

Chapter 2

Bringing Emissions Trading Schemes into Mexican Climate Policy



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Abstract Emissions trading schemes (ETS) have become popular as a policy instrument to tackle climate change. This chapter analyses the decision to deploy carbon markets and their interaction with other instruments in Mexico's climate policy. Instrument selection has been thoroughly explored in the regulation and public policy literature (Kern et al. in *Res Policy* 48, 2019; Capano and Lippi in *Policy Sci* 50(2):269–293, 2016; Wurzel et al. in *German Policy Studies* 9:21–48, 2013; Harker et al. in *Climate Policy* 17(4):485–500, 2017; Baldwin et al. in *Understanding regulation*, Oxford University Press, 2012; Jordan et al. in *Policy instruments in practice*. Oxford handbooks online 536–549, 2011), but its application to carbon markets is mainly focused on environments such as Europe, the US and, more recently, China. The decision to adopt an ETS relies not only on specific characteristics of each instrument but also on institutional constraints and messy political considerations. A combination of preferences and institutional factors affect the choice of instruments, and the ultimate decision must be legitimate and instrumental for each context. I analyse the considerations involved in the deployment of the ETS pilot project, looking at its distinctive characteristics and those it shares with other available instruments, as well as the requirements for its implementation.

Keywords ETS · Climate change · Mexico · Policy instruments · Policy tools · Patterns of choice

Introduction

The appeal of emissions trading systems (ETs) is in part due to their regulatory logic for government and industry, as well as a belief that environmental measures are not necessarily expensive (Bailey and Maresh 2009). Their emergence also responds to an emphasis on higher levels of dynamic and allocative efficiencies compared to

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S. Lucatello (ed.), *Towards an Emissions Trading System in Mexico: Rationale, Design and Connections With the Global Climate Agenda*, Springer Climate, https://doi.org/10.1007/978-3-030-82759-5_2

other regulations. In this chapter, I will look into the introduction of ETS in Mexican climate policy and the factors that influence their entry.

In general, economic instruments are more efficient than other regulations, leaving decisions about technology, operations, and plant life to agents participating in the market (Isser 2016). Less flexible regulatory instruments set uniform standards and control targets, or specify processes and technologies to use. Nonetheless, costs usually vary greatly among firms, technologies, and strategies, making uniform regulations more expensive for industry and society. Additionally, conventional regulatory instruments require more information and have a heavier regulatory burden when emissions sources are diverse. In short, they seem to result in larger costs for society.

Market instruments internalize the cost of externalities by taking into consideration the social cost of emissions when choosing activity levels. Economic instruments that tackle externalities are divided into two groups: (1) fiscal policies, such as carbon taxes; and (2) the creation of markets, such as emissions trading systems (ETSs).

This chapter is organized as follows. First, I briefly describe ETS experiences around the world as inputs to the Mexican decision to adopt one later on. Next, I focus on explaining the events, stakeholders, and decisions that shaped what we know today as the ETS pilot program in Mexico. Then I describe the analytical framework and its applicability to the market. Finally, I offer some concluding remarks.

Background

The market that initially inspired carbon market deployments worldwide was the US Acid Rain Program, a permit system for sulphur dioxide emissions created in the mid-nineties that led to markets of sulphur dioxide and nitrous dioxides. This experience was taken as evidence that markets for pollution could work effectively, encouraging technological innovation and reducing the cost of pollution abatement (Isser 2016). Since then, more than 60 entities—including national governments and sub-national jurisdictions—have implemented carbon pricing instruments such as carbon markets and taxes. Some of them have been influential in the design of the Mexican carbon market. Specifically, the Regional Greenhouse Gas Initiative (RGGI), the European Union (EU), California and, more recently, Chinese pilot projects have provided knowledge on potential routes for Mexico and will continue to do so.

The Regional Greenhouse Gas Initiative (RGGI)

The RGGI pioneered a mandatory ETS covering emissions from the power sector. It covers 10 US states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont) and will soon cover two more (Pennsylvania and Virginia). The market has been operating since 2009 based on general rules (ICAP 2020a, b) and specific CO₂ budget trading programs,

caps, and design adjustments for each participant. It is expected to reduce emissions by 30% compared to 2020 between 2021 and 2030 (more than 65% below the RGGI cap in 2009). An interesting feature of this ETS is that an emissions containment reserve will come into action in 2021, automatically adjusting the cap downward if there are lower than expected costs.

The European Union (EU)

The EU ETS is distinctive because it cedes state power to a supranational climate agency (Bailey and Maresh 2009) and is the first transnational arrangement. Various factors facilitated its creation. An entrepreneur (the Commission) received support from Member States and business groups, and a set of pioneers led the way in its implementation (the United Kingdom, the Netherlands, Denmark, and Sweden) (Jordan et al. 2011a, b). Institutional factors and the potential to buy off political opponents through their right to distribute permits facilitated agreement from all the parties involved. An initial decentralized design was followed by a more centralized decision-making process as the European Union strengthened its authority over other economic actors (Bailey and Maresh 2009).

California

Learning from the EU market (EU ETS) and the RGGI, California then designed its own market. Participants accounted for 85% of California's total greenhouse gas emissions. Its initial target in 2006 was set at reaching 1990 emissions levels by 2020. In 2016, it passed legislation to change its target to 40% below 1990 levels by 2030 (EDF 2020). The distribution of allowances is a mixed system, with free allowances by industry and efficiency, and allowances purchased at auctions or via trade. The state not only reduces emissions but takes less carbon to grow the economy, creates benefits for local populations, and promotes clean energy jobs and local air-quality initiatives (EDF 2020). Flexibility mechanisms are provided through offsets, banking, and strategic reserves (California Cap and Trade 2020). The market is now linked to Quebec and Ontario, and a potential link to Mexico has been discussed.

China

China was the first developing country to implement a pilot ETS in 2013. Some of China's features, such as size and emission levels, made it a distinctive case, accounting for 1.2 billion tons of CO₂ across seven regions. The country had to deal with a lack of strong legal regulations, weak enforcement, the dominance of

state-owned enterprises, and a shortage of available data, experiencing low levels of liquidity in all pilot projects as well as continuous interventions by regulators (Munnings et al. 2016). After launching seven pilot ETS, policymakers focused on discussing interprovincial trading and solving market fragmentation problems (Jiang et al. 2016).

The Definition of ETSs in Mexico

For the last decade, Mexico has been an active player in the international climate policy framework. It was the first developing country to have a general law of climate change (LGCC) mandating a long-term climate policy, and regulatory and market instruments. This was second only to the UK worldwide. The Mexican government has been at the forefront of international negotiations, participating in the United Nations Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol, and the Paris Agreement, and hosting the 2010 United Nations Climate Change Conference in Cancun.

Policy implementation, on the other hand, has faced several challenges. In 2014, the Mexican congress passed a carbon tax bill designed to reduce the consumption of fossil fuels. The initial bill included differentiated rates for each fuel according to its carbon content, but it ended up with exemptions for natural gas and lower rates for certain fuels that had relatively high levels of emissions. Together with a generous reduction to the burden, the tax ended up having only a minor impact (if any) on the decisions of fossil fuel consumers.

After this difficult initial experience, an ETS, also mentioned in the law, then became of interest as a viable alternative. The fact that gasoline price increases are at odds with the current administration's interests further lowers the political viability of a carbon tax. While a tax was seen as controversial and politically challenging, the implementation of an ETS seemed more feasible to enact in Mexico. It was hoped that this new policy would then incorporate lessons learned from previous missteps. For instance, a carbon tax is a fiscal instrument administered by the Ministry of Finance. An ETS, by contrast, is classified as an environmental tool. The Ministry of Environment (SEMARNAT) is in charge of designing and managing its resources and collecting fines. It seemed a more suitable tool due to its single goal: decreasing CO₂ emissions relative to business as usual.

In April 2018, the Mexican Senate approved reforms to the LGCC by a vast majority (zero votes against and one abstention). The amendment included the targets listed in the Mexican Nationally Determined Contribution (NDC): a 22% reduction in emissions by 2030 and, if certain conditions regarding financial support were met, the reduction would amount to 36% compared to business as usual (BAU). The law also eliminated the word voluntary from the ETS, and the Second Transitory Article established the implementation of an emissions trading pilot program 10 months after the reform.

Removing a market's voluntariness may initially sound disturbing if not understood within the ETS context. From an economic point of view, a market is voluntary by definition. In this case, however, the government defines the regulations, technicalities, and an institutional framework for the ETS. Participants are then required to comply with a certain limit or cap, but they are free to enter or exit the market as they choose, as with any other market structure.

In 2019, an executive order was signed to launch the carbon market pilot program. It started in January 2020, requiring all industries generating more than 100,000 tons of CO₂ annually from direct and fixed emissions to participate in the market.

The initial market structure was designed by a number of groups. Think tanks organized dialogues with civil society organizations (CSOs) to obtain their input. The Environmental Defense Fund (EDF) then constructed a market simulator for the industry and other interested parties to foster their knowledge on the subject. The World Bank funded these efforts, and the Mexican-German Climate Change Alliance (GIZ) then facilitated the whole process by conducting technical studies. Together, governments, think tanks, and international organizations widened the understanding of the program and introduced interested parties to the ETS's language and technicalities.

In 2012, Mexico joined the World Bank's Partnership for Market Readiness (PMR), an association of parties interested in carbon pricing. Some of them act as fund providers and others as resource recipients. The PMR provides resources to Mexico for technical support, consulting services on technical topics, and training for both the public and private sectors. The initial focus was on developing Nationally Appropriate Mitigation Actions (NAMAs), and resources shifted towards creating the market after 2015. The PMR ends in 2020 and, if interested, Mexico must enter the Partnership for Market Implementation (PMI), starting in 2021.

In 2014, SEMARNAT launched the first tool in preparation for the market: the National Emissions Registry (RENE). This tool gathers emissions information from facilities emitting 25,000 tons of CO_{2e} or more, including sectors such as energy, transportation, and agriculture. Facilities must report emissions of carbon dioxide, methane, nitrous oxide, black carbon, and fluorinated gases, among others. RENE was the first tool implemented in preparation for the market and was in effect for over 3 years before the pilot project came into practice.

The government's links with other countries and regions with established markets began before they had any certainty about their own market. The Mexican ETS design was heavily influenced by two markets: the European ETS and the California market. First, Mexican policymakers have traditionally had strong ties to their Californian counterparts and California is a close ally of the federal government. "California has always behaved as a leader in this topic... Mexico has followed California's DNA", said one interviewee from a civil organization. "California pays attention to sectoral protocols. Rules for each sector, transparency, permanence... It is complex, but it has been carefully documented." The Mexican government also showed interest when the US drafted legislation for a national ETS, but the Waxman-Markey bill, as it is known, was never voted in by the Senate. "Officials from the Mexican Ministry of Finance were interested in being linked to US markets", mentioned a CSO executive.

“But as soon as the bill came to a halt, so did the Mexican government’s interest in the ETS.” Despite the Ministry of Finance’s decreasing salience, environmental authorities have maintained their interest.

Considerable efforts were then expended to design and implement the Mexican market. In 2014, the government signed a Memorandum of Understanding (MOU) on climate change with California, with a special section devoted to the ETS. This initiative triggered dialogues between SEMARNAT and the California Air Resources Board (CARB) and the support of think tanks, which had previously helped other governments to design their markets. “We were looking at the possibility of linking the market and actually having a North American ETS”, mentioned a former official from SEMARNAT. “The regulations in California mention that its market can be linked with others when the legal framework from its potential partner is equivalent in terms of soundness and requirements. In addition, it must have operated for three years with such regulations to be considered. Hence the importance of having a three-year pilot program in Mexico.” The Mexican regulation for the carbon market was designed according to California’s requirements.

Knowledge about Europe in general and Germany in particular came through assistance from the German government. The GIZ offered resources to analyse the entry of an ETS in topics such as carbon pricing policy mix, legal analyses, and the introduction of the market within a Mexican setting. The most recent support came through a 3-year project to assist in launching the pilot project with technical knowledge, legal and regulatory analyses, and direct support for the parties involved. A fraction of the assistance was devoted to creating and disseminating material for the Spanish-speaking audience. The Ministry of Environment worked closely with all development assistance offices in a coordinated effort. “Good communication among teams working on the topic was key to the process. The Ministry and the two assistance agencies [GIZ and PMR] shared information about their work, they closely coordinated their work ... and gathered all the elements needed for the design and implementation of the market” (interview from an international assistance office).

A highly technical and intersectoral instrument such as a carbon market requires the participation of a wide set of institutions. Ministries and regulators from sectors such as finance and energy and state-owned enterprises like the Federal Commission of Electricity (CFE) and the oil and gas company Pemex were involved in the market’s design and implementation. Up to now, only the CFE has been consistently present during the development of the new framework. Pemex was present during policy implementation, but the rotation of its personnel has been detrimental to its effectiveness. A key player, the Energy Ministry (SENER), was actively involved in past administrations. “We partnered in exploring possible implications of policies that share impacts but that differ in their origin, from the energy or environmental sectors”, mentioned a former official. Together, both ministries addressed concerns from the industry about the interaction of Clean Energy Certificates (CELs) and the market, with technical analyses provided through international assistance. This type of partnership ceased with the new administration in 2018 and has therefore been absent in the initial phase of the pilot program. Financial institutions, such as the Ministry of Finance, the National Banking and Securities Commission, and the

Mexican Central Bank, have not been consistently active. For example, the Ministry of Finance worked closely with SEMARNAT on the subject when the officer in charge had previously worked in the environmental sector, but the ties were linked to the person and not the institution and so were lost after the officer left their post.

International experience reveals that the incentives of the various market participants determine their involvement in the market. In the EU, for instance, manufacturers saw the market as a compliance tool and only traded at the last minute, while energy utilities were highly active in the market, hedging their future positions (Bailey and Maresh 2009). Brokers, financial institutions, banks, and hedge funds entered the market to speculate or offer special services. The vision of market participants in Mexico is still a missing piece. Up to now, the intention to participate is unclear and the pilot program lacks incentives for potential participants to reveal their positions.

From 1 January 2020, emissions reported at the RENE have been considered for the pilot program. Another registry where allowances are generated and firms can insert their follow-up and register compliance is still lacking (the German government has offered its support once more here). The platform needs to be operating by October 2020, when the first allowances are distributed.

These elements, plus a continuous effort by SEMARNAT officials to remove political barriers, foster dialogues, and share information, resulted in negotiations with industry representatives. Authorities had learned their lesson about possible distortions and undesired results from the carbon tax and, in this case, 2 years of conferences, dialogue, travel, and discussions resulted in a much better working relationship between government and industry.

A New Relationship with Industry

Industry's position as regards participation in the market was initially entrenched, and organized industrial groups opposed the idea throughout the initial phase. The government, with the assistance of international experts, began a long process of negotiations with capacity-building elements, Q&As with experts, studies to solve common queries about the impact on competitiveness, and interactions with the various stakeholders.

The first and most important question that arose was how "obligated" parties would actually be required to participate in the market. The law lacked clarity because it declared that a voluntary ETS was an option for SEMARNAT. A change in the law was in order, and the word voluntary was eliminated in LGCC Article 94. Congress supported SCOs and the federal government in this process, but more objections emerged from industry at the same time. When the government first decided to take the ETS route and implemented the RENE, representatives showed their disagreement and government officials invited them to discuss queries and uncertainties. "The negotiation was very open and transparent. It overcame challenges from the private

sector, and was conducive to having them on board in the project”, said a manager from an international assistance institution.

Government officials held informal meetings with private firm representatives discussing possible implications for changing the law. One of the main concerns was whether SEMARNAT had the technical capacity and resources to implement the instrument. By then, Mexico had support from PMR and was in the middle of negotiations with Germany, requesting technical assistance and support for the ETS. “Then we did not depend on the government’s budget in a period of constant budget cuts, or on how many carbon market experts our offices had”, mentioned a former public official.

A new emissions market calls for particular skills that might be unfamiliar to some firms. This may mean the creation of new profiles, hiring specialized consultants, and developing new skills. There was an uneven level of knowledge among participating firms, and thus the government, SCOs, and international assistance agencies combined their efforts to educate them about the forthcoming market. According to one interviewee from an SCO, “some firms had a clearer idea of what was coming since their subsidiaries participated in carbon markets in the EU or California. Even if they haven’t developed such competencies here, it is easier for them to import them.” On the other hand, some firms had never had any experience with such instruments. “These firms saw the market as another burden coming from the government and an increasing cost to their businesses”, said a former government employee.

The interaction that the ETS would have with other policies brought uneasiness to members of the private sector. The establishment of an ETS is part of a set of climate instruments, and its interaction with the rest of the toolkit can bring uncertainty on prices or increase the need to monitor credit veracity (Bailey and Maresh 2009). So far, the agreement is that CELs and the market work as separate entities. The use of CELs drives down emissions if they are managed well, and that is considered when defining the cap but CELs cannot be considered in participants’ allowances. “They are working with renewable energy providers; we are working with those that haven’t made technological changes yet”, declared an international expert. The carbon tax, the other existing instrument, has had a minimal effect on the market, so it could not be taken as a reference or lower bound on the market price. “We discussed having the carbon tax as the floor price for the ETS, but then [those in charge of the pilot project design] thought the floor price could be higher”, said a representative of an international development office. The lack of connection to carbon content in the tax rate means a less-expensive burden for coal than for any other fuel, and natural gas cannot be used as a benchmark reference as it is exempt.

Cooperation from industry, as in any other transaction/negotiation, involved trade-offs. Although the process advanced in the technical, political, and legal arenas, it was far from smooth. Some features of the market indicated that concessions needed to be made to keep the process going. As a result, the pilot project has no economic sanctions, and there is provision for a 5% increase over the cap, among other reserves. “In the end, the Ministry of Economy had to act as mediator in the negotiations between private sector and environmental authorities, for the last round of meetings drafting the law. They were held at the Ministry of Economy”, comments

an interviewee. “We had to make adjustments ... It seemed worthy of consideration because this is only the pilot project with a start and an end date and it will only last for three years.” The industry seems to perceive the regulation as not having had a significant impact so far. The next few years will facilitate a learning curve without risking profits, learning about trading, the implications of the registry, legal requirements, types of contracts, and financial operations.

A market without economic consequences.

The regulation for the pilot ETS entails a.

testing program with no economic effects, meaning that there won't be monetary sanctions, that initial allocation of allowances will be free of charge in a proportion equivalent to the emissions of the participants, independent of the allowances destined to the reserves.

(Art. 6, Bases Preliminares del Mercado)

Previous research in this area reveals that the industry's perspective of how an initial payment would damage its competitiveness may lead to the inclusion of grandfathering to gain its cooperation (Bailey and Maresh 2009). This is not unique to the Mexican case. Industries have convinced authorities to provide generous allocations in other countries. “The elimination of barriers from industry was a good call. There will be more negotiations to come and proper adjustments will be made”, said an interviewee from an SCO.

For Mexico, it means that fines will not be applied during the pilot phase. However, if a firm does not comply, the Ministry can apply a fine in terms of future allowances equal to the magnitude of the non-compliance. That certainly has an economic effect. “In my opinion, when the system is in place and the operational phase includes economic sanctions, resistance from industry is going to re-emerge”, declared an international advisor.

Conceptual Framework and Analysis

To structure and analyse the process of the ETS's initial design described above, I used an analytical framework developed by Capano and Lippi (2016) that integrates elements of legitimacy and instrumentality. When analysing (i) **instrumentality**, the focus is on the effectiveness and coherence of the instrument with the goal; when evaluating (ii) **legitimacy**, the choice of instrument must seem appropriate and related to values such as being just and lawful.

Proposing efficient or cost-effective regulations, or analysing their theoretical advantages, is not sufficient for their adoption. Contextual factors, institutional realities, and the ability of certain actors to interfere in the process also impact a policy's design. Looking at the literature, economists, public policy scholars, and political scientists have traditionally investigated these aspects separately. To overcome this constraint, the analytical framework adopted provides insights on both sides of the market: instrumentality and legitimacy. Policymakers focus on instrumentality when

looking at the theoretical impact of a policy, and on legitimacy when their main drive is the pursuit of a suitable choice.

An instrument can be *specialized* or *generic*. If *specialized*, the instrument is considered original, non-substitutable, and a best practice to follow. Its definition is clear according to those who choose the instrument, and those involved must consider cognitive and legal implications. The creation of symbols, codes, and languages creates a border that divides insiders from outsiders. “Mention of legal factors is a reference to specific procedures or a characteristic regulation affecting the instrument, whereby everyone can recognize it within its legal framework” (Capano and Lippi 2016, p. 280).

On the other hand, policy instruments may be *generic*, broad, and flexible, with less-coercive use, allowing an increasing number of actors, problems, and situations. Generic instruments can encompass a broad range of problems, within and outside the policy field, leaving room for interpretation and reshaping. The instrument’s regulations and technicalities are loosely defined, so many actors can converge and the tool can be applied to different situations and policy problems.

Internal legitimacy comes from insiders considering aspects rooted in the practice, legal framework, and moral background of the sector. Insiders “are the fundamental source of legitimation of the adoption of new instruments” (Capano and Lippi 2016, p. 276), and legitimacy is rooted in the values and arguments from a specific policy field, a legal framework, or a moral background of a policy sector. Such legitimacy is often taken for granted by policymakers.

An instrument faces *external* legitimacy when it comes from a different policy sector or political context but becomes fashionable and appealing. International organizations, the private sector, or other countries are often called upon to provide input in policy discussions. External legitimation can be a result of policy diffusion or transfer, with policy designers perceiving an instrument as a best practice that could work for them and deciding to transfer it to their own policy sector or environment.

Combining legitimacy and instrumentality, Table 2.1 shows that decisions about policy instruments can be classified as (i) routinization (internal and specialized), (ii) contamination (internal and generic), (iii) hybridization (external and specialized), or (iv) stratification (external and generic).

A policy instrument observes *routinization* when there is a continuous adoption of previous instruments, confirming paths and past behaviours. The instrument is perceived as clear and specific, so there is no need for new trials. Decision-makers are convinced that it is the best choice in terms of performance, or that there is no other choice available. The downside is that the instrument’s effectiveness is not tested. It is characterized by path dependence and specialization, as well as preservation of the status quo.

In *contamination*, decision-makers adopt new tools in an unspecific way, looking for a change in perception. The intention is to appear capable of dealing with previous ineffective policies. In doing so, stakeholders must adapt their preferences to the requirements of the new tool. This novelty changes the set of adopted tools, with generic new instruments that are broadly designed to cover a wider range of situations.

Table 2.1 Classification of policy instruments

Instrumentality	Legitimacy	
	Internal	External
Specialized	Routinization: adoption of the same instruments in the same way. Specialized and path-dependent, popular and uncontested	Hybridization: innovation within a policy sector with a highly specialized tool. Re-framing of the existing set with a new policy mix with more actors and situations
Generic	Contamination: adoption of new tools in an unspecific way. Actors adopt new tools in a patching-up process	Stratification: introduction of new instruments in a generic way, readily accepted in other fields. Instruments may not be enforced in practice. No real impact on policy dynamics

Source Adapted from Capano and Lippi (2016)

The term *hybridization* comes from a biological concept explaining the interbreeding of individuals from distinct populations (Capano and Lippi 2016, p. 284), and it reveals a pattern where innovation comes through the insertion of a specialized instrument. Local decision-makers innovate in order to gain external legitimacy. The resulting set of tools is a mix of policy principles, new and old, that may result in a decrease of not only congruence but also the integration of new actors and situations. It is observed in environmental policies, where civil society, corporations, and supranational actors may influence decision-makers into innovating through specific instruments.

Finally, the concept of *stratification* entails a decision to introduce a new instrument generically, juxtaposing it with existing instruments. Since it is adopted generically, it gains legitimacy through innovation and by not being a real threat to any stakeholder. However, the impact is not expected because it is adopted independently of other instruments and is not necessarily enforced.

To analyse the Mexican experience, I carried out a content analysis with publicly available information on the process and conducted semi-structured interviews with former officials, CSO representatives, and experts from international assistance offices. The interviews aimed to acknowledge the part that they and other stakeholders played in designing and shaping the market, as well as their vision of the process.

The design and implementation of the Mexican ETS support the idea that instrument selection is neither linear nor determined. A framework that bases its classification on those premises helps us understand how the carbon market was adopted in Mexico. Had Mexico improved both the design and implementation of the carbon tax, it would have followed a *routinization* process, continuing along the same path and keeping the same instruments with the firm belief that a carbon tax is the right instrument to internalize global externalities on the environment from industry. The tax embodies internal legitimacy, making sense to all policymakers involved through the internalization of the externality by means of a Pigouvian tax. At the same time,

it is meant to be specialized following what is often termed as “best practice” in the financial, economic, and environmental fields. It did not, however, follow this course.

Instead, Mexico opted to design and create a new market. SEMARNAT policy-makers took the initiative several years ago and decided to join the World Bank’s PMR. This may signal internal legitimacy. Nonetheless, their motivation was due to their links to international actors, even during the early stages of the process. California’s government and the MOU, foreign CSOs’ assistance, and the GIZ were instrumental in the decision to go ahead with the ETS. Supranational actors “placed the question on the political agenda and suggested the type of instrument to be adopted” (Capano and Lippi 2016, p. 285).

The ETS was considered best practice by local actors in charge of choosing the type of tool to implement, but it was not the obvious choice for all actors in the environmental field, not to mention other sectors. Cooperation and coordination with local CSOs resulted in approval from Congress and successful negotiations with private actors. In terms of legitimacy, the adoption of a market made sense for many.

The market’s underlying regulations, the introduction of the RENE, the missing registries, and even the basic logic of the mechanism resulted in a highly *specialized* tool. The above description of its adoption exemplifies the technical knowledge that is going to be needed for the market to work properly. It is not only a matter of goodwill and general understanding but deep immersion in a new logic that comprises financial, technical, and intersectoral requirements for all actors involved. The definition of the pilot project and the accompanying regulations and prerequisites illustrate the nature of the market.

Both conditions together make the ETS an example of a hybridization process, according to Capano and Lippi’s (2016) classification (Table 2.2). The creation of the market reflects decision-makers’ determination to innovate through external legitimation and the adoption of a clearly defined tool. A long list of technical requisites was discussed in preparation for the market, and international assistance offices actively provided guidelines, lessons, and other materials from previous experiences. The registries to operate the market were also financed through international assistance.

Nevertheless, pressure from the private sector in the last stage of the negotiations reflected an effort to generalize the tool. The lack of economic consequences during the pilot phase of the project and the introduction of additional allowances above the cap to provide flexibility compromised its effectiveness. It remains to be seen whether the authorities can encapsulate these and other attempts into the pilot phase, and then use these concessions as part of the learning curve for all actors.

The Mexican ETS’s design seems to allow more flexibility for the market to allocate emissions in the best possible way, leaving decisions about technology and operations to those that have the best knowledge and information: market participants (Isser 2016). As a market mechanism, it always allows subjects or participants certain leeway within which to choose actions to follow, since economic instruments neither prescribe nor prohibit the activities involved (Vedung 1998). As a regulation, an ETS must follow rules and directives, which may result in lower emissions and costs. The internalization of externalities will depend to a great extent on the reliability

Table 2.2 Classification of the Mexican carbon tax and ETS

Instrumentality	Legitimacy	
	Internal	External
Specialized	Routinization Carbon tax (alternative policy)	Hybridization Mexican Emissions Trading Scheme (ETS)
Generic	Contamination	Stratification

of information from RENE. The 3 years during which the system has been in place should have provided knowledge to improve its functionality.

The Mexican experience so far has some similarities with other experiences mentioned above. A regulation aligned with California's legal framework materializes the possibility of opening the market and expanding the scope of the Mexican ETS. The experiences of the RGGI and Europe, and California's linkages to Quebec and Ontario, support the hypothesis of further benefits of regional markets with similar rules adapted to their specific features.

The analyses and lessons from China as a developing country facing similar institutional challenges in this process may increase awareness of certain topics for Mexico, including market expansion and linkages. In fact, the pilot project resembles the Chinese market in the fact that, even without noticeably affecting emissions, the initial phase may change firms' behaviour and increase knowledge for its future implementation.

The negotiations with the private sector that resulted in concessions on reserves are not unique to the Mexican experience. In fact, one of the general advantages of the ETS mentioned above is the possibility of negotiating with potential opponents through the distribution of permits.

Conclusions

The development of events in recent years implies that the different agents participating in the market are satisfied with both their interaction and the road travelled. There are, however, common fears for the future of its implementation. The need for specialized personnel within the government, a continuous negotiation process with industry, the finalization of prerequisites, such as a system for tracking progress and delivering allowances, and the members of the advisory council are still missing pieces (at the time of writing). Institutional capacities are a constant challenge. When the market comes into full operation, more specialized roles will be needed within the government, both inside and outside the Ministry of Environment.

Other sectors' authorities should be incorporated into the process. A climate instrument not only involves the environmental ministry (even if the ministry is the responsible party). The financial sector, for instance, should be included in the process and start thinking about instruments and policies that should accompany the

market. The energy sector must take responsibility for climate change, and not only through Clean Energy Certificates, whose destiny is still to be determined, or energy efficiency. Authorities from the energy sector and the environmental sector should realize that the continuation of parallel policies is not enough to actually flatten the curve. Most energy decisions and policies have a direct impact on emissions. The Mexican ETS must be further analysed in terms of the policy mix, focusing on both the form of policy instruments and the context in which they are implemented, and observing interactions between policy instruments, policy strategy, implementation settings, and target groups (Mavrot et al. 2019).

The characterization of the carbon market must include economic consequences, which requires the definition of fines, a well-established and vetted monitoring and enforcement system, and willingness to participate. We must remember the fate of the carbon tax, given industry's capacity to lobby, when preparing the next phases of the market. An appropriate initial design is necessary, but it is not sufficient to achieve the final goal of the ETS: to lower the level of GHG emissions. The policy needs further analyses of the market and its interactions with other regulations and instruments, along with potential consequences for market participants. The pilot program provides this opportunity.

The initial design and now implementation of the market are closely linked to international assistance. Inputs so far have been provided from outside sources. The public budget for the program is limited and clearly insufficient to administer the market. In a subsequent phase, the Mexican government must develop its own abilities, and that involves devoting resources to this policy. This is a new topic for the country, and it must continue to be a part of its national politics and policies.

The initial phase of the Mexican ETS provides early lessons for its future implementation. The creation of a carbon market is both a political and a technical decision that involves many sectors besides the environment. In the political arena, the core of the policy must remain untouched—that is, the decision to use the market to effectively drive down GHG emissions. As a specialized instrument, multiple stakeholders within the government have to be on board for the market to deliver, learning their share of responsibilities and increasing their specific knowledge of ETS technicalities to define rules that are aligned with the stated objectives. External actors have played a substantial role in making the market a reality, at least up to the pilot program. It is time for national authorities to take the reins. A previous attempt to lower emissions through an economic instrument demonstrated that the involvement of all stakeholders (inside and outside of government) is as important as a precise definition of the objective and its technical requirements.

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