THE IMPORTANCE OF THE STATE FOR CLIMATE PROTECTION IN A SOCIAL MARKET ECONOMY

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1. ABSTRACT

A Social Market Economy centers on the individual freedom of the society's members. The realization of individual goals can be permitted by the competitive order existing in a Social Market Economy because the market allows for voluntary acts of exchange. This leads to a rise in the welfare of society. Another characteristic of a Social Market Economy is the provision of a minimum social security system, which offers support for citizens who are unable to earn a sufficient income on the market. There should, however, be a clear distinction between competition on the one side and social security on the other side. This distinction creates a maximum welfare effect. The state should never interfere in situations where an efficiency contest is feasible. However, state intervention may make sense in cases of market failure as long as the intervention results in a benefit for society. Still, deadweight losses are caused not only by wrongful intervention but also by excessive intervention.

The authors use the example of climate policy to demonstrate the role of the Social Market Economy and the effect

of excessive state intervention. An intervention by a government may be legitimized based on negative external effects; however, many of the implemented measures are inefficient. This is illustrated by the example of the advancement of renewable energy sources. An important responsibility of the state in coming years will be the creation of an international regulatory framework for achieving climate protection. In doing so, the principle of a Social Market Economy should be followed, so that a separation between the market in the form of global emissions trading and social transfers to developing nations will lead to more efficient climate protection policies. The importance of compensation payments will be highlighted separately.

2. THE IDEA BEHIND THE SOCIAL MARKET ECONOMY

The natural center of all considerations regarding social coexistence is the individual citizen. Any social order must aspire to grant individual citizens within the society their individual liberties and, at the same time, allow for a social coexistence that will benefit society as a whole. This is a slippery slope, because any time an individual submits to societal rules, this individual inevitably gives up a portion of individual freedom. Even Thomas Hobbes pointed out that it can be a rational decision by citizens to give up some of their freedom in exchange for the benefits of social coexistence. The price citizens have to pay, in the form of constant fear living in a state of anarchy, is higher than the practical loss associated with giving up certain liberties.[1] Vice versa, this means that the benefit loss that results from submitting to societal rules is less than the added benefit of a peaceful coexistence. Generally, a state is only legitimate if its citizens voluntarily transfer rights to the state so that they can ultimately profit from the benefits. However, it is often difficult to find the dividing line between the responsibilities of the state on the one side and individual freedom of the citizens on the other.

These considerations on the concept of governance lead to the conclusion that the Social Market Economy is the most appropriate social order, as the idea behind the Social Market Economy guarantees personal freedom for all citizens while protecting them against governmental disposal.

Arising directly from the central importance of individual liberties in the Social Market Economy is a system of market-oriented competition, which is characterized by voluntary acts of exchange on the part of the

market players involved. Competition thus is not the goal but the means to achieve an increase in the welfare of society.[2] Voluntary acts of exchange are of paramount importance in this regard. It may reasonably be assumed that both parties agree to the exchange only if at least one of the partners is better off after the exchange whithout the other partner being worse off (*Pareto criterion*).[3] This banal observation is followed by the fact that each act of exchange leads to an increase in social welfare. At the same time, consumer sovereignty is taken into account, as the production structure caters to the preferences of the citizens. Since companies, in contrast, are also unrestricted in the products they offer, it is in their own interest to satisfy the desires of consumers, which is a necessity in order to realize profits.[4]

General belief holds that citizens act rationally on the market, i.e. in accordance with their preferences and information.[5] Accordingly, these will consume the goods of the manufacturer who satisfies their preferences while charging the lowest price, whereas manufacturers will try to charge the highest possible price in order to increase their profits.[6] What results are prices, and thus price ratios on the market, that reveal the citizens' subjective terms of trade based on their preferences. Therefore, the price as a paramount signal on the market guarantees that the available resources are optimally allocated within the economy. In a functioning market, the widespread knowledge within a society is being used efficiently.[7] This corresponds to the "invisible hand" of the market described by Adam Smith[8] and constitutes the opposite of the "visible hand" of a planned economy.

However, the Social Market Economy does not only comprise a free market economy. It also emphasizes the importance of well-defined state responsibilities, which places the Social Market Economy between the extremes of a laissez-faire and a planned economy.[9] A functioning competitive environment requires the provision and implementation of a regulatory framework by the state. The most important criterion is the provision of a functioning competitive market price system as a fundamental economic legislation principle.[10] A positive economic policy can constitute a competitive order.[11] This includes a monetary policy that is committed to the goal of currency stability, as both inflation and deflation distort the price signal. A competitive environment predicates the existence of open markets that can ensure the continuance of the dynamic incentives that result from the pressure of competition and that allow

for an efficient allocation of resources across the entire economy. In addition, private property creates a dynamic incentive for efficient economic activity, since effort results in the generation of income and the potential to acquire property. Vice versa, poor performance may lead to a loss of existing income.[12] Thus, importance is also placed on the principle of liability within the competitive order, which ensures that the consequences of poor decisions are noticeable on an individual level and that decisions thus be taken responsibly. In order to enable voluntary acts of exchange, freedom of contract must be granted and may only be restricted if used to conclude contracts at the expense of third parties. In order to ensure planning reliability for investors, which is the basis of long-term and sustainable investment, consistency in economic policy is key. Ultimately, these constituting principles only develop their positive effect if all principles are being observed concurrently.

In the broader sense, this actively designed economic policy may already be considered state regulation. In addition to establishing a regulatory framework, further action by the state may make sense and is characteristic of a Social Market Economy. This manifests itself in direct intervention into citizens' individual freedom of contract and may be defined as a form of regulation, in a narrower sense, or as a special regulation.[13] Normative considerations on the theory of regulation aid the analysis of the extent to which direct state intervention in the market improves efficiency and thus increases social welfare. As a result of these considerations, competitor monitoring is to be seen as a constitutive element of a Social Market Economy. It provides a basis for direct intervention in the event that behavior that is adversely affecting the market, such as the abuse of market power, is ascertained. Furthermore, direct state intervention can also be justified in the event of market failure. A failure of the market exists if individual rational behavior does not lead to collective rational results. This is typically the case when public goods, external effects, asymmetrical information distribution and natural monopolies are involved. In reality, it is usually nonetheless not immediately apparent whether such a failure is present and what its consequences are for economic policy applications. In many cases, classic welfare economics is used as a framework for determining market failure. However, this involves the risk of constantly declaring a failure of the market, since the perfect market, which is used as a reference standard in welfare economics, cannot exist in reality.[14] This precludes the conclusion that the state should intervene in cases where market failure has been deter-

mined in such a way, as the problem of market failure is accompanied by the great danger of state failure. In addition to the sufficient requirement that a failure of the market must in fact be present, the necessary stipulation that the benefit of state intervention be greater than its associated cost must also be met. Otherwise, the result may easily be government failure, as intervention by the state reduces social welfare. A relatively certain assumption is that the government is not systematically better informed than the market. This, however, would be required in order to better control the allocation of resources. Failure of both the state and the market demonstrates the limits of the potential associated with market coordination structures on the one hand and state or political structure on the other hand.[15] Finally, the question whether and with what measures the state should intervene needs to be considered. According to the idea behind the Social Market Economy, the advantages of a competitive environment should be leveraged wherever competitive structures are possible. Consequently, the question of how far the state should intervene in economic life is also a matter of a society‘s level of freedom.[16] It is precisely the freedom awarded in the system of a Social Market Economy which creates responsible actions and, through the incentives mentioned earlier, leads to the greatest possible welfare of society.

In addition to the described failure of the welfare economic market, a market failure may be more comprehensively defined as a terminus technicus for the situation in which a market is unsuitable for solving economic problems or where better solutions exist for improving the situation of the citizens. For example, a failure of the market might be determined after considering the wealth distribution policy within the social order. The market only rewards efforts that are put forward by the market players. In the event that some citizens’ efforts are insufficient, it makes economic sense to guarantee a minimum level of security for these citizens.[17] As the sole goal of the social order is to help citizens, the Social Market Economy is characterized by its offer of a minimum level of security to all persons in need, whether the need is self-inflicted or occasioned through no fault of their own, which allows for a minimum standard of social participation.

However, despite the existence of a minimum level of security, economic and social policies should be separated, meaning that in a first step competitive advantages should be leveraged in order to increase social

welfare to the greatest extent possible. Independent of this, the state may implement redistribution through a tax and transfer system. That way, the highest level of overall welfare is reached.[18]

In summary, the certain advantage of the Social Market Economy lies in the fact that its highest priority is the preservation of civil liberties and that the benefits that result from the free actions of its citizens in the competitive environment are being leveraged for society as a whole. What counts in the market is only individual performance, independent of race, sex or personal status. This ensures equal treatment, as all citizens are equal before the law and no one is denied access to public institutions such as schools or agencies.[19]

3. THE PRACTICAL IMPLEMENTATION OF THE SOCIAL MARKET ECONOMY

The practical implementation of the idea behind the Social Market Economy clearly demonstrates the shortcomings of state intervention. In reality, the question of whether or not and to what extent state intervention is necessary must be weighed carefully. This leads to a number of problems, which is evident from the fact that there are far too many regulations. For example, the ratio of public spending[20] in Germany has risen to nearly 50 per cent, in part because of massive state intervention during the economic crisis.[21]

The competitive environment is certainly not popular with the players on the market, as the pressure of competition forces them to constantly come up with new products and services. Resting on the performances of the past is not possible. For this reason, many market participants try to demand special regulations on the grounds of “special factors,” usually due to reasons of “obvious” market failure, national independence, product safety, job creation or the social importance of their industry. Effectively, the interest groups attempt to achieve a redistribution of economic rent in their favor and usually at the expense of third parties. A positive analysis of the regulation shows that this behavior can often be accomplished by small, well-organized minorities. The surplus is thus distributed from the majority to a minority.[22] As a matter of principle, the distribution of the surplus is not an economic problem, as the issue of where the social surpluses are accrued is ultimately irrelevant for social welfare. Yet government regulations routinely lead to deadweight

losses for society, thus thwarting normative considerations regarding the role of state intervention in the economy. In addition to a direct deadweight loss, this results in other, not immediately visible costs, as the lobbying efforts of interest groups unnecessarily use up resources.[23] In addition, intervention creates social costs in the form of excessive restrictions of liberties.

4. THE ROLE OF THE STATE IN CLIMATE PROTECTION POLICY

Climate protection policy can be used to analyze the role of the state and of the Social Market Economy, both in theory and in practice, in overcoming market failure.

In economic theory, the problem with climate protection lies in (negative) external effects. Energy generation from fossil fuels is accompanied by the emission of greenhouse gases. The anthropogenically increasing amount of greenhouse gases[24] in the atmosphere leads to a rise in the average global temperature. The negative effects for humanity, such as increasing desertification or rising ocean levels, are widely known.[25] Businesses do not have to include the cost of climate damage created by greenhouse gas emissions into their expense calculations, as the consumption of “clean air” doesn’t come with a price tag.[26] In other words, the private marginal costs of energy production incurred by business owners are lower than the social marginal costs incurred by society. Businesses are able to offer their products at a lower price, which in turn leads to excessive consumption of these products. Due to the presence of negative external effects, the price ratio between products that are harmful to the climate and those that are neutral is distorted, resulting in a disruption of the price signal function. Consequently, it can be considered the state‘s responsibility to correct the price ratio by internalizing the negative external effects, which will allow resources to be allocated once again to their most efficient use in the competitive environment, thus preventing waste. This only applies if the state measures consume fewer resources than the state intervention preserves. As no reliable data on the amount of externalities exists, state intervention can only achieve the correct price ratio by accident, if at all. State intervention can therefore only produce a second-best solution.

5. THE RESPONSIBILITY OF THE STATE TO CREATE A FRAMEWORK FOR ACTION

A competitive solution is the implementation of a charge for greenhouse gas emissions, which will force businesses to consider these expenses and create a convergence of private and social costs. In principle, this could be achieved through taxation or certificate trading.[27] In a tax solution, each greenhouse gas unit is taxed, which gives it a price. The business is now forced to consider the cost of emissions during production. The responsibility of the state in certificate trading consists of generating property rights[28] for the emission of one unit of greenhouse gas. The number of emission rights is limited, making the emission of a unit of greenhouse gas a scarce right. Because these rights are marketable, a price for emission rights emerges on the market. This scenario also calls for the emitting business to pay a price for each unit of greenhouse gas, forcing it to consider these costs during production. The business now weighs up whether to buy a certificate for the emission of a unit of greenhouse gas or whether it is preferable to avoid the emission. As long as avoidance is cheaper than buying an emission right, the business will prefer the option of avoidance. Thus, the price signal is used to create an efficient allocation of pollution rights, i.e. only those businesses that gain the greatest benefit from emissions produce them. This sounds contradictory at first; however, one must not forget that society benefits greatly from the production of energy, for instance. Such an intervention changes the framework for action for society. Within this framework, competition may take place without further regulation.

6. NO JUSTIFICATION FOR THE SUBSIDIZATION OF RENEWABLE ENERGY SOURCES

Emissions trading meets the basic principles of the Social Market Economy, because the forces of the market continue to be used. Climate protection is efficiently pursued. Further measures are not required and should be avoided. The European Union should take the first step here and subscribe to the sole goal of climate protection.

Notwithstanding the European Union implements other climate protection measures. However, its pronounced 20-20-20-goal i.e. the reduction of CO_2 emissions by 20 per cent, the increase of energy efficiency by 20 per cent and the increase of the share of renewable energies to 20 per cent

by 2020[29] only leads to a loss of efficiency. This shall be explained on the basis of subsidization of renewable energies. In addition to direct subsidization of various technologies, the main measures are the Renewable Energy Sources Act (for: *Gesetz für den Vorrang Erneuerbarer Energien*, in short: *Erneuerbare-Energien-Gesetz, EEG*) and the Combined Heat and Power Act (for: *Gesetz für die Erhaltung, die Modernisierung und den Ausbau der Kraft-Wärme-Kopplung*, in short: *Kraft-Wärme-Kopplungsgesetz, KWKG*).[30] The Renewable Energy Sources Act requires the operators to feed any energy that is available from renewable energy sources into their networks and to compensate it at a rate determined by the state. Because energy production from renewable energy sources is more expensive than production from fossil energy sources, the compensation rate exceeds the price of electricity from fossil fuels.[31] These additional costs are apportioned to the price of electricity by the electricity company. The Combined Heat and Power Act represents the corresponding measure for supplying energy from combined heat and power generation plants. In contrast to direct subsidies, which are also widely available for renewable energies, the costs of the *EEG* and the *KWKG* are paid directly by the consumer and therefore do not appear in the household budgets of the federal government.

The high costs created by these subsidies have serious effects on the economy. Due to tax increases caused by the subsidy and rising energy costs caused by the apportionment of the *EEG*, both households and businesses are disadvantaged. Because of these high costs, businesses are unable to invest as much, if at all, and may even be forced to file bankruptcy in extreme cases. Overall, jobs are lost.

The subsidies also cause many resources to be misallocated. For instance, if workers are only employed in the area of photovoltaics because of the subsidy,[32] these workers could be used more productively in a different business or sector. An employee‘s salary reflects his or her opportunity cost, i.e. the amount that this employee could earn somewhere else in the economy. Hence, valuable resources are being wasted.

In addition, private commercial initiatives to develop technologies for eliminating emissions are seriously impeded, as it must seem futile for projects that are financed solely by the private sector to compete with highly subsidized technologies.

Ultimately, there is great danger that an intervention by the state will fail to advance the most efficient technologies. A direct subsidization of individual technologies would be beneficial only if the state was systematically better informed than all players on the market. However, this is not feasible. Direct subsidization of individual technologies or sectors is therefore a pretence of knowlegde[33] by the state.

Furthermore, subsidization of renewable energies on the electricity market does not affect climate protection measures, as energy production is integrated in emissions trading. Even though the subsidy helps eliminate emissions from electricity production in Germany, this only means that electricity corporations have to hold fewer emission rights. As a result, demand decreases, which leads to a drop in carbon prices. At that point, other industries in Germany and other European countries become interested in buying these emission rights and using them for their own production. The overall number of emission rights, and therefore total emissions within the European Union, is not affected by the feed-in compensation; it merely leads to a subsidization of CO_2 emissions in other industries. For example, an individual household may conserve energy and electricity costs by buying an energy-efficient lamp, yet this does not mean that even an ounce of CO_2 is being saved in the European Union. Still, politicians and the media suggest to consumers that by buying energy-efficient lamps or conserving energy in general, they are contributing to climate protection. This flawed information policy has to come to an end and must be replaced by a broad and transparent education effort about the opportunities and costs of climate protection.

Despite the fact that those sectors that until now have not been included in emissions trading are indeed registering reductions in CO^2 due to the use of renewable energy sources, subsidization is not justified in this case either.[34] One example comes from the Renewable Energies Heat Act (for: *Erneuerbare-Energien-Wärmegesetz, EEWärmeG*), which went into effect at the beginning of this year in the thermal energy sector.[35] The Act requires all owners of newly built houses to generate some of their heat with renewable energies. As a result, the use of fossil fuels to generate heat is reduced and emissions are ultimately abated; however, high costs ensue because reductions are no longer made in the most cost-efficient areas. Those affected by the regulation are burdened with higher than necessary costs. A more beneficial solution would be to expand emissions trading to other industries, which would allow all

consumers to use the price per ton of CO_2 or the higher price for heating oil or gas to adjust their demand in accordance with their personal preferences. This allows everyone to decide on an individual basis whether to let a price increase keep him from building a sun room or motivate him to switch his heat supply to a renewable energy source. The latter makes economic sense if the price for heating oil, including the cost for emission rights, is higher than the price for the cheapest renewable energy source. If the price is lower, there are cheaper options for reducing CO_2 emissions, as the carbon price corresponds to the marginal abatement costs. After a comprehensive internalization of the negative external effects, state support or subsidization is no longer necessary. Hence, subsidization of renewable energy sources must be stopped with urgency. The sole goal of an efficient climate protection policy should be the reduction of greenhouse gas emissions. An increase in the share of renewable energy sources should be a consequence of climate policy rather than its goal.

7. THE SOCIAL MARKET ECONOMY AND NATIONAL CLIMATE PROTECTION POLICY

Social debate is ongoing concerning the rising energy costs, which are usually attributed to the market power of the dominant electricity providers. However, the problems described above reveal that rising energy costs are economically intended in order to calculate climate damage into the cost of energy production and create an incentive to conserve energy. A significant advantage of the Social Market Economy is undeniably the ability to afford each citizen a minimum standard of social participation, which includes a sufficient energy supply. A problem results from the political tendency to interfere in the pricing system for social reasons. This creates serious inefficiencies on the market and frequently puts a burden on those groups that are supposed to be getting relief. For instance, there was a serious discussion about the introduction of social tariffs on the electricity market, which rightly were not implemented in the end. In the area of welfare aid and *ALG II* (*Arbeitslosengeld II*) unemployment benefits, however, the state intervenes directly for social reasons. By absorbing energy costs, it attempts to keep poor citizens from feeling the effects of high energy prices. One advantage of this measure is that only those citizens of a society who are actually in need receive support, as these benefits are tied to a means test.[36] Still, this social measure lacks efficiency.

With a view to climate protection, this measure doubtlessly leads to tremendous misdirected incentives, as the price ratio is further distorted in the wrong direction. The absorption of the heating costs of citizens in need results in a lack of incentives to conserve this expensive energy. In contrast, a greatly reduced price leads to increased consumption, thus thwarting the government's climate protection efforts.

Goods that are needed on a daily basis and whose prices show less regional differentiation, as well as energy costs, are better subsidized through a standard flat rate. A transfer that is at their disposal underlines the individual freedom of the poor to use these means according to their preferences and to increase their personal benefit. Therefore, the benefit could be increased if the absorption of living and heating costs (transfer in kind) was replaced by a rise in the standard rates to the extent of the energy cost increase (transfer in cash). Due to the change in the price ratio, it is highly likely that the poor will not use the full standard rate increase for energy costs, but that there will also be a substitution effect toward other goods. Overall, the level of benefit to the poor will rise.

From a climate policy perspective, a subsequent safeguard for the poor makes sense, as this does not distort the price ratio and achieves an optimal allocation of scarce resources by not undermining incentives for energy conservation.

8. PROBLEMS ASSOCIATED WITH EMISSIONS TRADING IN EUROPE

During the third UN Climate Change Conference (COP-3) in Kyoto in 1997, the introduction of emissions trading established a system for using the described market forces. In the Kyoto Protocol, the European Union committed to an eight per cent reduction of greenhouse gas emissions by 2012 and, in 2005, established the European Emission Trading System[37] for CO_2 for this purpose.[38] In doing so, it led the way in climate protection on the international level. In 2008, the European Union expanded its reduction goal to 20 per cent (by 2020).[39] However, this leading role is accompanied by high costs for the European economy. Emissions trading is considered an efficient system in economic theory; however, this assumes a comprehensive system. Yet the European Emission Trading System has regional restrictions, which causes significant problems with regard to efficiency and the attainment of targets.

To begin with, the regional restriction creates competitive disadvantages for those European businesses engaged in international competition. The requirement to hold emission rights increases production costs for all goods whose production creates CO_2 emissions. In the case of local products, businesses can pass on those increased costs to consumers in the form of higher prices, which will also lead to the desired demand reaction. This is possible because all businesses in this industry are burdened with these additional costs, which means that the competitive conditions are the same for all businesses offering this product. This, however, is not the case with businesses whose goods are traded on the global market. These businesses are engaged in international competition and compete with businesses outside Europe whose production does not carry a charge for the costs of pollution. Passing on the additional costs through the price tends to be impossible, as this would mean that the affected businesses would lose market share in the best-case scenario or fail to survive on the market in the worst-case scenario. This can lead to bankruptcies or relocation of businesses abroad with the corresponding negative effects on the European labor market. In both cases, the demand for products that are harmful to the climate is being satisfied by countries outside Europe that are not involved in climate protection efforts. These countries gain a competitive advantage by not engaging in climate protection. The European Union thus fails to reach its original climate protection goal, i.e. preventing the rise in the average global temperature. Although emissions within the European Union are being reduced through the abandonment of production plants, the reason is not a reduction in demand but rather a shift in demand from the European Union to countries outside Europe. From a global perspective, there is no change in the amount of emissions. On the contrary, it is likely that emissions will increase, due to the fact that lower technology levels in many countries, especially in newly industrialized nations, will create more greenhouse gases during production than in the European Union.

Another problem exists on the international energy markets. Emission rights trading causes energy costs to rise, which creates a proportionate demand reaction in the European Union. Decreased demand for fossil resources in the European Union also leads to lower demand on a global scale. By nature, this means that the global market price for fossil energy sources will drop, which allows other businesses to use fossil resources at a lower price. The global production of energy using fossil fuels is not affected. This problem can only be solved through a global emissions

trading system, as this would create restrictions on global emissions irrespective of how much the global market price for fossil fuels is dropping. Consequently, the leading role of the European Union creates a burden on the European economy and its own citizens. As long as the other countries cannot agree on an international settlement, non-European countries will reap the benefits in the form of an improved climate (even if only slightly) and a better competitive environment.

9. PROBLEMS ASSOCIATED WITH INTERNATIONAL COORDINATION

Climate protection only makes sense if it is pursued on an international level. Therefore, the goal should be to get all countries to agree on a coordinated international climate protection effort.[40] Even so, the notion that every country must assume an obligation to reduce emissions or that those countries with the highest emissions the greatest obligation for reducing emissions must be abandoned. Such a belief is based on subjective principles of justice, making the conclusion of an international climate protection agreement unlikely. A fair measure would be an allocation key that is approved by all nations. The famous proposition of a per-capita-allowance, meaning the allocation of a certain amount of emission rights for each global citizen, is also rather unlikely, as countries with high emissions but a rather small population size would not give their consent. The only feasible way to reach the goal of unanimity is that all countries agree on a commitment to reduce emissions based on their willingness to pay. The fact that willingness to pay is not very high in developing countries, where food supply or the establishment of a health care system are priorities, is comprehensible. These countries are particularly affected by the early effects of climate change such as prolonged droughts and desertification. For this reason, a number of developing countries demand compensation from the industrialized nations based on their responsibility for these damages due to high emissions in the past. If the consent of the affected countries can only be gained by promising compensation payments, such a decision could be made during negotiations for an international climate protection alliance. An important task for economists consists of convincing all nations of the advantage of an emissions trading system, as it provides the most cost-efficient options for reductions and thus creates the lowest costs for all countries.

The consent of all countries to a global emissions trading system is only conceivable if all countries are able to actively participate in emission rights trading, i.e. a country must in fact have the financial means to buy emission rights in order to enable growth of its national economy. This is also a question of the redistribution effect created by assigned property rights. The compensation payments or the distribution of rights to the individual countries must guarantee that this is possible. The question of compensation payments must, however, be addressed separately from emissions trading insofar as an intervention in the market mechanism is avoided. Resources are optimally allocated only when the market mechanism of emissions trading is able to work freely. Only then has the measure reached its highest efficiency. An earlier intervention results in a loss of efficiency with corresponding welfare losses, which reduces the elbow room for compensation payments. If the international community determines that the market result does not represent the desired distribution result, payments for countries in need must be decided separately. A direct link between the income from emission rights trading and the compensation payments, as currently envisioned by the European Union, should not automatically be taken for granted. Since the citizens are entitled to the income from the sales of property rights, this income must initially be passed on to them, for instance in the form of tax cuts or debt reduction. If this income is used for other purposes, a further decision is necessary. For the citizens of industrial nations, it may make sense to lend financial support to developing countries in order to entice them to join a climate protection agreement, provided that the cost of compensation payments is lower than the climate damage that can be expected, both in a strict and in a broad sense.[41]

International climate protection efforts can learn from the idea behind the Social Market Economy. The goal should be the establishment of an international regulatory framework, within which the scarce resource “clean air” can be used across the global market as efficiently as possible and every global citizen can act as freely as possible. The state‘s responsibility lies in protecting the freedom of individuals and in ensuring functioning markets. However, the social issues of the individual nations must not be forgotten; rather, all countries must be allowed to share in the resources. It must be emphasized, however, that there should be a separation of allocation and distribution, as that is the only way to ensure efficiency in climate protection.

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1| Cf. Hobbes (1980).
2| Cf. ORDO (1948).
3| However, errors cannot be ruled out, as the decision to engage in an act of exchange is invariably based solely on the information available at the time. In the light of new information, the decision may well turn out to have been a mistake; willful deception is not considered here.
4| Ludwig von Mises refers to this principle as economic democracy: in the end, the consumer chooses which products will be produced by the entrepreneurs. [Profit] "is the instrument that turns the masses into rulers."

5| *If this wasn't the case, economic actions would be impossible to evaluate, as the results of each would be purely arbitrary and in no way predictable. Occasionally, of course, there are examples of individuals who obviously engage in irrational market actions. Consequently, the behavior of a single individual cannot be predicted, and economic policy recommendations are derived from the expected behavior of multiple individuals.*

6| *This is the dominant strategy even for an altruistic citizen or entrepreneur, because it leads to maximum savings and profits to be used for altruistic purposes.*

7| *Cf. Hayek (1968).*

8| *Cf. Smith (1976).*

9| *Cf. Ordo (1948).*

10| *Cf. Eucken (2004).*

11| *Below according to Eucken (2004).*

12| *Antisocial tendencies caused by private property may only arise in an environment of imperfect competition, as this allows property owners to abuse their power.*

13| *Cf. e.g. Weizsäcker (1982).*

14| *According to Demsetz (1969), such a comparison is called a Nirvana approach.*

15| *Cf. Watrin (1999).*

16| *Cf. Ibid.*

17| *Cf. Buchanan/Tullock (1962), and Brannan (1973).*

18| *This consideration is a result of the first and second principle theorems of welfare economics.*

19| *Cf. Arentz et al. (2008).*

20| *The ratio of public spending measures total state expenditures as a percentage of the Gross National Product.*

21| *Cf. Handelsblatt (2009).*

22| *Cf. Stigler (1971).*

23| *Cf. Tullock (1967).*

24| *Greenhouse gases refers to gaseous substances that contribute to the Greenhouse Effect. The most widely known greenhouse gases are the so-called Kyoto gases, meaning the greenhouse gases that have been included in the Kyoto Protocol. This includes carbon dioxide (CO_2), methane (CH4), nitrous oxide or laughing gas (N2O), fluorocarbons and sulfur hexafluoride (SF6). Cf. United Nations (1998).*

25| *Cf. Stern (2006).*

26| *"Clean air" constitutes a common pool resource, i.e. no one may be excluded from its consumption. Cf. Donges (2004).*

27| *Both the tax solution and certificate trading constitute second-best solutions, because the ideal tax rate and the ideal volume of available rights are not known and ultimately would need to be estimated.*

28| *The idea of property rights is attributed to Ronald Coase, who determined that whenever property rights are clearly defined and marketable, an efficient outcome occurs on the market without further intervention by the state. Cf. Coase (1960).*

29| *Cf. European Parliament (2008).*

30| *Cf. Federal Ministry of Economics and Technology online (2009).*

31| *A reference could be made here to the Renewable Energy Sources Act, for example. Here, the most expensive renewable energy source, photovoltaics, has the highest compensation rate, at a maximum of 43.09 Eurocents per kilowatt hour. Cf. Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2009).*

32| According to calculations by the RWI, subsidies in the amount of 150,000 Euros are being paid for each position in this sector. Cf. Frondel (2008).

33| Cf. Hayek (1975).

34| At this point, the European Emissions Trading Scheme registers only 40 percent of overall CO_2 emissions in the entire European Union. Cf. EurAktiv (2009).

35| Cf. Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (2008).

36| This is not a matter of course for social measures by the state. Many measures are not based on a means test or based only on insufficient indicators, such as wage earnings in the case of redistribution within the compulsory health insurance system.

37| Technically, this should be called "emission rights trading system", as it concerns the trading of emission rights rather than emissions. In the following, the term "European Emission Trading System" will be maintained as the name for the European system; otherwise, the term "emission rights trading" will be used.

38| The "bubble" concept stipulated in the Kyoto Protocol allowed two or more countries to fulfill their obligation to reduce emissions jointly. Only the overall amount of emissions is relevant. Cf. Umweltdatenbank (2009).

39| In the event that the international community agrees on an international certificate trading system in a post-Kyoto protocol, it is even willing to reduce its CO_2 emissions by 30 percent. Cf. European Parliament (2008).

40| An international agreement is hard to achieve, as climate protection represents a prisoner's dilemma. The costs for climate protection measures must be assumed by the private sector, while profits are passed on to society. In other words, it makes thorough sense for a country to refrain from climate protection within its own boundaries while profiting from the efforts of other nations. This behavior leads to an insufficient overall level of climate protection efforts.

41| In addition to direct climate damage, an increase in natural disasters may lead to further damage, for example due to global unrest.