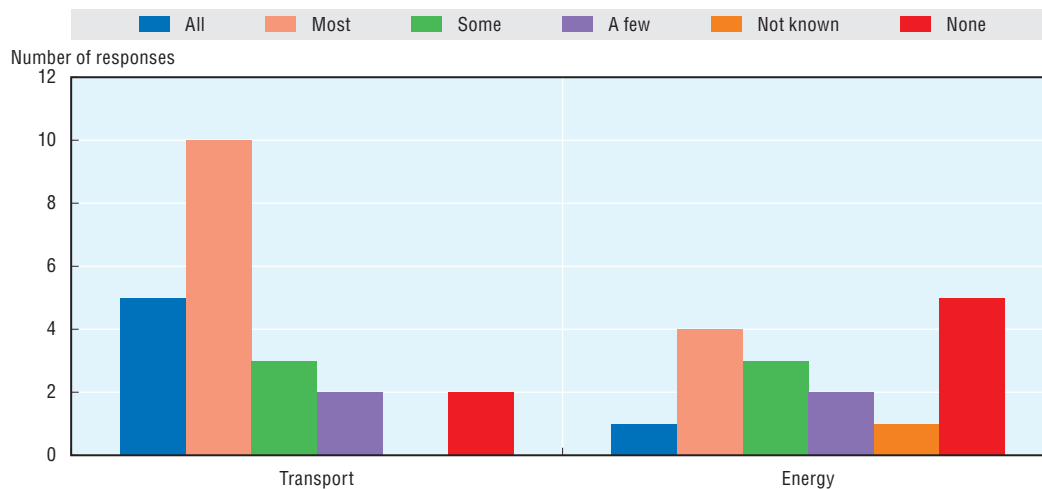


Among country examples, Switzerland indicated that GHG emissions amongst other environmental impacts are considered where relevant based on current scientific knowledge. In the energy sector, the United Kingdom indicated that estimated impacts on GHG emissions should be included where it has a significant impact on costs or benefits. Several European countries indicate that they are required to follow guidelines of the European Union in relation to the assessment of transport sector investment projects.⁶ For example, Hungary indicated that GHG emission must be calculated according to the size of project and according to the mode of transport. For all EU-funded projects costing more than EUR 1 million and for income-generating projects, impacts must be calculated. If a CBA is not

required, then a GHG calculation is not needed either. Similarly, Estonia indicated that “CBAs are carried out according to the relevant guidelines issued by the European Commission”. Italy indicated that for most transport investments financed with EU funds, a CBA analysis has been performed.⁷

Similarly, *all or most* of the transport sector investment assessments during the last 3-5 years had covered GHG emission changes in 68% of the responding countries. Regarding assessments of public energy sector investments, in only around 30% of the countries had *all or most* of the CBAs included impacts on GHG emissions, cf. Figure 16.4. The reported values per tonne of CO₂ emissions are much higher in the transport sector assessments than in the – fewer, cf. Figure 16.5 – energy sector assessments. The full distribution of the carbon values in use in the two sectors are shown in Figures 16.6 and 16.7. Figure 16.8 illustrates the unweighted average of the carbon values.⁸ Part of the explanation of why the averages differ is that different countries have provided information regarding carbon values they apply as regards the two sectors; in other words, the averages for the two sectors include information regarding the values applied in different countries. But if impacts on GHG emissions represent a larger share of the total impacts of an energy investment project than of a transport sector investment, it is also possible that ministries responsible for the energy sector investments could have an incentive to use lower carbon values than their transport sector counterparts.⁹

Figure 16.4. **Which share of CBAs in the last 3-5 years has included impacts on GHG emissions?**



As is clear from Figures 16.6-16.8, in both the transport and the energy sectors, the carbon values that are applied in CBAs depend on *when* emission changes are estimated to occur, with higher values being applied for changes expected to occur in the distant future, in some cases very much higher values. This is in line with the fact that the damages caused by GHG emissions will be increasing over time, cf. further discussion in Chapter 14 and Smith and Braathen (2015).

Another important difference between CBAs in the two sectors presented in Figure 16.9 is that more non-climate environmental impacts are being considered regarding transport sector investments than in CBAs of energy sector investments. More

Figure 16.5. For how many countries have monetary carbon values been reported?

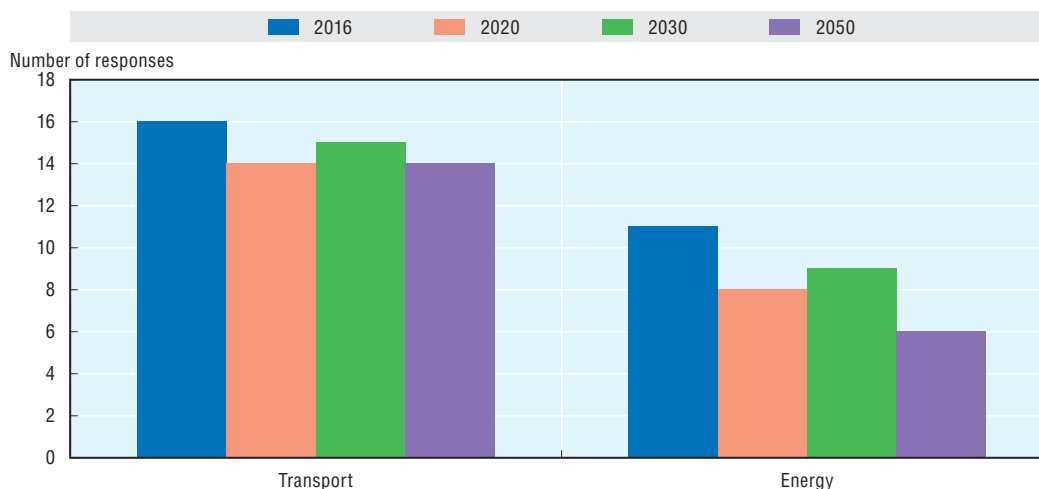
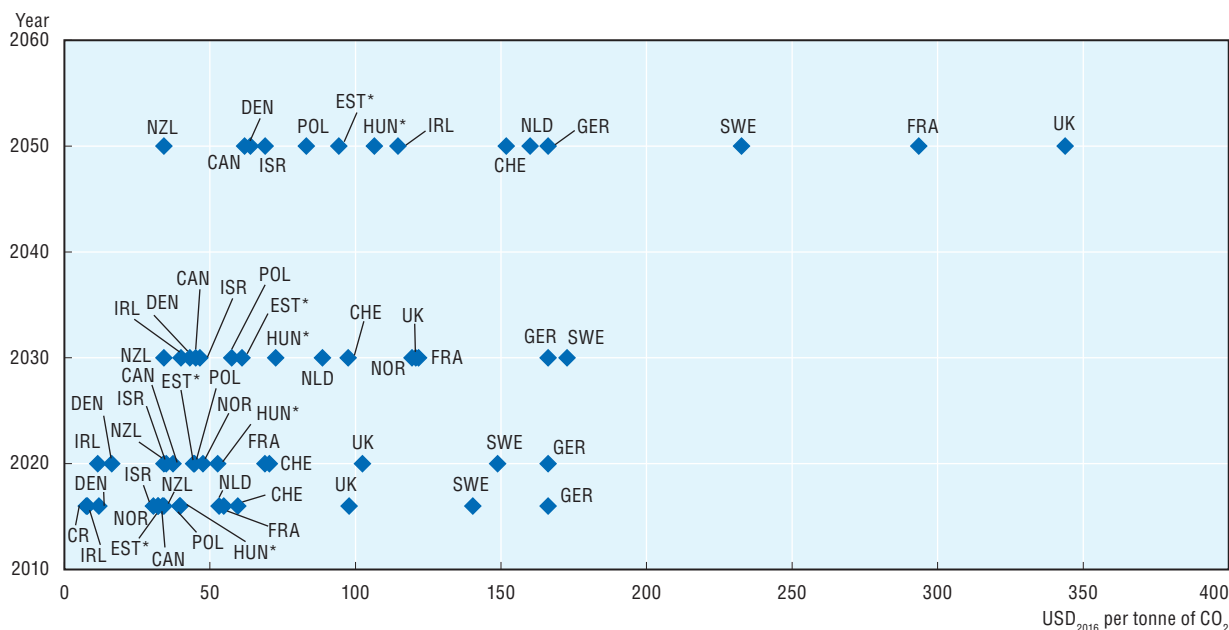


Figure 16.6. Monetary carbon values used in the transport sector



Note: Information regarding the countries marked with an * is taken from the 2014 questionnaire. For the Netherlands, values according to their “high” scenario are shown. Values in a “low” scenario are one quarter of the values shown here. Following the publication of CPB/PBL (2016) in November 2016, assessments should also include “efficient CO₂ prices according to a 2°C scenario”. Those values are from 25% to more than 6 times higher than the values from the “high” scenario, cf. Table 2 in CPB/PBL (2016).

than half of the countries that responded to the questionnaire as regards transport sector investments indicated that their CBAs address emissions of PM and NO_x as well as noise, and a third or more of them also address emissions of SO₂ and CO, as well as water pollution and impacts on biodiversity.¹⁰ In relation to energy sector investments, only for NO_x did more than 30% of the replies indicate that this impact was included in the CBAs.

Some countries have defined common values to be used in CBAs for a number of non-climate environmental impacts, but in many cases, these impacts are included in the assessments without commonly defined economic values – if they are included at all. To the

Figure 16.7. **Monetary carbon values used in the energy sector**

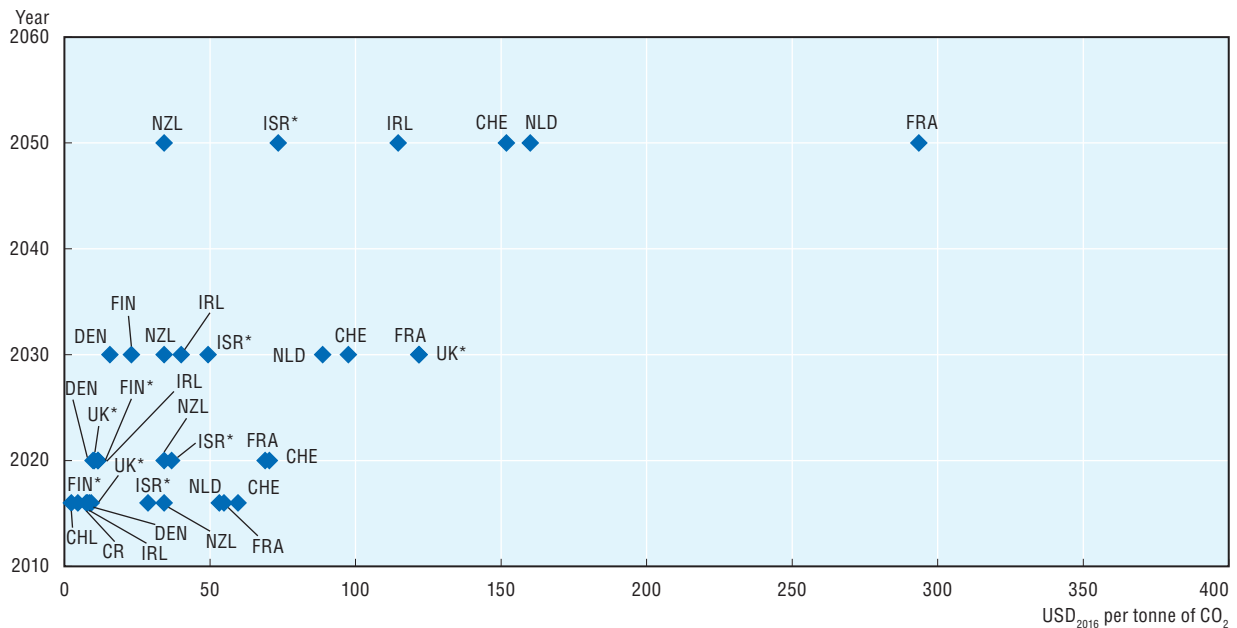
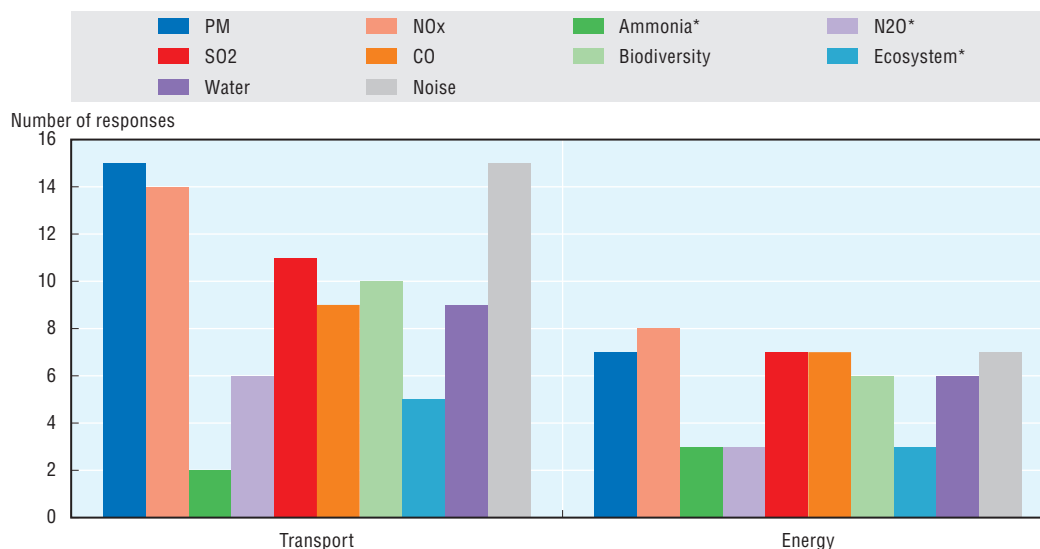


Figure 16.9. **Which other environmental impacts are typically included in the assessments?**



Note: * These impact alternatives were not listed in the 2014 questionnaire.

Box 16.2. **Relative magnitudes of different environmental problems**

The values reported by Israel can be used to illustrate the magnitude of different environmental problems. According to OECD (2015), in 2012, Israel emitted 78 million tonnes of CO₂ equivalents, 182 000 tonnes of NO_x and 174 000 tonnes of SO₂. In the questionnaire used in the preparation of this chapter, the country indicated a value of USD 30.6 per tonne for CO₂ emissions taking place in 2016; USD 22 760 per tonne of NO_x and USD 22 640 per tonne of SO₂. This means that the total GHG emissions in the country are valued at around USD 2.4 billion, while the total NO_x and SO₂ emissions are valued at USD 4.1 billion and USD 3.9 billion, respectively.

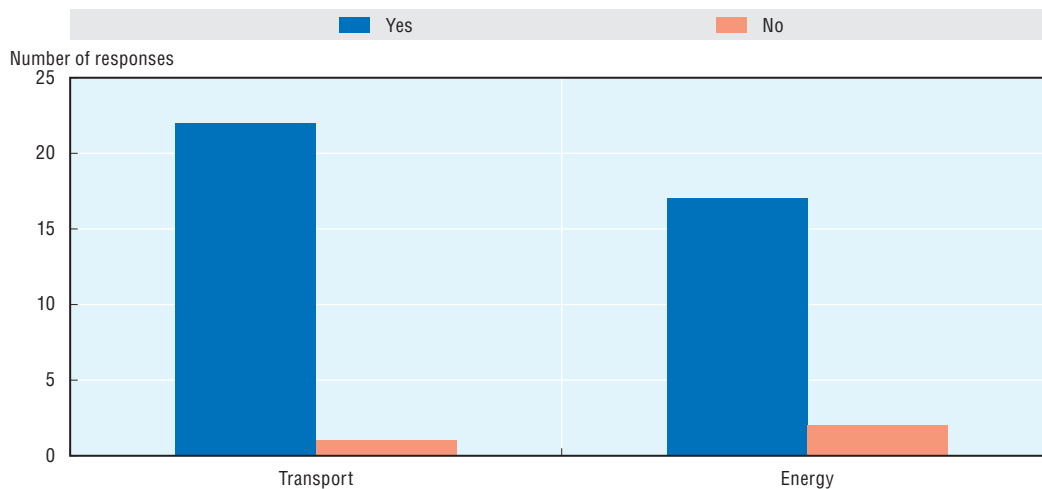
For the outcome of a cost-benefit analysis it is, however, the *change* in the emissions of the different pollutants caused by a project or policy – not the level of total emissions – that are of relevance.

guidance is provided on how to integrate these impacts in a CBA. The rule in the Norwegian guidelines is that non-priced impacts should count on par with monetised impacts.

The fact that more non-climate impacts are included in assessments of transport sector investments than in energy sector assessments is probably to a large extent explained by transport activities causing a wider range of impacts than most energy investments; for example, few energy projects will cause high levels of noise affecting many people. However, many energy projects will – directly or indirectly¹¹ – affect emissions of PM, NO_x and SO₂, but also such impacts are only included in the CBAs in a about 30% of the countries responding to the questionnaire.

Discounting

Regarding both sectors, the large majority of the responding countries indicate that future costs and benefits should be discounted (cf. Figure 16.10), and most of the countries have fixed common discount rates to be used. The reported average discount rate applied

Figure 16.10. **Are future costs and benefits to be discounted?**

in energy sector projects is slightly higher than the average reported for the transport sector – 4.78 vs. 4.64% for impacts occurring in the first 30 years – but this difference is influenced by the fact that it is not exactly the same countries that have provided information about the discount rates to be applied in the two sectors.

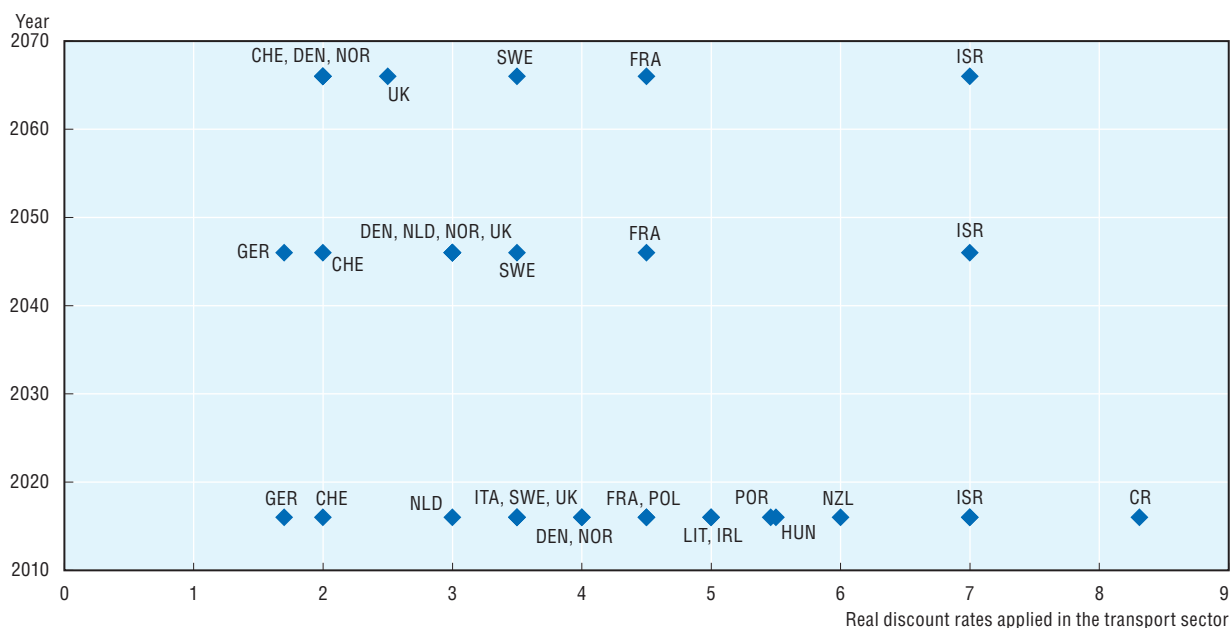
A few countries apply lower discount rates for impacts that are expected to occur further out in the future. For example, Denmark apply a 4% real discount rate for impacts occurring in the first 30 years, 3% for impacts occurring after between 30 to 50 years and 2% for even later impacts. Norway does the same. The United Kingdom uses real discount rates of 3.5%, 3% and 2.5%, respectively.¹²

Figure 16.11 illustrates the different discount rates applied to impacts at different times in the transport sector. The average rate referred to above clearly masks a very high degree of variability in the rates applied, with a range stretching from 1.7% to 8.3% being applied to impacts that occur in the first 30 years. This definitely has a very strong impact on the present value of impacts occurring in future years.

For example, if discounted over a 30 year period, an impact worth EUR 20 thirty years from now will have a present value of EUR 12.06 if a discount rate of 1.7% is applied. This is more than a third more than the present value of an impact worth EUR 100 thirty years from now, if a discount rate of 8.31% is applied to the latter, yielding a present value of EUR 9.12. If discounted over a 100 years period, the present value of a future impact of EUR 20 is EUR 3.71 if the discount rate is set to 1.7% – relatively similar to the present value of an impact worth EUR 100 if a discount rate of 3.5% is applied, namely EUR 3.21.

The reported timespans of CBAs in the transport sector are somewhat longer than the reported timespans of energy sector investment assessments. Whereas 60-70% of the assessments of transport sector investment projects take into account impacts occurring for at least 40 years, few, if any, energy sector CBAs include impacts occurring so late. The difference *might* be explained by a stronger “commercial” focus of the energy sector assessments, concentrating much on relatively near-term revenues that the projects might generate. However, e.g. in relation to climate change, many energy projects can have impacts that last much longer than 40 years.

Figure 16.11. Real discount rates applied in the transport sector

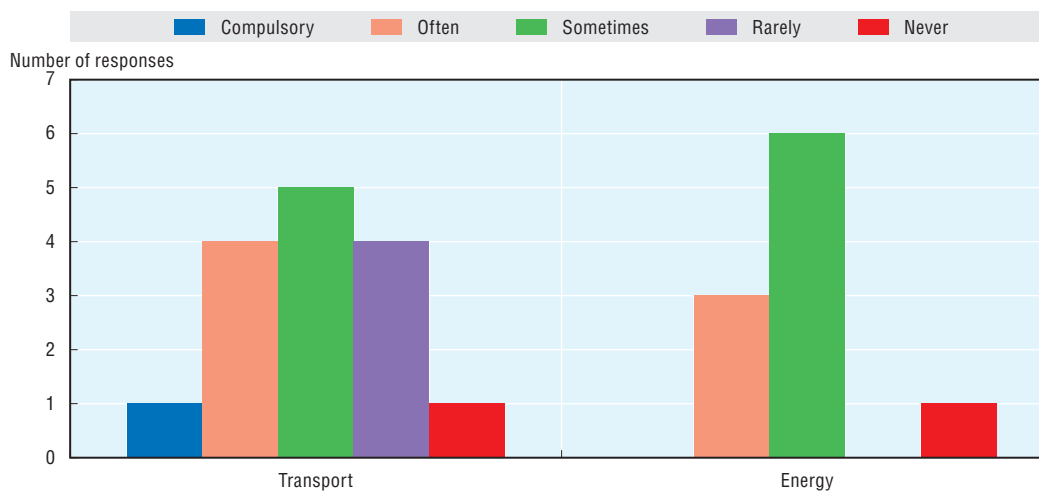


Note: The discount rates shown for 2016 represent those that should be applied for impacts occurring during the first 30 years. Rates shown for 2046 represent those that are to be applied to impacts occurring after between 30 and 50 years, and those shown for 2066 are those that are to be applied to even more distant impacts.

Concerns about distributive impacts are not addressed enough¹³

The two sectors are relatively similar with respect to a question on whether or not CBAs are supposed to address the distributive impacts of the investment projects. Only around a third of the countries responded that addressing such impacts is *compulsory* or *done often*, cf. Figure 16.12. In the energy sector, this was done at least *sometimes* in almost 90% of the responding countries, while one third of the countries responded that this was *rarely* or *never* done in respect to transport sector investments.

Figure 16.12. Do the CBAs normally include estimates of the distribution of costs and benefits?



A relatively good independent quality control

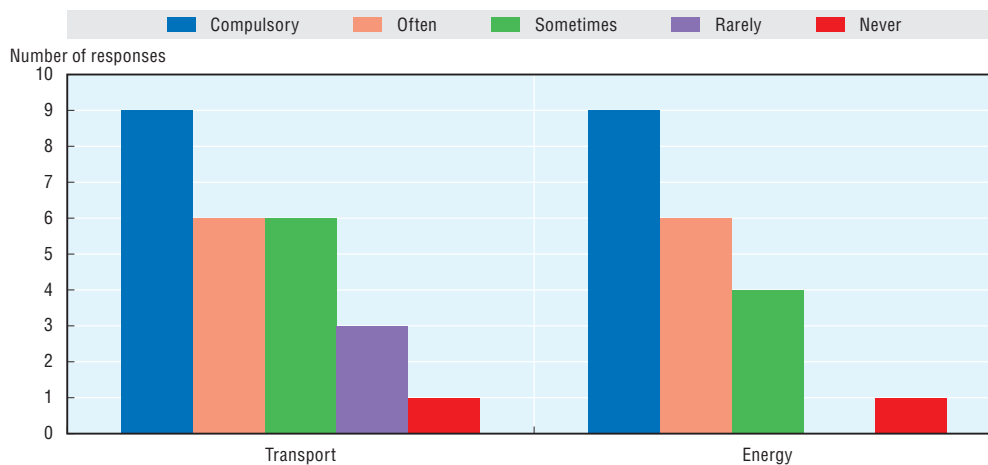
The CBAs are normally carried out internally within the respective ministries, by external experts working under contract for these ministries, internally in government transport or energy agencies, or by external experts working for these agencies. The ministries of finance do, for example, generally not seem to be directly involved in the preparation of these investment assessments.

It is, however, relatively common that CBAs of investment projects in these two sectors need to be subject to some form of independent quality control. 55-65% of the respondents in both sectors indicated that this is *compulsory* or *done often*, while most of the remaining respondents said that this was sometimes done regarding transport sector investments. More countries indicated that this was rarely done in connection with energy sector investments, and one country responded that it was never done in this connection. In around 60% of the responses, independent scrutiny of the CBAs was introduced sometime after 2010.¹⁴

The public is not systematically invited to provide comments on CBAs

It is also relatively common practice to make *ex ante* CBAs of investment projects in these two sectors publicly available (cf. Figure 16.13), but slightly less common invite the public to provide comments on these CBAs (cf. Figure 16.14). In 60-80% of the replies regarding the two sectors it is indicated that it is *compulsory* or *often* done to make the CBAs publicly available, but 15-20% of the responses regarding the transport sector and 6% regarding the energy sector indicated that this is *rarely* or *never* done.

Figure 16.13. **Are the CBAs generally made publicly available?**



50-60% of the replies said that it was *compulsory* or *often* done to invite public comments, but about 25% of the responses regarding both sectors indicated that public comments were *rarely* or *never* invited. In about 75% of the replies regarding both sectors, it was indicated that it was *compulsory* or *often* done to make the CBAs available to the parliament.^{15, 16}

In all the responses regarding both sectors, it was indicated that the influence of the CBAs on the final decisions were as a minimum *moderate*; in some cases it was said to be *large*, or even *very large*, cf. Figure 16.15.¹⁷ In most cases, it was indicated that there has been *no clear trend* regarding the influence of the CBAs over the last 10-15 years,¹⁸ but about 30% of the replies regarding the transport sector suggested that the influence had increased over this time period, cf. Figure 16.16.

Figure 16.14. **Is the public invited to provide comments on CBAs?**

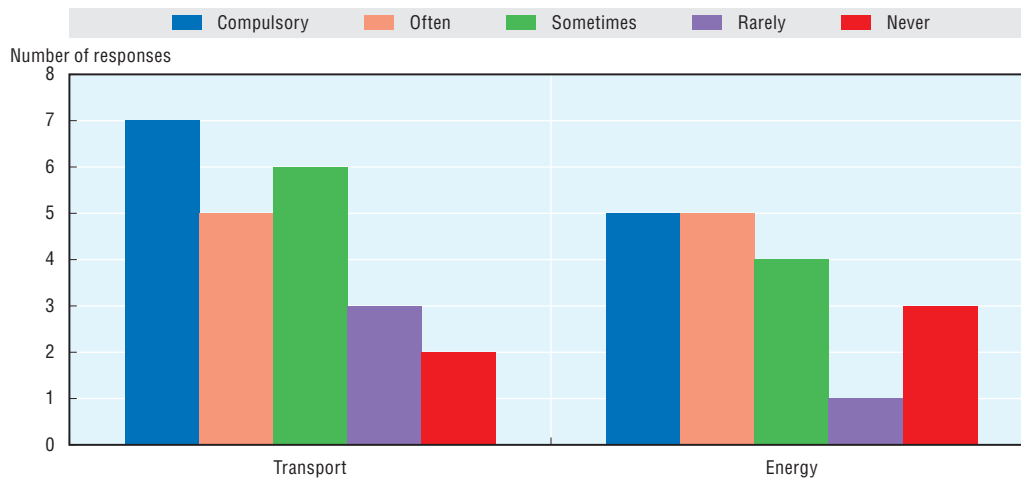


Figure 16.15. **What is typically the impact of CBAs on the political decisions finally being made?**

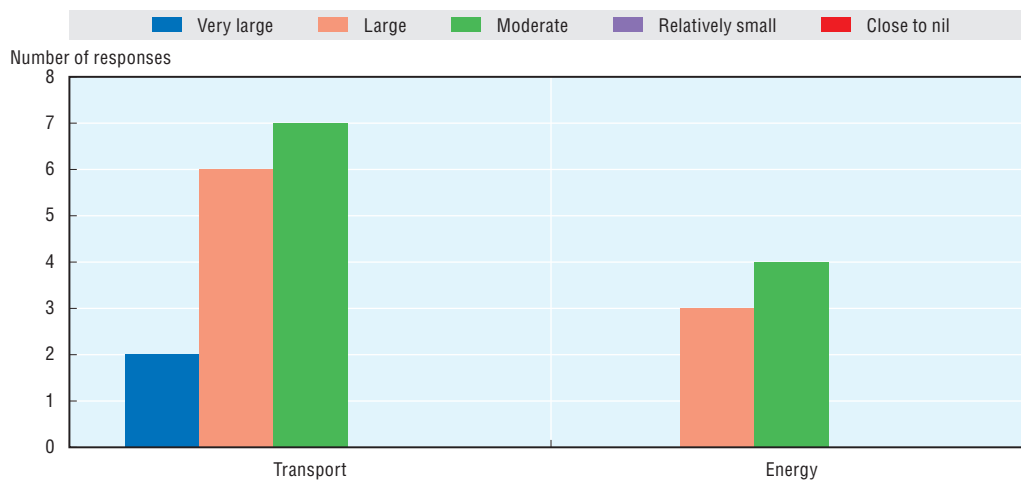
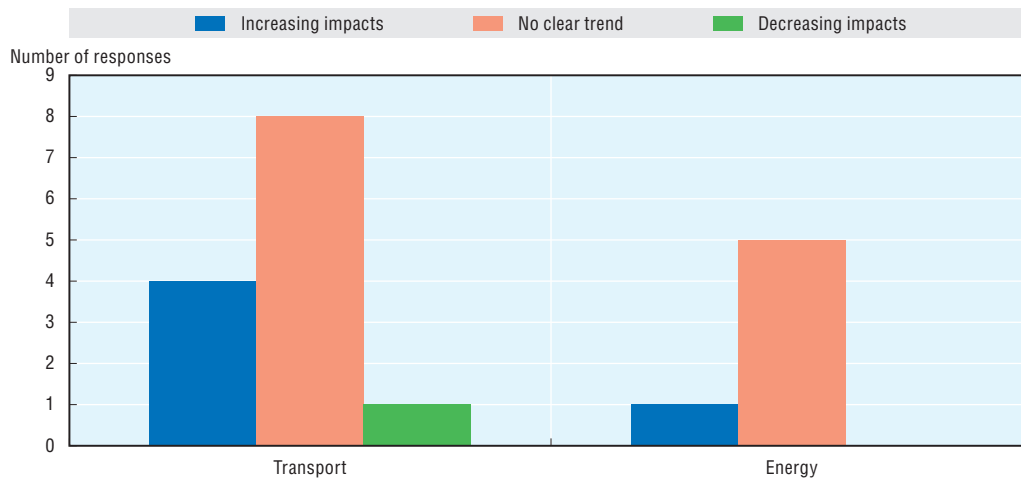


Figure 16.16. **Have there been any changes in the impacts of CBAs over the last 10-15 years?**



16.2. Current use of cost-benefit analysis in assessments of public policies

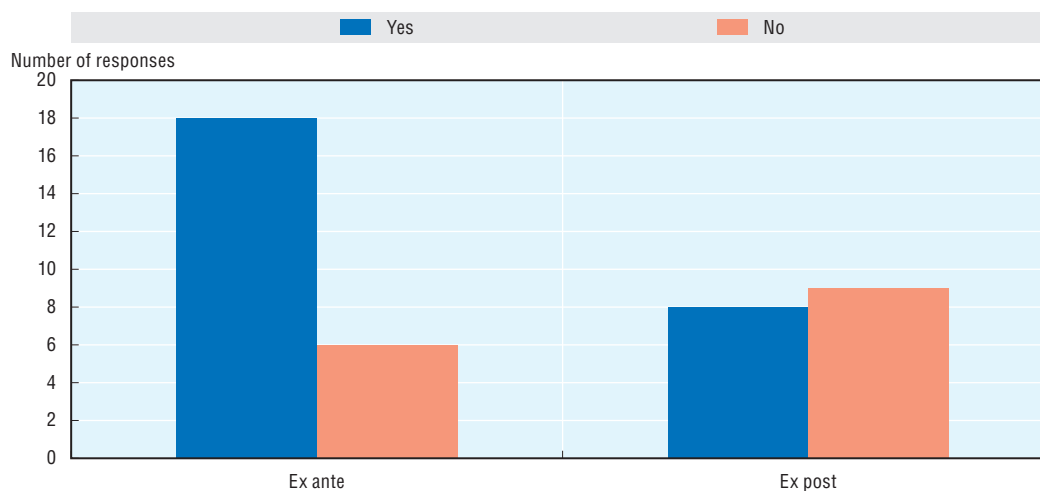
This section describes and compares the replies received regarding *ex ante* and *ex post* CBAs of various public policies; this could for example be regulations regarding fuel efficiency standards, proposals regarding stricter vehicle emission standards, the introduction of an environmentally related tax or a cap-and-trade system, etc.¹⁹ Approximately the same number of countries have responded to these parts of the questionnaires as for the public investment projects discussed above, but there are some differences as regards exactly which countries responded.²⁰

No exact definition of what represents a separate “policy” was provided, so the basis for the responses will vary somewhat – but the responses are thought to represent the treatment of at least “major” policies, for example policies with significant economic impacts.²¹

Criteria for ex ante assessments are more developed than for ex post assessments

The responses received make it clear that the routines for doing *ex ante* policy assessments are much better developed than routines for doing *ex post* assessments – there are clear criteria for how to do CBAs in 75% of the countries in relation to *ex ante* analyses, but only in less than 50% of the countries as concerns *ex post* analyses, cf. Figure 16.17. About two thirds of the countries responded that CBAs had been done regarding *all* or *most* of new (major) policy initiatives whereas *ex post* CBAs have only rarely been carried out in most countries, cf. Figure 16.18.

Figure 16.17. **Are there clear criteria for how to do *ex ante* or *ex post* CBAs of public policies?**



More could be done to take into account environmental impacts in CBAs

In a majority of the responding countries (60-75%) there are not clear rules in place for how to include greenhouse gas emissions in the assessments, neither in relation to *ex ante* nor for *ex post* analyses of public policies, cf. Figure 16.19. However, in relation to policies where changes in GHG emissions can be expected to be of the more important impacts, the situation might be better: In some 40-80% of the cases, countries reply that changes in GHG emissions had been taken into account in *all* or *most* cases, cf. Figure 16.20.²² It is, however, remarkable that four out of 20 countries that have responded to this question regarding

Figure 16.18. **What is the share of policies in the last 3-5 years that have been CB-analysed?**

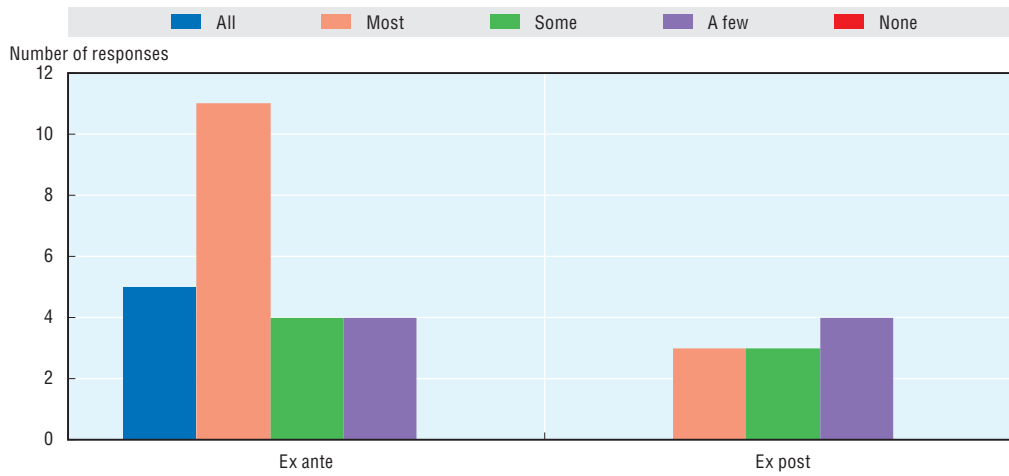


Figure 16.19. **Are there clear criteria for how to include GHGs in CBAs of public policies?**

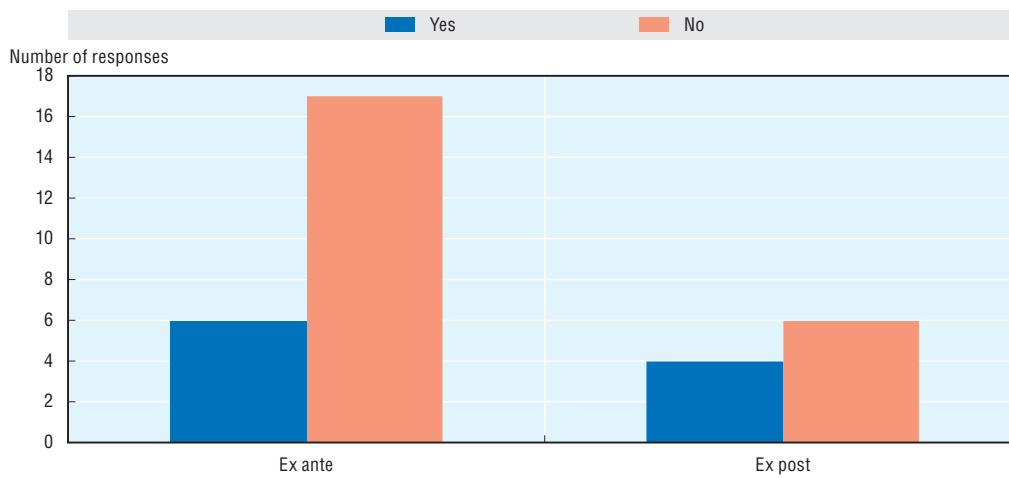
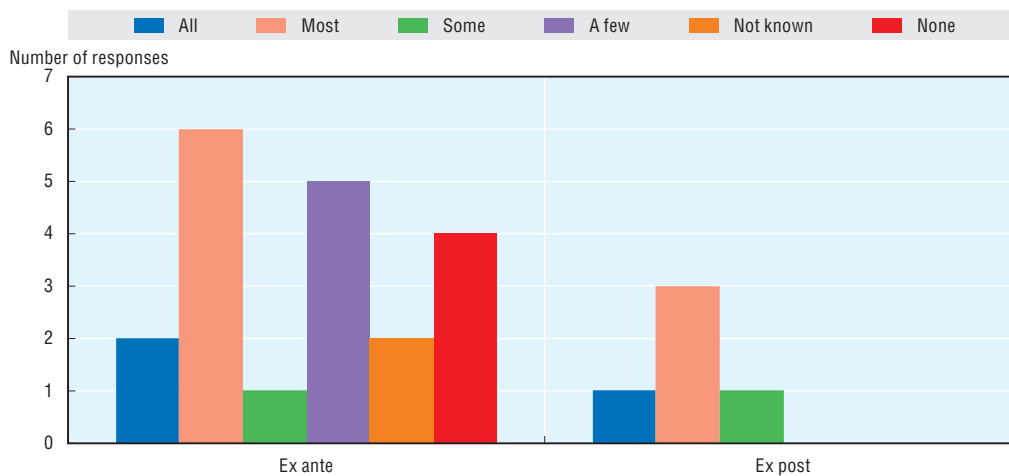


Figure 16.20. **Which share of CBAs in the last 3-5 years has included impacts on GHG?**



ex ante policy assessments indicate that in no cases have impacts of these policies on GHG emissions been taken into account.

Figure 16.21 illustrates the number of respondents that have provided monetary carbon values to be used in policy assessments for different years; between five and ten have done so with respect to *ex ante* assessments, but only three countries have provided such values in relation to *ex post* policy assessments. Figures 16.22 and 16.23 display the full range of the reported carbon values (using the same scale on the horizontal axis as was used regarding the transport and energy sectors above), and Figure 16.24 shows the unweighted average of the reported values.

Figure 16.21. **How many countries have reported monetary carbon values for policy assessments?**

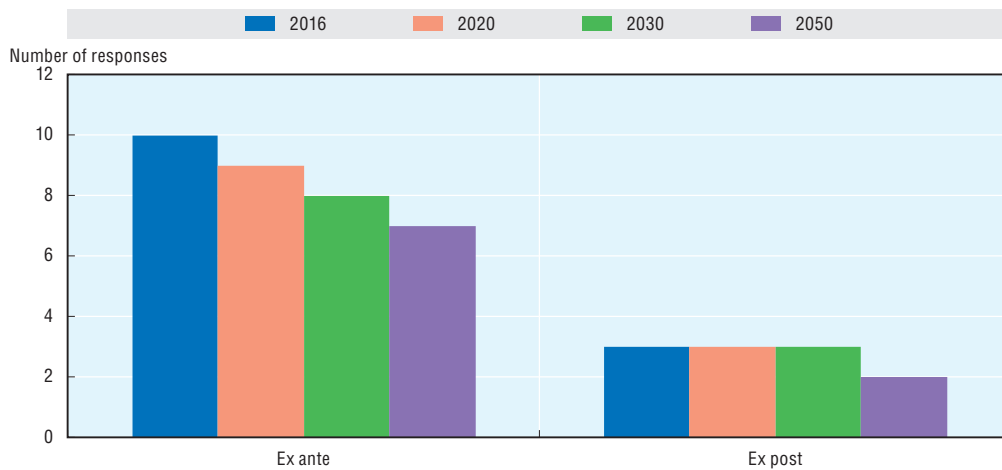
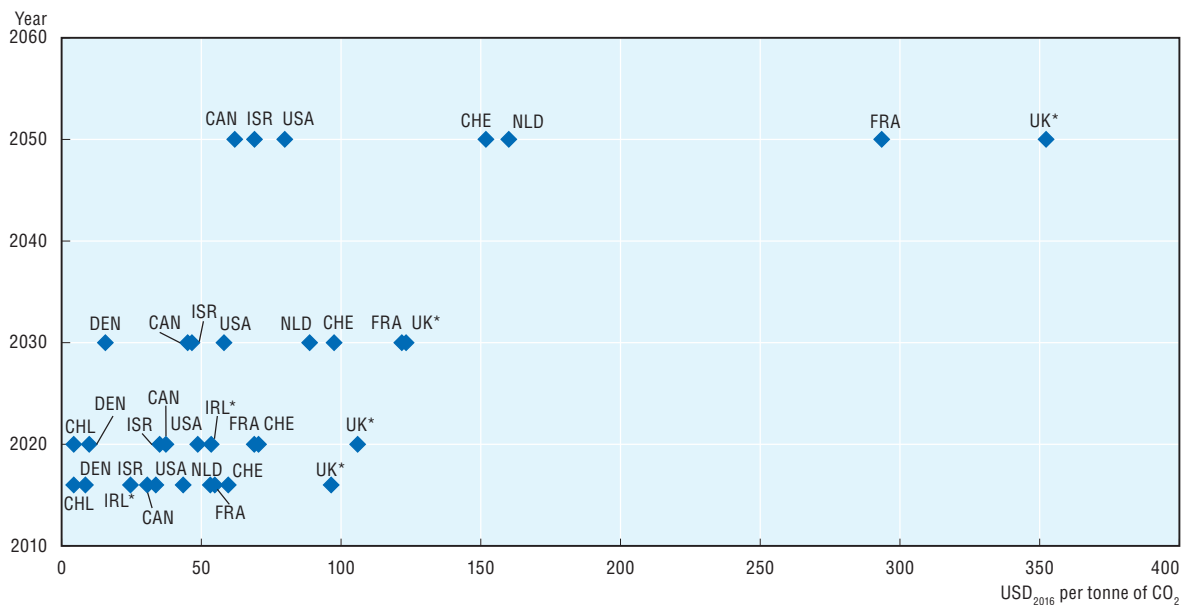
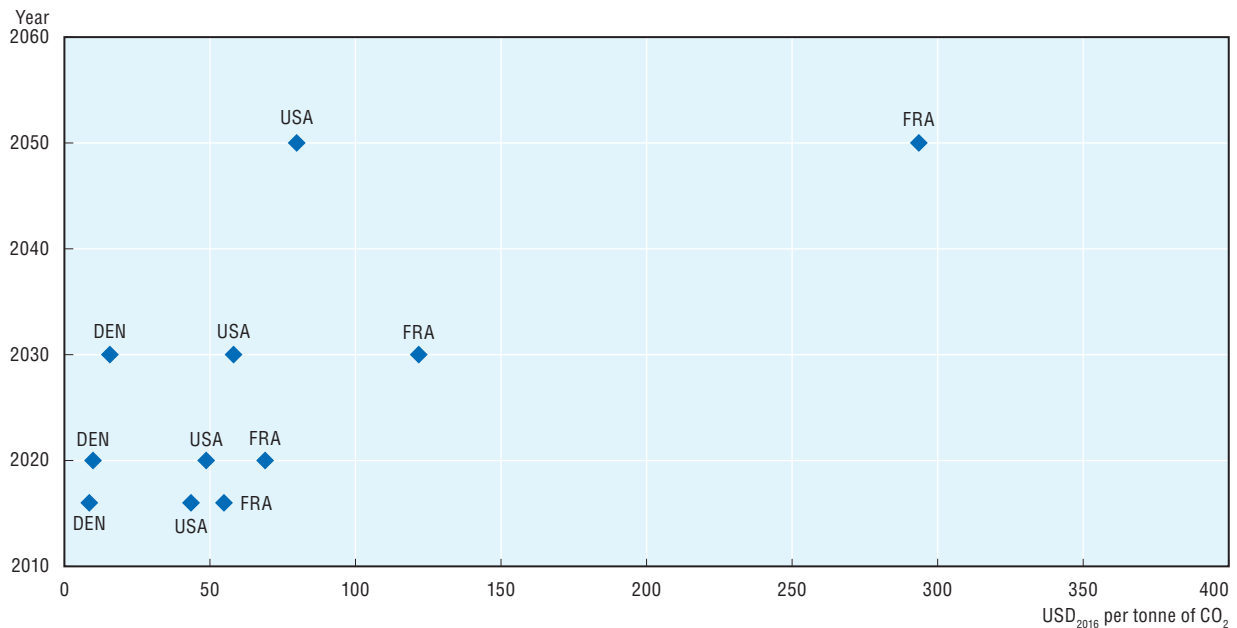


Figure 16.22. **Monetary carbon values used in *ex ante* policy assessments**



Note: Information regarding the countries marked with an * is taken from the 2014 questionnaire. For the Netherlands, values according to their “high” scenario are shown. Values in a “low” scenario are one quarter of the values shown here. Following the publication of CPB/PBL (2016) in November 2016, assessments should also include “efficient CO₂ prices according to a 2°C scenario” for climate-related policies. Those values are from 25% to more than 6 times higher than the values from the “high” scenario, cf. Table 2 in CPB/PBL (2016).

Figure 16.23. **Monetary carbon values used in ex post policy and project assessments**



Note: The graph only presents the “central” values used in the United States to date (although agencies were guided to present results using a range of 4 values in ex ante regulatory analysis). The guidance in the United States is currently undergoing revision.

Figure 16.24. **Unweighted average of reported monetary carbon values**

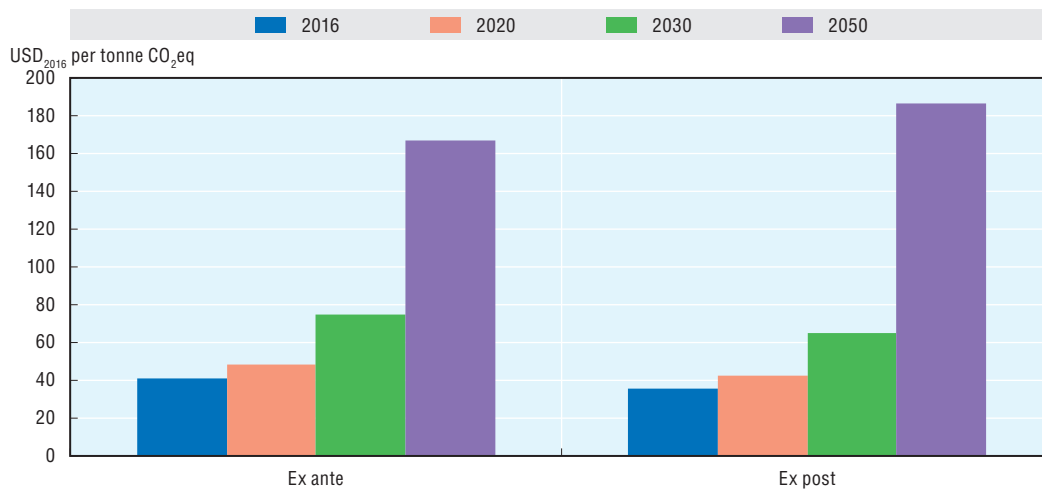
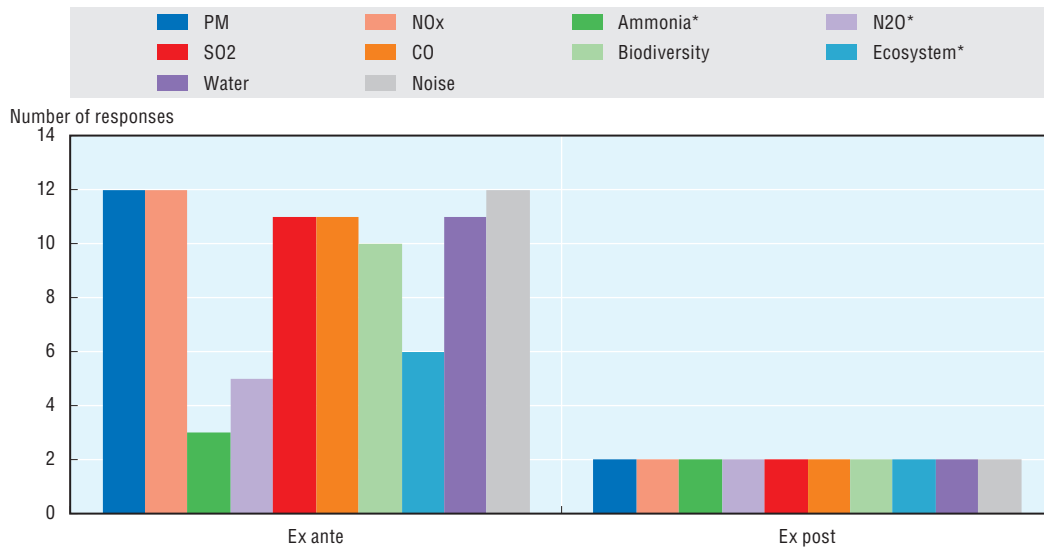


Figure 16.25 illustrates the extent to which environmental impacts other than GHG emissions are being taken into account in ex ante and ex post policy assessments. While such impacts seem to be relatively well covered in ex ante analyses, it is remarkable that only two replies indicate that such impacts are included in ex post analyses. As mentioned above, the evidence from studies where a wide range of environmental impacts have been included in policy assessments indicate that impacts on human health – e.g. from PM and NO_x – can be very large compared with quantified estimates of the costs of climate change.²³

Figure 16.25. **Which other environmental impacts are typically included in the policy assessments?**

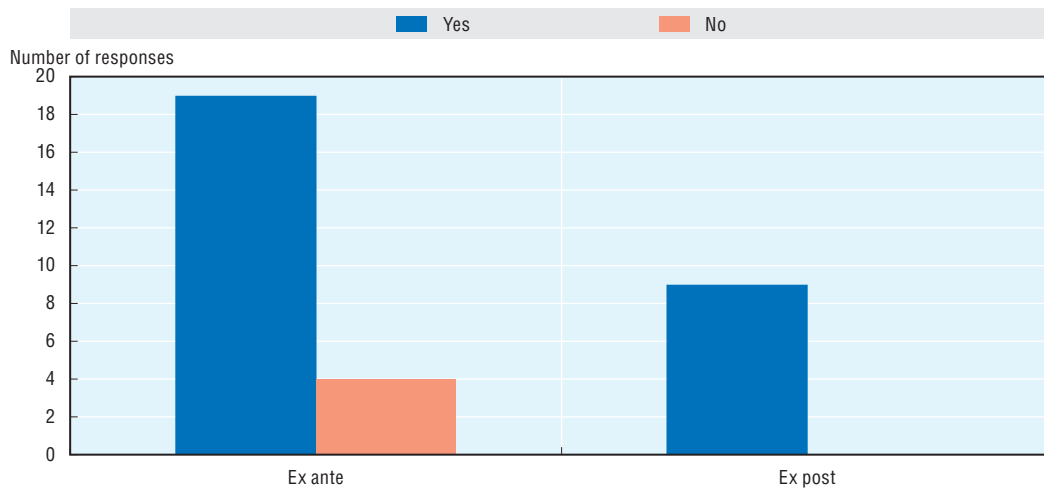


Note: *These impact alternatives were not listed in the 2014 questionnaire.

Discounting

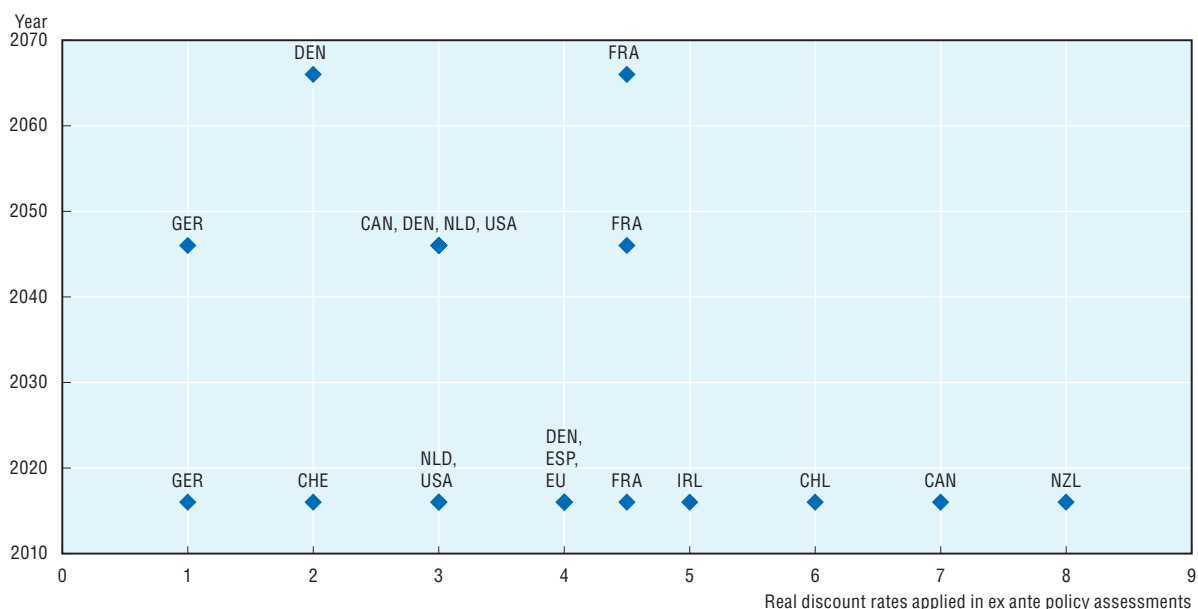
Figure 16.26 illustrates the use of discounting in *ex ante* and *ex post* policy assessments. While a number of countries have indicated that discounting is to take place, it is remarkable that four out of the 23 countries that responded to this question said that future costs and benefits in *ex ante* analyses are *not* to be discounted. The robustness of such policy assessments seems very limited.

Figure 16.26. **Are future costs and benefits to be discounted in policy assessments?**



The unweighted average of the reported real discount rates are somewhat higher regarding *ex ante* analyses than for *ex post* analyses – 4.46 vs. 4.42% for impacts occurring in the first 30 years.²⁴ Figure 16.27 spells out the full distribution of the reported discount

Figure 16.27. Real discount rates applied in ex ante policy assessments



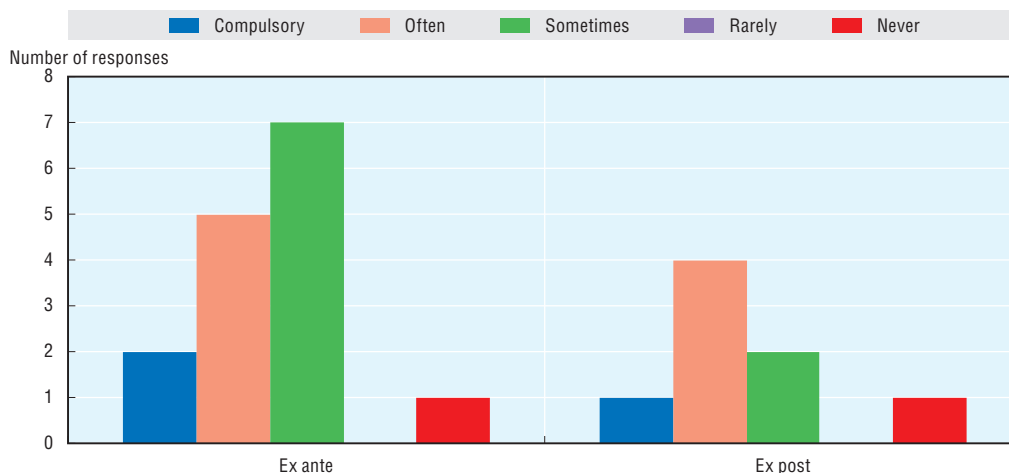
Note: The discount rates shown for 2016 represent those that should be applied for impacts occurring during the first 30 year. Rates shown for 2046 represent those that are to be applied to impacts occurring after between 30 and 50 years, and those shown for 2066 are those that are to be applied to even more distant impacts. In the United States, assessments using a higher discount rate of 7% are also carried out.

rates regarding ex ante analyses. As for the sectors discussed in Section 16.1, the range is very wide – which, as mentioned above, can have a very strong impact on the outcome of the policy assessments.

Distributive impacts²⁵

Figure 16.28 indicates that it is relatively common for both ex ante and ex post CBAs of public policies to include estimates of the distribution of costs and benefits. Comparing with Figure 16.12, it also looks as if it is somewhat more common to address such impacts in policy assessments than in assessments of investment projects in the transport and energy sectors.

Figure 16.28. Do the CBAs normally include estimates of the distribution of costs and benefits?



The institutional setting of CBAs

It is typically the respective ministries that carry out the CBAs internally, sometimes also with the help of external experts. However, compared with what was mentioned regarding the transport and energy sectors, the role of the ministries of finance is clearly more important regarding CBAs of public policies.

Figure 16.29 indicates that it is very common to make CBAs of public policies publicly available – and more so than what is the case regarding investment projects in the transport and energy sectors. Figure 16.30 demonstrates that it is also quite common to invite public comments on CBAs of public policies.

Figure 16.29. **Are the CBAs of public policies generally made publicly available?**

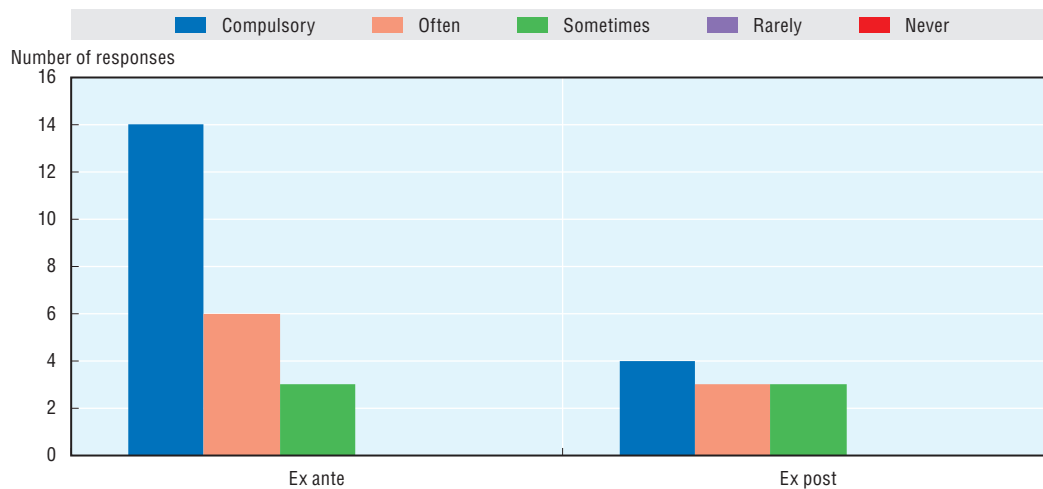
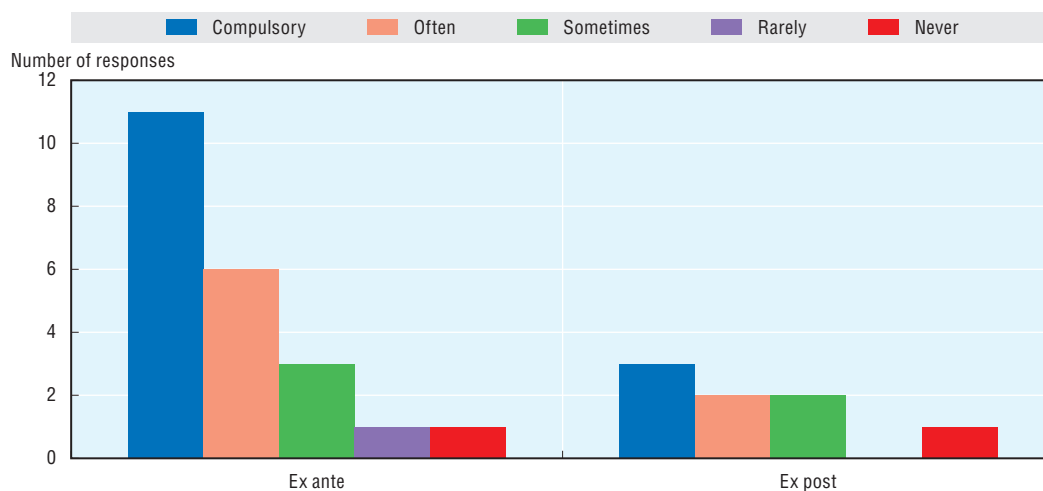


Figure 16.30. **Is the public invited to provide comments on CBAs of public policies?**



Given the low number of replies, one should be careful in drawing any conclusions, but Figure 16.31 indicates that the CBAs do have some impacts on the current or future policy decisions. Figure 16.32 indicates that there hardly have been any clear trends as regards these impacts over the last 10-15 years.

Figure 16.31. **What is typically the impact of CBAs on current or future political decisions?**

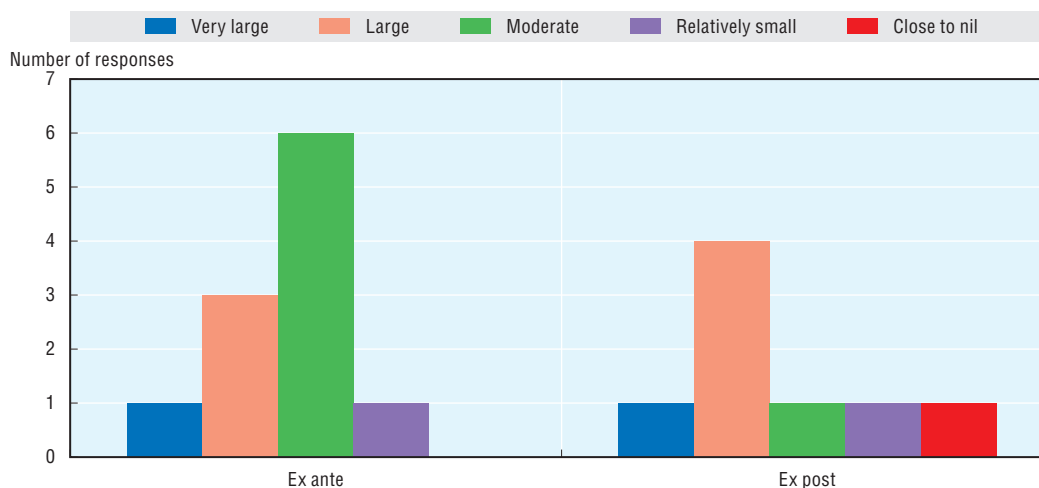
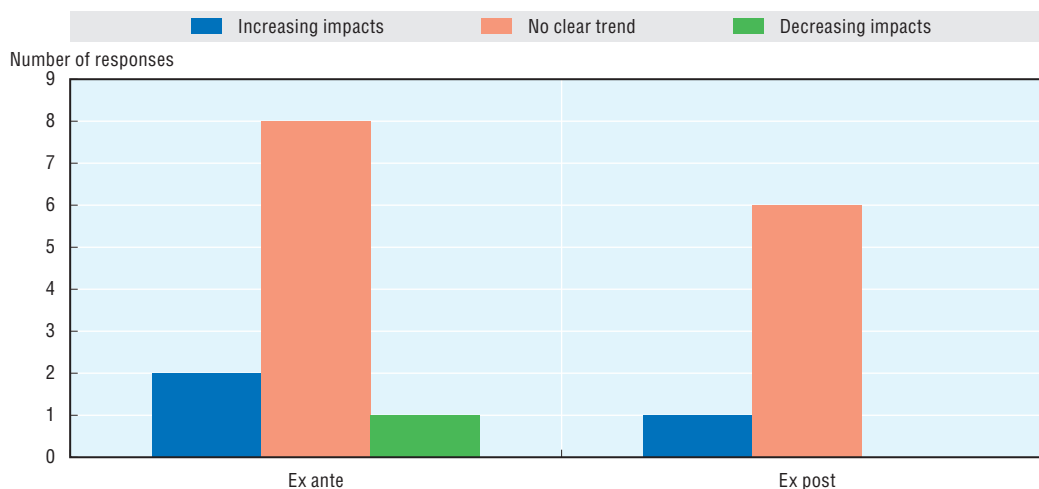


Figure 16.32. **Have there been any changes in the impacts of CBAs over the last 10-15 years?**



16.3. Cross-cutting comments

This chapter has documented that there are large variations in the extent to which cost-benefit analyses are being carried out, and the extent to which various environmental impacts are being taken into account in these analyses, across economic sectors and across analytical contexts.

Ex ante assessments of public transport sector investments are generally best covered by CBAs, as regards the environmental impacts that are being addressed and the values that are attached to the different impacts. The use of CBAs in this sector dates back many decades, and it is not so surprising that more and more environmental impacts are being taken into account, reflecting increased scientific knowledge and public awareness of the many consequences for the environment and human health that transport activities can entail.

Also energy sector investments and policy *proposals* are relatively well covered in CBAs, but with narrower coverage of non-climate environmental impacts.

The questionnaire responses do not provide much information about the reasons for these differences. However, if the CBA rules largely were developed at a time when a new energy project typically would trigger *additional emissions* of greenhouse gases and other pollutants, could it be that political pressure from often large firms in the energy sector has had a significant impact on the formulation of these rules? Today, an increasing share of energy sector investment projects is likely to have small impacts on such emissions, and some projects can even cause a net reduction of them. Is it possible that these developments will contribute to more focus on the environmental impacts in the projects' assessments, and higher values attached to the different impacts, in the future?

Neither in relation to investment projects nor regarding public policies are *ex post* costs-benefit analyses so well developed.²⁶ Such analyses could, if they were well executed, provide very useful input for the design and implementation of future investment projects or new public policies, but there is certainly a risk that they primarily are executed in order to attract "praise" for recent projects or policies, or to discredit projects or policies implemented by an earlier government. This indicates that there could be major benefits from institutionalising the implementation of such analyses after a certain amount of time – at least for major projects and policies – and from making some independent, well-respected institution responsible for carrying out the analyses.

The responses received regarding the influence of CBAs on the final decisions did not give a very clear picture. It can therefore be useful to also draw on additional information – which seems to be available mostly regarding the transport sector.

Eliasson et al. (2015) assessed the impact of CBAs on decisions regarding transport sector infrastructure investments in Norway and Sweden. In Norway, they found no evidence that appraisal results affect project selection. Taking voting patterns into account, they could not find any measure of benefits, cost, or efficiency with a significant correlation with project selection, neither in relation to the government's proposals in the National Transport Investment plans, nor as regards the Road Administration's selection of projects. In Sweden, on the other hand, appraisal results seem to affect decisions. Eliasson et al. found that the Swedish Transport Administration's selection was strongly linked to CBA results. The selection made by the politicians in the government, by contrast, was only weakly linked to CBA results, and only for small projects.²⁷

However, the situation in Norway might have changed somewhat. In a joint report from the transport agencies and Avinor,²⁸ prepared as input to the National Transport Plan 2018-2029, it is stated in the foreword that "Socio-economic cost-effectiveness, as well as civil protection and consistent standards and development, have been decisive factors for the investment portfolios", see Avinor et al. (2016).

The replies to the questionnaires discussed above were (naturally) provided by civil servants – not by the people making the final decisions – generally the responsible ministers and the members of parliament, and similar. Civil servants and policy makers can use CBAs in different ways, with different motivations. Mouter (2016) indicates that in relation to the transport sector in the Netherlands, the CBAs of investment projects are mostly disclosed to Parliament at the stage when they serve as background documentation to the minister's decision about "the preferred alternative". Only in exceptional cases is the CBA sent to members of Parliament at an earlier stage.²⁹ In contrast to members of Parliament, the ministers and the high-level civil servants can receive a draft of a CBA report well in advance. The civil servants will sometimes use CBA in an early stage of the planning practice to assess and optimise project initiatives.

Notes

1. Australia, Austria, Canada, Chile, the Czech Republic, Denmark, France, Germany, Ireland, Israel, Italy, Mexico, Netherlands, New Zealand, Norway, Poland, Sweden, Switzerland, the United Kingdom and the United States have responded to all of or parts of the questionnaire – i.a. depending on the relevance of particular parts of the questionnaire in their institutional setting. In addition, the European Commission and the accession countries Costa Rica and Lithuania responded to that questionnaire. When the term “countries” is being used in the text below, it is referred to the replies from all the respondents.
2. Information regarding Estonia, Hungary, Japan, Spain and Turkey from that questionnaire has been used. In addition, information from this 2014 questionnaire has been used to supplement answers to the more recent questionnaire for some of the countries listed above.
3. When the following text refers explicitly to reply options used in the questionnaire, the terms are placed in *italics*.
4. Examples of guidance documents include Treasury Board of Canada Secretariat (2007), HM Treasury (2011), CPB/PBL (2013), Direction générale des Infrastructures, des Transports et de la Mer (2014), European Commission (2015), New Zealand Treasury (2015), Department for Transport, Tourism and Sport (2016), and Interagency Working Group on Social Cost of Greenhouse Gases (2016). Official Norwegian Reports (2012) also discusses a number of issues in relation to CBAs.
5. In some of the responding countries, almost all investments in the energy sector are carried out by private or public companies operating on a commercial basis. The questionnaire did not address the project assessments carried out by such companies.
6. Cf. Regulation 1303/2013 of the European Parliament and of the Council. The European Commission prepared a new guide to CBA in December 2014. The most important requirements are part of Commission Implementing Regulation no. 207/2015 of 20 January 2015. The guide builds on experience gained in the appraisal of major projects in the previous programming period, from 2007 to 2013, and aims to provide practical recommendations and case studies for the authorities and consultants involved in preparing project documentation, cf. http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/cba_guide.pdf.
7. Some years ago, a structural reform was introduced in Italy that requires CBA of infrastructural investment projects in the framework of a wider public investments planning reform. Each central ministry was to submit to an *Interministerial Committee for Economic Planning* a master plan which should make consistent all plans for public works under its competence and develop guidelines for the assessment of these projects. However, no ministry has yet developed such guidelines.
8. For the respondents for which only information from the 2014 questionnaire is available, the 2014 carbon values have been assumed to be still valid in 2016, but the numbers for each of the years have been adjusted for changes in the GDP deflator between 2014 and 2016.
9. The validity of this point will depend on whether the given energy project will tend to increase or decrease GHG emissions – i.e. whether the assessment concerns e.g. a coal-fired power plant or a wind turbine park. When assessing the GHG impacts of a given project, it is also important to consider interactions with pre-existing policy instruments. For example, in jurisdictions covered by a binding “cap” on emissions related to electricity generation, new investment projects (in coal-fired generation or in renewables) will not have an impact on total emissions, as long as the “cap” remains unchanged.
10. Impacts on emissions of ammonia and on ecosystem services were not listed as possibilities in the 2014 questionnaire.
11. Indirect impacts can e.g. occur when a renewable power plant replaces a fossil-fuel-based power plant, thus reducing emissions of (also) local air pollutants.
12. Groom and Hepburn (Forthcoming) discusses the introduction of declining discount rates in a few selected countries – and the choice of not introducing such rates in the United States and the Netherlands.
13. This issue was not addressed in the 2014 questionnaire. The comments in this section were based on 13 replies regarding the transport sector and 8 responses concerning energy sector investments.
14. This issue was not addressed in the 2014 questionnaire. The comments in this section were based on 17 replies regarding the transport sector and 11 responses concerning energy sector investments.
15. This issue was covered also in the 2014 questionnaire. The comments here are based on 25 responses regarding the transport sector and 20 regarding the energy sector.

16. It is also important at what point in time a CBA is presented to the parliament. This issue was not addressed in the questionnaire, but is e.g. discussed in Mouter (2016). The author indicates that in the Dutch practice, it happens regularly that CBAs are published very close to the debate which allocates funds to different transport infrastructure projects. For example, “for the two major infrastructure projects which were decided upon in 2014 (...) the CBAs were published one working day and three working days, respectively, before the debate”. One can hardly expect the CBAs to have much impact in such cases.
17. However, regarding the energy sector, there were only seven replies to this question, which was not addressed in the 2014 questionnaire. Regarding the transport sector, 15 replies were received.
18. The question asked referred to CBAs “and similar quantified analyses”. This does i.a. mean that any shift from the use of CBAs to the use of multi-criteria analyses would not be reflected in the responses.
19. In the questionnaire used, it was indicated that in the part concerning *ex post* analyses, any rules in this regard for both public investment projects and public policies would be of interest. For presentation purposes, the replies received are compared to the part that only addressed *ex ante* policy assessments. However, there is little reason to assume that there are any clear differences in rules pertaining to *ex post* assessments of public investment projects and public policies.
20. For example, whereas the parts on transport and energy sector investment projects were of limited relevance for Federal authorities in the United States, the country provided detailed replies regarding *ex ante* and *ex post* policy assessments.
21. For example, the CBA requirements under the Executive Order 12866 in the United States are more rigorous for “economically significant” regulations with benefits or costs greater than USD 100 million in any given year or which will adversely affect, in a material way, the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or state, local, or tribal governments or communities.
22. For example, Sweden indicated that while there were no clear criteria for the inclusion of GHG emissions in the analyses, effects that are of large socio-economic significance, such as changes in CO₂ emissions, should routinely be addressed.
23. See for example the assessments prepared by the U.S. Environment Protection Agency of the benefits and costs of the 1990 Clean Air Act Amendments, available at www.epa.gov/clean-air-act-overview/benefits-and-costs-clean-air-act-1990-2020-second-prospective-study.
24. In addition, Mexico reported a *nominal* discount rate of 12% in both cases.
25. This issue was not addressed in the 2014 questionnaire. The comments in this section were based on 15 replies regarding *ex ante* assessments and 8 responses concerning *ex post* assessments.
26. Dudley (2017) discusses possible reasons for this, with a focus on regulations in the chemicals sector.
27. The Swedish plan was decided in 2010 and covered the period 2010-21. The Norwegian plan was decided in 2012 and covered the years 2014 to 2023.
28. The transport agencies comprise the Norwegian National Rail Administration, the Norwegian Coastal Administration and the Norwegian Public Roads Administration. Avinor is a state-owned limited company running 46 airports and Air Traffic Management services.
29. Eliasson et al. did not discuss the role of the Members of Parliament, but in both Sweden and Norway, information about the cost-benefit ratios of different projects is available to them at an early stage.

References

- Avinor et al. (2016), *National Transport Plan 2018-2029*, Avinor, Jernbaneverket, Kystverket, Statens Vegvesen, Oslo, www.ntp.dep.no/Forside/_attachment/1525049/binary/1132766?_ts=1571e02a3c0.
- CPB/PBL (2013), (Netherlands Bureau for Economic Policy Analysis/Netherlands Environmental Assessment Agency), *General Guidance for Cost-Benefit Analysis*, CPB/PBL, The Hague, www.cpb.nl/en/publication/general-guidance-for-cost-benefit-analysis.
- Department for Transport, Tourism and Sport (2016), *Common appraisal framework for transport projects and programmes*, Department for Transport, Tourism and Sport, Dublin, www.dttas.ie/sites/default/files/publications/corporate/english/common-appraisal-framework-2016/common-appraisal-framework2016_1.pdf.

- Direction générale des Infrastructures, des Transports et de la Mer (2014), Note technique du 27 juin 2014 relative à l'évaluation des projets de transport, Ministère de l'Écologie, du Développement durable et de l'Énergie, Paris, www.developpement-durable.gouv.fr/IMG/pdf/Note_technique_completesignatureok.pdf.
- Dudley, S. (2017), "Retrospective evaluation of chemical regulations", *OECD Environment Working Papers*, No. 118, OECD Publishing, Paris, <http://dx.doi.org/10.1787/368e41d7-en>.
- Eliasson, J. et al. (2015), "Does Benefit-Cost Efficiency Influence Transport Investment Decisions?", *Journal of Transport Economics and Policy*, Vol. 49, pp. 377-396.
- European Commission (2015), *Better Regulation Guidelines*, Commission Staff Working Document, European Commission, Brussels, http://ec.europa.eu/smart-regulation/guidelines/docs/swd_br_guidelines_en.pdf.
- Groom, B. and C. Hepburn (2017), "Looking Back at Social Discount Rates: The Influence of Papers, Presentations, Political Preconditions and Personalities on Policy", *Review of Environmental Economics and Policy*, Volume 11, Issue 2, 1 July 2017, pp. 336-356, <https://doi.org/10.1093/reep/rex015>.
- HM Treasury (2011), *The Green Book: Appraisal and Evaluation in Central Government*, HM Treasury, London, www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf.
- Interagency Working Group on Social Cost of Carbon (2016), *Technical Support Document: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866*, August 2016, United States Government, Washington, DC, www.epa.gov/sites/production/files/2016-12/documents/sc_co2_tsd_august_2016.pdf.
- New Zealand Treasury (2015), *Guide to Social Cost Benefit Analysis*, New Zealand Treasury, Wellington, www.treasury.govt.nz/publications/guidance/planning/costbenefitanalysis/guide/.
- OECD (2015), *Environment at a Glance 2015: OECD Indicators*, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264235199-en>.
- Official Norwegian Reports (2012), *Cost-Benefit Analysis*, Official Norwegian Reports NOU 2012: 16, www.regjeringen.no/contentassets/5fce956d51364811b8547eebdbcde52c/en-gb/pdfs/nou201220120016000en_pdfs.pdf.
- Smith, S. and N.A. Braathen (2015), "Monetary Carbon Values in Policy Appraisal: An Overview of Current Practice and Key Issues", *OECD Environment Working Papers*, No. 92, OECD Publishing, Paris, <http://dx.doi.org/10.1787/5jrs8st3ngvh-en>.
- Treasury Board of Canada Secretariat (2007), *Canadian Cost-Benefit Analysis Guide -- Regulatory Proposals*, Treasury Board of Canada, Ottawa, www.tbs-sct.gc.ca/hgw-cgf/finances/rgs-erdg/wwad-cqnf/col/analys/analys-eng.pdf.



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