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Russia's Reluctance to Ratify Kyoto: an Economic Analysis

It became apparent at the UN World Climate Change Conference, which took place from September 29 to October 3 in Moscow at the invitation of the Russian government, that ratification of the Kyoto Protocol by the Russian Federation is, at the least, uncertain. This could mean that the first international climate treaty will not become legally binding. What is the economic rationale behind Russian climate policy? What would be the effect of non-ratification?

In his opening address to the UN World Climate Change Conference (WCCC), Russian President Vladimir Putin left the question of ratification completely open. He said only that his government was "thoroughly considering and studying this issue". He added, "The decision will be made after this work has been completed." In saying this, Putin remained far behind previous Russian announcements. At the World Summit on Sustainable Development in Johannesburg in 2002, Russian Prime Minister Kasyanov had announced that the Russian Federation would ratify the treaty "in the nearest future". Nothing similar was heard from President Putin or other Russian officials at the WCCC this time.

Therefore, it is now uncertain whether the first international climate treaty will become legally binding. This is due to the fact that its entry into force is dependent on Russia, since the USA already withdrew from the treaty in March 2001. The recent Russian move on climate policy raises a couple of questions: first of all, what drives Russian climate policy and what is the economic rationale behind it; and second, what might be the effect on future climate policy if Russia does not ratify the Kyoto Protocol. The current article attempts to address these questions.

Russia's Economic Interests

The new Russian scepticism about ratification of the Kyoto Protocol is hardly explainable from an economic *short-term* perspective. Focussing on the first commitment period of the treaty, which lasts from 2008 to

2012, it is evident that Russia is endowed with a huge amount of "hot air". Roughly speaking, "hot air" is surplus emission rights which Russia has been conceded under the 1997 Kyoto Protocol that are not needed to back its own economic development. The major reason for the generation of these surplus emission entitlements of course is the breakdown of the Russian economy in the first half of the 1990s. As an immediate consequence of economic decline, emissions of carbon dioxide also decreased heavily. Although in the past few years the Russian economy has started to recover, CO₂ emissions currently still lie more than 30 per cent below the 1990 levels. Since the Kyoto Protocol demands that Russia stabilise its emissions at the level of the Kyoto Protocol's base year 1990, Russia is obviously in possession of surplus emission rights.

Moreover, Russia – together with Ukraine – would be the dominant supplier on a future emissions market. It is very likely that Russia would be successful in exerting market power. A recent study¹ accounts for monopolistic permit supply by Russia and the Ukraine. Market power prevents the future permit price from going down to close to zero, as would be the case if fully competitive trading in "hot air" occurred. Within a well-established computable general equilibrium model it turns out that under monopolistic supply-side behaviour the price per ton of carbon would lie in the range of US\$ 14 to 20. Hence, total revenues of trade with "hot air" are not negligible. According to International Energy Outlook² the amount of "hot air" in the first commitment period is expected to be

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¹ C. Böhringer, C. Vogt: The Economic and Environmental Impacts of the Kyoto Protocol, in: Canadian Journal of Economics, Vol. 36, No. 2, 2003, pp. 475-494.

about 330 megatons of carbon. Under monopolistic supply a share of 157 megatons of carbon would be sold, resulting in total revenues of US\$ 2-3 bn. Hence, the question poses itself why Russia is so reluctant to ratify the Kyoto Protocol, if it is so obviously a good deal.

But short-term gains from selling “hot air” are only part of the whole truth. Possible long-term effects of the ratification of the Kyoto Protocol clearly have to be taken into account. It is often argued that the Kyoto Protocol is only a “first step” in climate policy and that it has to be succeeded by more ambitious future climate agreements that call for more stringent greenhouse gas emission reduction measures. Actually, as has been shown by recent studies,³ the Kyoto Protocol achieves very little in terms of environmental effectiveness. In the light of long-term stabilisation goals for CO₂ like the ones proposed by the Intergovernmental Panel on Climate Change⁴ it is evident that much greater reduction measures would have to be undertaken in order to reach these goals.

It seems that it is this possible involvement in a more restrictive future climate treaty that the Russian government fears. There have very recently been several hints that point in this direction. At the World Economic Forum 2003, which took place in Moscow at the same time as the WCCC, President Putin declared very clearly that he is not convinced that the short-term gains of the Kyoto Protocol outweigh the long-term disadvantage possibly arising from that treaty by its putting ceilings on the future growth of the Russian economy.⁵ The chief economic advisor to President Putin, Andrei Illarionov, argued in the same direction. He outlined to the delegates to the WCCC that he expects Russia to double its GDP within the next ten years. This would imply annual growth rates of the Russian economy of between 8 and 10 per cent. Accordingly, production related carbon emissions would also increase considerably, eating up Russia's emissions allowances under the Kyoto Protocol. Hence, it might well be the case that not much “hot air” will be left to be sold in the first commitment

period. Moreover, a second commitment period of the Kyoto Protocol would almost surely imply effective reduction targets for Russia.

It is not our task here to evaluate whether the economic outlook of President Putin and his economic advisor is realistic. There are reasons to doubt such optimistic growth scenarios since much of administrative reform to remove barriers to investment in Russia has still to be done, as Putin also conceded to the participants of the World Economic Forum.⁶ The important point to be made here is that Russia now perceives the Kyoto Protocol as a possible limitation to the growth of its economy in the mid-future. Since a ratification of the Kyoto Protocol would commit the Russian Federation to participating in any future climate treaty – a second commitment period or any other follow-up agreement to the Kyoto Protocol – the Russian leader now seems to be seriously considering abstaining from putting Kyoto into force.

A second interpretation of the current Russian move on climate policy presents itself. It could also be that President Putin's demonstrated reluctance on ratification represents a threat to the remaining parties to the treaty, particularly the European Community, in order to obtain further concessions. Russia entered the Kyoto deal in 1997 on the basis of participation by the United States. Clearly, the USA would have been one of the largest buyers of “hot air” from Russia. Due to the withdrawal of the USA in March 2001 the future permit price will be much lower than expected, and hence the expected revenues from the sale of Russia's surplus permits. It may be that Russia will demand a European guarantee to buy a certain amount of emission permits at a certain, politically bargained, price, in order to get (partial) compensation for the “loss” caused by US withdrawal. At this point in time it is difficult to decide whether the Russian Federation really wants to withdraw from the Kyoto Protocol or if it wants to re-negotiate the treaty in order to make an even better deal. It may be that the Russian intentions will become more evident at the ninth Conference of the Parties (COP 9) to the UNFCCC which takes place from December 1-12, 2003, in Milan, Italy.⁷

What Drives Climate Policy?

Assume Russia really wants to withdraw from the Kyoto Protocol. Such behaviour would fit very well into the picture of climate policy that is painted by economic theory and would be in line with the behav-

² IEO: International Energy Outlook 2001, U.S. Department of Energy, Energy Information Administration, 2001, <http://www.eia.doe.gov>.

³ C. Böhringer, C. Vogt, op. cit.; B. Buchner, C. Carraro, I. Cerosimo: On the Consequences of the U.S. Withdrawal from the Kyoto/Bonn Protocol, FEEM Nota di Lavoro 102.2001, 2001.

⁴ IPCC: Climate Change 2001. The Scientific Basis, Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change, 2001, Cambridge University Press.

⁵ Caroline McGregor: President Reassures Investors, in: Moscow Times, October 6, 2003.

⁶ Ibid.

four of other major players in the climate negotiations. From an economic perspective, the protection of the climate constitutes the problem of voluntarily producing a global public good. Hence, climate policy faces severe incentive problems. It is obvious that under the assumption that countries behave in an economically rational manner the good "climate protection" will be underprovided. More precisely, it is very likely that any individual country acting rationally will not enter into an international treaty that imposes significant costs on its economy. This is due to the following simple fact. Let $B(Q)$ denote the benefits of greenhouse gas abatement, where $Q = \sum q_i$ is the global amount of abatement and q_i represents the national abatement level of the i th country. While benefits depend on the global emission reduction that is undertaken by all countries, the costs of abatement policies depend on the abatement level chosen by the respective country, i.e. $C_i = C_i(q_i)$. A rationally behaving country will try to maximise the net benefit from abatement, i.e. it will choose its abatement level according to the first order condition $B'_i = C'_i$. But the (marginal) benefits of climate protection are small for at least two reasons:

- First, the impact of a single country on the global climate is very limited. Even a highly industrialised country like Germany with a highly carbon-based economy only accounts for roughly seven per cent of total carbon emissions of all Annex I parties. Hence, abatement policies that are undertaken by Germany

⁷ It should be noted, however, that there are indications that point in the direction of this second interpretation of Russia's recent behaviour. In an AFP press article (AFP: Russia Demands Investment Guarantees Before Ratifying Kyoto Protocol, article released by Agence France Press on September 26, 2003) an unnamed source "close to the presidential administration" is cited as saying that Russia will only ratify the Kyoto Protocol if it receives guarantees on investment and on the sale of emission rights. The source further said, "We first want a legislative and financial mechanism for the sale of quotas to be drawn up, and we want our western partners to offer us specific joint projects as well as guarantees on the purchase of Russian emission quotas for a precise sum [our emphasis]." The AFP article dates from September 26, three days before the opening of the WCCC. It may well be that this was an intentional indiscretion.

⁸ In the case of Russia, the reasoning may be slightly different, but lead to the same outcome: as a northern country, Russia may be positively affected by climate change. Global warming would defrost permafrost regions in the far north. This effect would enlarge the area that can be agriculturally utilised. On the other hand, Russia may also be negatively affected by the greenhouse effect, since desertification in southern parts of the country and droughts and floods due to extreme weather occurrences may increase. However, it seems that in the perception of Russian political leaders the possible positive effects of global warming more than outweigh the negative impacts. Actually, President Putin addressed the delegates of the World Climate Change Conference in this sense when he – half jokingly, but also half-seriously – drew the delegates' attention to the fact "that Russia is a northern country and if temperatures get warmer by 2 or 3 degrees Celsius, it's not such a bad thing. We could spend less on warm coats, and agricultural experts say grain harvests would increase further." In terms of our simple economic model above this would imply that perceived benefits from abatement are not only close to zero for the current generation, but may be even negative!

will have no significant impact on the global average temperature.

- Second, the benefits of climate protection mainly accrue to future generations. The costs of abatement policies, on the other hand, have to be shouldered by the current generation. Hence, the optimal amount of abatement will be close to zero.⁸

Although this is a prediction derived from very simple economic reasoning, the actual behaviour of important key players in the climate negotiations fits into this story. In March 2001 the USA withdrew from the Kyoto Protocol. President Bush explicitly stated that he will not put any climate treaty into force that will result in significant costs to the US economy. Now the Russian government has come to realise that the Kyoto Protocol and its possible follow-up agreement may hamper the economic development of the country.⁹ Obviously, Russia is also unwilling to pay any significant price for the sake of mitigating the greenhouse effect.

Also, the negotiating behaviour of a couple of other key players in the climate negotiation game is consistent with the hypothesis of rational economic behaviour.¹⁰ As has been shown in a recent study based on a computable general equilibrium model, the Kyoto Protocol in its current state comes close to a business-as-usual scenario.¹¹ That means that the implementation of the Kyoto Protocol now comes at very low cost. The downside is that environmental effectiveness is driven close to zero.¹²

This is mainly the result of re-negotiations that took place at the COP 7 in Marrakech in 2001, where the

⁹ Note that climate change was not an issue of high politics in Russia for a long time, as is evidenced by the fact that initially the Russian Federal Service for Hydrometeorology (Roshydromet) held the responsibility for the climate negotiations. As a consequence, it was sometimes hard for outside observers to identify a clear-cut Russian position on climate issues. It seems that the formulation of a definite Russian stance on climate policy is still under way, as was shown at the WCCC. However, the WCCC also showed that the Kyoto Protocol has now definitely reached the highest level of treatment and that the perceived economic impacts of the Protocol are the key to Russia's attitude towards the treaty.

¹⁰ Of course, if the mitigation of climate change does not lie in the interests of rationally acting countries, then it might be asked why we observe any climate policy at all. This question is easily answered by noticing that action in the field of climate change is needed in order to address the concerns of the public in many countries. This is particularly true for the early 1980s, when the greenhouse effect was a major theme in the media and for the public of many European countries and when climate change climbed onto the international policy agenda.

¹¹ C. Böhringer, C. Vogt, op. cit.

¹² While Kyoto in its original form would have led to an effective global greenhouse gas emission reduction of 9.6 %, with respect to the business-as-usual emission levels in 2010 this figure is reduced to merely 0.7 %. For details see C. Böhringer, C. Vogt, op. cit.

remaining parties to the treaty (The European Community, Canada, Japan and Russia) agreed on generous accounting of carbon sinks but, much more important, also on unrestricted trade in emission permits. Note that at this point in time Russia had announced that it would adhere to the Kyoto treaty. Hence, unrestricted emissions trading would have made a huge amount of "hot air" available to the remaining Annex-B countries. Due to the withdrawal of the USA as the biggest potential buyer of emission permits from Russia, a significant decline in the future price of emission permits would have been the result, making Kyoto a cheap deal for the EU, Canada and Japan.¹³ However, now it seems quite possible that Russia will not ratify the Kyoto treaty and, hence, its "hot air" will not be available to the rest of Annex-B. Thus, the implementation of Kyoto by a "coalition of the willing" (Canada, EU, Japan) would now come at higher cost and it will be interesting to observe how these countries react to the new circumstances.

Prospects of Climate Policy Beyond Kyoto

The recent developments in climate policy dealt with in this article raise questions about the prospects of the Kyoto Protocol and possible future climate treaties. Most obviously, non-ratification by Russia would be a major blow to the Kyoto Protocol since the treaty would not become legally binding. But more severe problems may be related to the prospects of climate policy beyond the first commitment period of the Kyoto Protocol. Climate scientists and economists widely agree that the Kyoto Protocol is no more than a first step towards a more ambitious climate regime in the future, if CO₂ concentration goals of 550 ppmv or 450 ppmv are to be achieved in the mid-future until 2050. But it is hardly imaginable that these goals can be achieved without the participation of the world's largest emitters. Currently, the biggest emitter of CO₂ is the USA, which has rejected the ratification of the Kyoto Protocol. The USA under President Bush has persistently stated that the Kyoto Protocol is a "fundamentally flawed" approach to the greenhouse problem. Non-ratification by Russia obviously would lend support to this scepticism. The USA would no longer be politically isolated on the climate issue, turning a

feared defeat for the USA in the case of the entry into force of the Kyoto Protocol into a defeat for Kyoto's proponents. Non-ratification by Russia makes it easier for the USA to resist international pressure to rejoin the climate negotiations and to remain outside the Kyoto framework. Hence, the prospects for future climate policy would clearly not be enhanced if Russia also refuses to ratify the Kyoto Protocol.

But even more important would be to get major developing countries involved in climate protection, since countries like China and India are expected to be major emitters of greenhouse gases, particularly CO₂, in the mid-future. For example, China's total CO₂ emissions will exceed those of the USA around the year 2030. Hence, the effectiveness of any climate agreement beyond Kyoto critically depends on whether China and India will join such a treaty. But as is evident from the recent climate negotiations, developing countries have successfully avoided any reduction target for themselves, pointing to their need for economic development and to the current and/or historical responsibilities of industrialised countries for the greenhouse effect. It will be easier for those countries to reject reduction targets for themselves if even a country in transition like Russia refuses to accept an emission target in order not to hamper its economic growth.

Conclusion

It became evident at the World Climate Change Conference (WCCC) in Moscow in October 2003 that ratification of the Kyoto Protocol by the Russian Federation is now an open question. There are indications that Russia perceives the Kyoto Protocol as a limitation to the growth of its economy in the mid-future. These mid-term costs of climate policy are seen to more than outweigh the possible short-term gains from the sale of "hot air" in the first commitment period 2008-2012. Non-ratification by Russia would fit well into the economic view on climate policy which predicts that any country acting economically rationally should not enter into a climate treaty that imposes significant costs on the current generation. The refusal to ratify the Kyoto treaty by the Russian Federation would worsen the prospects for climate policy beyond the Kyoto Protocol, since it would become even easier for current and future large emitters to abstain from taking reduction measures.

¹³ Note that this result has been derived under the realistic assumption that Russia and Ukraine act as a monopolistic supplier on the permit market. It then turns out that the permit price lies around \$ 18 per ton of carbon. Under the assumption of a fully competitive market the permit price would be driven down to zero.