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A proposal to implement a carbon tax in Algeria: A closer look at Sweden's world-leading experience

Nabil Dahdouh
Dr Finance and Accounting Sciences
Training institution: Local Development and Entrepreneurship Laboratory in Algeria, Faculty of Economics, Business and Management Sciences– Khemis Meliana University, Khemis Meliana, Algeria
Email: Nabil.dahdouh@univ-dbkm.dz

Hacene Boubaya
Dr Commerce
Training institution: Laboratory of Economic Strategies and Policies in Algeria, Faculty of Economics, Business and Management Sciences– Msila University, Msila. Algeria
Email: Hacene.boubaya@univ-msila.dz

Abderrahmane Afeissa
Dr Finance and Accounting Sciences
Training institution: Laboratory of Economic Strategies and Policies in Algeria, Faculty of Economics, Business and Management Sciences– Msila University, Msila, Algeria
E-mail: Abderrahmane.afeissa@univ-msila.dz

***Abstract*---**The aim of this study is to provide an objective reading of the proposed implementation of a carbon tax in Algeria as a tool to reduce carbon emissions. This study explores the nature of carbon taxes, the determinants of their design, the selection of an appropriate price, the justifications for their imposition, and their economic impact on Algeria. It also examines their importance in reducing carbon emissions, which pollute the environment. Despite the positives of this type of tax, it has negative effects on economic growth and international competitiveness in the short term. The research paper, through a close examination of Sweden's experience in imposing carbon taxes on companies and households, demonstrates the impact of carbon taxes on fossil fuels used in transportation,

Corresponding author: *Dahdouh, N., Email: Nabil.dahdouh@univ-dbkm.dz*
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heating, and production processes, and the resulting reduction in carbon emissions while maintaining a strong economy.

***Keywords*---**Carbon tax, greenhouse gases, carbon pricing.

Introduction

In recent years, the world has witnessed widespread and growing interest in policy tools that put a price on greenhouse gas (GHG) emissions through the adoption of so-called carbon taxes. While Scandinavian countries adopted explicit taxes on GHG emissions in the 1990s, by 2017, carbon taxes had been adopted or were planned by 24 countries, encompassing a diverse group of developed and developing nations across five continents.

As these countries have grown, they have become more diverse, covering a wider range of sectors and adopting new features. Carbon taxes have proven to be an effective, versatile tool that can be adapted to a wide range of political and national objectives. Internationally, many major industrialized countries have shifted toward taxing carbon emissions. Sweden, among these countries, has imposed a carbon tax, which has played a role in reducing dependence on fossil fuels. The goal is to make Sweden entirely fossil fuel-free. For more than a decade, Sweden has been ranked among the top ten countries in the world-renowned Environmental Performance Index, compiled by Columbia and Yale Universities, due to its extremely clean air and water, as well as its low emissions.

At the local level, Algeria is making numerous efforts to reduce carbon emissions, which are one of the most important factors causing climate change. As part of these efforts, Algeria recently submitted three reports to the Secretariat of the United Nations Framework Convention on Climate Change, reflecting its determination to effectively contribute to reducing greenhouse gas emissions. Therefore, it is necessary to take a step towards addressing the challenges of climate change by implementing a carbon tax as one of the most important tools for enhancing resource efficiency, promoting the adoption of a green economy, and achieving environmental sustainability.

Problem of the study

The implementation of a carbon tax in Algeria raises numerous questions about its expected impacts. Therefore, a careful and ongoing evaluation of the implementation of this type of tax is required. Based on this, this study addresses the following question: **"What are the proposals for implementing a carbon tax in Algeria, based on Sweden's pioneering experience in this field?"**

2. Theoretical framework

2.1 What is the carbon tax: It is defined as “a carbon tax that explicitly sets a price on greenhouse gas emissions or uses a measure directly based on carbon (i.e., price per ton of carbon dioxide equivalent)” (Development International Bank for Reconstruction, 2019).

2.2 Emissions Theoretically : Imposing a carbon tax would reduce emissions. But the extent of this reduction depends on its elasticity, or how responsive individuals are to changes in price. If the price elasticity of emissions is high, then a carbon tax would lead to significant emissions reductions, as individuals stop polluting to avoid incurring additional financial costs. If the price elasticity of emissions is low, then polluters would often choose to bear the burden of the tax rather than change their behavior. The Energy Modeling Forum recently compiled a meta-analysis of 11 different models for four different carbon tax scenarios: a $25 carbon tax rising 1% annually; a $25 carbon tax rising 5% annually; a $50 carbon tax rising 1% annually; and a $50 carbon tax rising 5% annually.4 These scenarios represent significant reductions in carbon emissions (Analyst, May 2023).

Table 1. Emission reduction range estimates from the Energy Modeling Forum

Scenario	Emission reduction scope After 5 years	Scope of emission reduction after 15 years
25$ per ton, with a 1% annual increase	16-28 %	17-38%
50$ per ton, with a 5% annual increase	21-35%	26-47%

Source: (Alex , 2023)

2.3 The impact of carbon tax on the environment :

A carbon tax not only reduces carbon dioxide emissions, but also other pollutants emitted from burning fossil fuels, such as particulate matter (PM), sulfur oxides (SOx), and nitrogen oxides (NOx), which pose a serious challenge to human health. Reducing harmful local air pollution is an important co-benefit of a carbon tax policy. A recent study in China showed that China has the potential to reduce carbon emissions by 100% (Timilsina, 2022).

Climate change resulting from rising average temperatures is a long-term problem with global causes and consequences, including impacts on humans and ecosystems. Researchers have attempted to estimate the monetary value of future climate change damages associated with increased carbon dioxide emissions in a given year—and thus the value of the benefits of a proportionate reduction in emissions—a measure referred to as the social cost of carbon. Researchers have arrived at a wide range of values. These values are highest when researchers place significant weight on long-term outcomes and include a small possibility that climate change damage could increase sharply in the future—causing very large, or even catastrophic, losses. Delaying efforts to reduce emissions increases the risk of such losses. Given the inherent uncertainty in predicting the effects of climate change, and the potential for catastrophic effects, lawmakers may view a carbon tax as a reflection of society's willingness to pay to reduce the risk of potentially costly future damage (Elmendorf, 2013).

2.4 global carbon dioxide emissions :

Globally, carbon dioxide emissions reached their highest levels, reaching 36 billion metric tons in 2017. Emissions have been on an upward trend over the past 250 years, reaching 3 percent, with an average rate of 5 percent. The United States ranks ninth with 16 metric tons per capita, while China ranks 41st with about 7 metric tons of carbon dioxide per capita (Maria, 2020) .

Table 02. Total global emissions of greenhouse gases (Unit: gigaton)

gigatonnes of carbon dioxide equivalent	**2010-2019**	**2020**	**2021**	**2022**
Greenhouse Gases (GHG)	54.6 ± 5.55	5.36 ± 54.5	56.8 ± 5.45	57.4 ± 5.48
Land Use CO_2	4.72 ± 3.3	4.06 ± 2.84	3.94 ± 2.76	3.87 ± 2.71
Land Use CO_2 (National Inventory)*	-2.64 ± -1.85	-2.49 ± -1.74	-2.4 ± -1.68	N/A
Methane CH_4	10.1 ± 3.03	10.4 ± 3.13	10.6 ± 3.18	10.8 ± 3.23
Nitrous Oxide N_2O	2.47 ± 1.48	2.57 ± 1.54	2.63 ± 1.58	2.65 ± 1.59
Fluorine Gases (F-gases)	1.17 ± 0.351	1.46 ± 0.439	1.54 ± 0.461	1.62 ± 0.486
Fossil Carbon Dioxide Fossil CO_2	36.1 ± 2.89	35.9 ± 2.88	38.1 ± 3.05	38.5 ± 3.08

Source : (IPCC, 2021)

From Table 02, global greenhouse gas emissions increased by 1.2 percent between 2021 and 2022, reaching a new record level of 57.4 gigatonnes of carbon dioxide equivalent. The period witnessed a complete new rise in emissions across all sectors, following the decline caused by the COVID-19 pandemic, with emissions now exceeding the levels they were at in 2019. The main contributions to the overall increase in carbon dioxide emissions were from fossil fuel combustion and industrial processes, which accounted for about two-thirds of the 2024 greenhouse gas emissions. Emissions of methane (CH_4), nitrous oxide (N_2O), and fluorinated gases (F-gases) are increasing rapidly, contributing significantly to global warming, representing a quarter of emissions in 2024. In 2022, fluorinated gases rose by 5.5 percent, followed by methane by 1.8 percent, and nitrous oxide by 0.9 percent, according to early estimates.

3. Motives for imposing a carbon tax in Algeria

The primary purpose of a carbon tax is to reduce carbon emissions, however, governments may also have additional or complementary objectives while implementing these policies, such as: (United Nations, 2021):

3.1 Climate change mitigation ("green" return): Carbon taxes are a cost-effective way to incentivize the reduction of greenhouse gas emissions by encouraging individual behavior to reduce emissions through investment in green technology. Reducing carbon emissions is a key tool to combat climate change.
3.2 Generating financial returns: The latter are capable of generating huge revenues. Consequently, they can mobilize resources to support other development goals. In this regard, efficient redistribution of tax revenues can promote sustainable growth and create new jobs, often referred to as "green growth."

3.3 Investing in renewable energy: How to balance economic growth with emissions reduction is a critical political issue for both developing and industrialized countries, which are implementing public policies to support decarbonization of their economies. This means shifting from the use of fossil fuels such as coal, natural gas, or oil to carbon-free energy sources. Carbon taxes provide an incentive for technological innovation to decarbonize.

4. Proposals for implementing a carbon tax in Algeria

4.1 Greenhouse gases (GHG)

4.1.1 Greenhouse Gas (GHG) Emissions in Algeria : The greenhouse gases emitted into the atmosphere include carbon dioxide (**CO_2**), methane (CH4), nitrous oxide (N2O), sulfur hexafluoride (SF6), nitrogen trifluoride (NF3), hydrofluorocarbons (HFCs), and perfluorocarbons (PFCs). The status of these emissions in 2020 can be summarized in the following table:

Table 03. Total greenhouse gas emissions for 2020 (in kilotons of carbon dioxide equivalent)

Statement	**Co_2**	**CH_4**	**N_2O**	**HFCs**	**SF_6**	Total	%
1- Energy	156.546	22.323	803	NO	NO	179.671	81,5
1- a Combustion	148.183	287	776	NO	NO	149.246	67,7
1- b Fumes	8.362	22.035	27	NO	NO	30.427	13,8
2- Industrial Processes	10.878	6	39	1.206	36	12.166	5,5
3- Agriculture and Land Use	NE	12.434	7.142	NO	NO	19.575	8,9
4- Waste	409	7.922	801	NO	NO	9.132	4,1
Total	167.833	42.685	8.785	1.206	36	220.545	-
Percentage	76.1%	19,4%	4,0%	0,5%	0,0%	-	100%

Source : (ONS, 2023)

Table 03 indicates the total direct gas emissions from Algeria in 2020 (in kilotons of carbon dioxide equivalent), where the emissions show an amount of 220,545 kilotons of carbon dioxide equivalent in 2020, which is equivalent to 95.3% of the total emissions that represent a source of carbon dioxide emissions and two

sources of carbon dioxide emissions from the industrial processes and product use sector (PIUP), eight sources of methane emissions, two sources of methane emissions from the energy sector, and four sources of methane emissions from the agriculture sector and the waste sector.

4.1.2 Iron and steel industry : Iron and steel companies in Algeria are distributed as follows (Energy, Ministry of Environment and Renewable, 2023):

- ✓ The El Hadjar Iron and Steel Plant (Annaba), with a production capacity of up to 2 million tons per year, including 40% flat products and 60% long products.
- ✓ The Bellara Plant, Jijel Province, with a production capacity of up to 2 million tons per year, producing 1.5 tons of iron bars.
- ✓ The Tosyali Plant, Oran Province, with a production capacity of up to 1.4 million metric tons of bars.

Table 04. Production and carbon emissions data from the iron and steel industry in Algeria: current and future projections

Statement	2020	2025	2030
Iron and steel industry (in metric tons)	6	10	12
Emissions (in metric tons of Co_2)	**10,8***	16**	18**
Emissions estimates for 2020, 2025	2020 = 6 x 1.8 = 10.8 2025 = 10 x 1.6 = 16		

Source: (ONS, 2023)

Table 04 shows greenhouse gas (GHG) emission data for the iron and steel sector for the years 2015 and 2020, and emissions projections in metric tons of Co_2 for the years 2025 and 2030. The amount of atmospheric emissions in metric tons of Co_2 is determined as follows:

- ✓ Carbon dioxide emissions are estimated by factoring the annual production output with an emissions factor (1.8 tons of Co_2 per ton of steel manufactured).
- ✓ Thanks to process optimization, the emissions factor is estimated at 1.6 and 1.5 for the years 2025 and 2030.

4.1.3 Cement Sector Emissions : Cement plants in Algeria produce clinker, a major source of gas emissions (carbon dioxide (Co_2), sulfur dioxide (SOX), and nitrogen oxides (NOX). Emissions from cement plant activities in Algeria have seen a continuous increase from 1994 to 2020, due to increased demand for cement and the expansion of infrastructure projects. Eighteen cement plants have been established in Algeria, including the LafargeHolcim Algeria Group, a private group comprising four cement plants with an annual production capacity of more than 6 million tons (Energy, Ministry of Environment and Renewable, 2023).

Table 05. Co_2 emission rate in kg/t of cement

Years	2016	2017	2018	2019	2020
Co_2 kg/ton of cement	515	513	531	537	535

Source : (Algeria, Group LafargeHolcim, 2025)

Table 05 shows the Co_2 emission rate in kg/ton of cement containing high percentages of clinker (CEM I 52.5), which led to an increase in the gas emission rate from the period 2016 to 2020, emitted from clinker, as a source of greenhouse gas emissions.

4.2 The Economic Impacts of a Carbon Tax

To examine the implications of implementing carbon tax mechanisms, previous applied studies conducted in leading countries in this field, such as Sweden, Finland, Norway, and Denmark, are used as guidance. The economic impacts of a carbon tax are (Kamel , 2018):

4.2.1 Positive impacts: The positive impact and economic efficiency of a carbon tax are evident in rationalizing energy consumption and protecting ecosystems in the long term. It acts as an incentive to shift toward renewable energy, while negatively impacting demand in the short term.

4.2.2 Negative Impacts: Concerns about the potential negative impacts of environmental taxes on key macroeconomic variables, such as GDP or employment, have been expressed in theoretical and political debates from the outset, making governments reluctant to implement environmental taxes. A theoretical response to these concerns has been the formulation of the double dividend hypothesis, which states that environmental tax revenues can be recycled by reducing other taxes (such as labor taxes) after assessing the economic impact of the taxes.

4.3 Carbon tax design parameters and steps

4.3.1 Carbon tax design features (Litman, 2010)**:**

- ✓ Broad coverage: The tax applies to all fossil fuels, based on their carbon content.
- ✓ Progressive implementation: The tax increases gradually and predictably so that consumers and businesses can take higher future energy costs into account when making long-term decisions.
- ✓ Revenue neutrality: The revenue generated by the tax is returned to individuals and businesses through a reduction in other taxes.
- ✓ Protection of low-income households: Tax credits and reductions are designed to assist low-income households and other disadvantaged groups.

4.3.2 Carbon Tax Design Steps : The carbon tax design steps refer to the specific fuels, sectors, and entities responsible for paying the carbon tax. Determining the tax base is among the first and most critical decisions to be made in designing a carbon tax. The five steps for designing a carbon tax are (Conway, 2017):

Table 06. Carbon Tax Design Steps

Determine the tax base	**Determine the tax rate**	**Address potential undesirable effects**	**Determine the use of revenue**	**Ensure control and compliance**
- Select the sectors you want to cover	-Determine the basis for setting the	-Assess the risk that the tax will lead to	-Calculate expected revenues	- Map out the roles and functions

Determine the tax base	Determine the tax rate	Address potential undesirable effects	Determine the use of revenue	Ensure control and compliance
- Select the gases you want to cover - Select the regulation points - Select the entities to be regulated and set boundaries (if necessary).	tax rate. - Determine how the rate will evolve over time. -Consider using modeling to predict the effects of different tax rates.	carbon leakage or negative distributional effects. - Consider the costs and benefits of taking measures to mitigate the risks. - Consider the costs and benefits of different measures.	from a carbon tax - Determine whether to redistribute revenues, cut income taxes, increase spending, or do all three	required for tax administration. - Determine whether these roles and functions can be performed with existing capabilities or whether new roles are required.

Source : Prepared by the researcher based on information provided by Lafarge Holcim Company.

5. Mechanisms for measuring the effectiveness of carbon tax implementation

The primary purpose of carbon taxes is to reduce greenhouse gas emissions. Most current policies do not provide any specific processes or requirements to evaluate the policy's effectiveness in reducing emissions, although some have attempted to evaluate its effects. The effectiveness of implementing a carbon tax lies in (Jenny Sumner, 2009):

5.1 Evaluating the Emissions Benefits of a Carbon Tax: Studying the effects of a carbon tax alone on greenhouse gas emissions would provide a more accurate estimate of the policy's effectiveness. Many governments are modeling the effects of a carbon tax operating alone during the tax's implementation phase. In the United Kingdom, a 2005 modeling study by Cambridge Econometrics found that a climate change tax would reduce energy demand by approximately 15% in the commercial and public sectors.

5.2 Benefits of Programs Funded by Carbon Tax Revenues : Estimating the impacts of individual programs funded by the tax may be easier than estimating the impacts of the tax itself, as most programs target specific, measurable reductions. It is possible to calculate the cost per metric ton of carbon dioxide equivalent emissions over the project's lifetime. This metric has been used to find that energy efficiency programs provide cost-effectiveness.

5.3 Program Evaluation and Carbon Tax Level Adjustments : Linking the carbon tax level to the achievement of emissions targets underscores the need to accurately track and assess emissions. Ideally, the methodology for measuring

emissions should be clearly defined before the tax is implemented. Algeria is a signatory to the United Nations Framework Convention on Climate Change.

6. Swedish carbon tax

6.1 Historical Background : In 1896, Swedish scientist Svante Arrhenius was the first to calculate how increases in atmospheric carbon dioxide could raise the Earth's temperature through the greenhouse effect. A century later, Sweden was one of the first countries to adopt a carbon tax, implementing it in 1991, just one year after Finland.

Sweden has a long history of taxing energy products. This tradition, coupled with its energy tax infrastructure, may have facilitated the implementation of a carbon tax in Sweden. Gasoline has been taxed since 1924, diesel since 1937, and coal, oil, and electricity for heating purposes have been taxed since the 1950s. The tax imposed on all these energy products is a single tax, known as the "energy tax." When implemented, this tax was not considered an environmental measure, but rather a financial tool used to increase tax revenue (Samuel Jonsson, 2020).

In 1991, Sweden implemented a carbon tax of approximately US$33 per ton of carbon dioxide. As part of a fiscal reform that reduced high income tax rates, the carbon tax has since increased to over $135 per ton of carbon dioxide by 2009. At the same time, Sweden reduced energy tax on many sources that bear the carbon tax, and the primary metal industries received an exemption from the carbon tax. In addition, industries covered by the European Emissions Trading Union were exempt from the carbon tax. In 2019, the Swedish government was able to collect around SEK 22 billion thanks to the carbon tax, a figure that represents 1% of the country's total tax revenue (Joseph E. Aldy, 2012).

6.2 Carbon Pricing in Sweden : Carbon pricing is an efficient fiscal and economic policy that mobilizes revenue through a progressive tax on carbon dioxide (Co_2) or through a carbon market with a declining cap on emissions that is easier to operate and harder to evade than other taxes. It is a suitable tool for all countries at all income levels, provided that the revenues are used to benefit the poor affected by price changes, by reducing differential taxes on labor and capital, and investing in a low-carbon future (World Bank Group, 2015).

Sweden's greenhouse gas emissions consist primarily of carbon dioxide emissions from energy use (76%). In 2021, these emissions were priced through fuel consumption taxes, carbon taxes, and the European Union Emissions Trading System (EU ETS). Sweden set a price for approximately 87% of its carbon emissions from energy use, and approximately 57% were priced at an ECR above €60 per ton of Co_2. Emissions priced at this level originated primarily from the transportation sector. Land, buildings, agriculture, fisheries, and industry. The majority of unpriced emissions from energy use were from the industrial sector. The EU emissions trading system covered about 20% of other greenhouse gas emissions, which accounted for about 24% of national emissions (OECD, 2023).

6.3 The evolution of carbon taxes in Sweden : The stages of the evolution of carbon taxes in Sweden are represented by (Sweden’s carbon tax, 2024):

- ✓ The carbon tax was introduced in 1991 at a rate equivalent to 250 Swedish kronor (€25) per ton of fossil carbon dioxide emitted.
- ✓ It was gradually increased to 1,330 Swedish kronor (€122) in 2023 (converted at an exchange rate of 10.87 Swedish kronor per euro). By increasing the tax level gradually and in stages, households and businesses were given time to adjust, improving the political feasibility of the tax increases.
- ✓ A historically lower tax rate was applied to industry outside the European Union Emissions Trading System (EU ETS).
- ✓ While the industry covered by the system is completely exempt from the carbon tax, as of 2018, the industry rate outside the EU ETS is the same as the general rate.

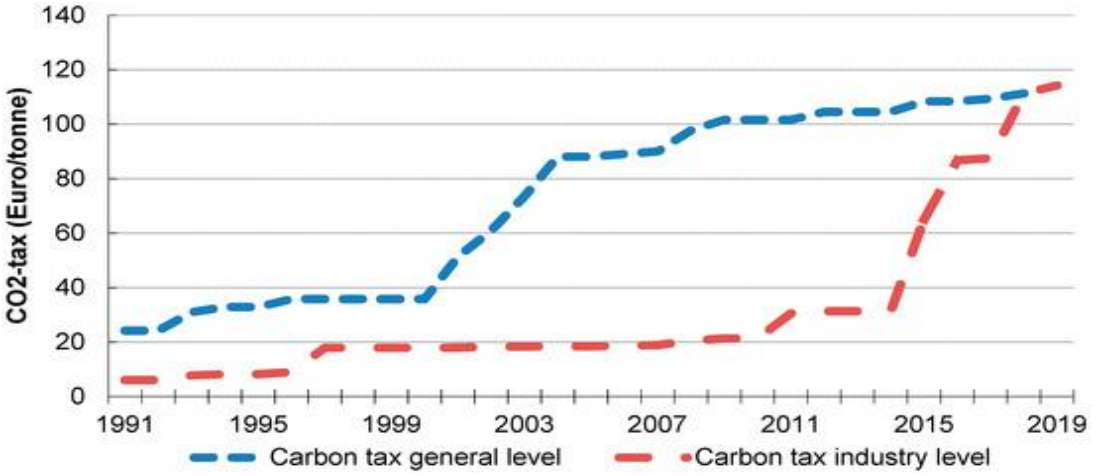

Figure 1. Evolution of the Swedish Co_2 tax for different areas of use
Source : (Sweden, 2024)

From Figure 03, we find that fuel used in vehicles is taxed according to the level of the general carbon dioxide tax. The sharp increase in the carbon dioxide tax between 2000 and 2004 was partly determined by the reduction in the energy tax on fuel used in vehicles. The proportion of the carbon dioxide tax to the total fuel tax (energy tax and carbon dioxide tax) increased significantly. In 2009, Sweden adopted a number of climate and energy tax changes, which were implemented in phases over the period 2010-2015. The aim was to increase the transparency and efficiency of taxes.

6.4 The carbon tax is part of a broader fiscal reform : Additional cuts in labor taxes have reduced the state budget by approximately €9 billion (US$10 billion), while increases in environmental taxes have generated approximately €0.5 billion (US$0.6 billion) in public revenue. The carbon tax has played an important role in mitigating emissions in Sweden, while successive tax reforms have stimulated additional economic growth. Sweden's greenhouse gas emissions fell by 25 percent between 1990 and 2016, while GDP increased by 75 percent (International World Bank Group, 2019).

6.5 The Effectiveness of Carbon Tax Implementation (Lessons Learned) : Sweden's carbon tax has been the dominant instrument of Swedish climate policy

since 1991. It imposes taxes on energy emissions in transport, buildings (heating), industry, and agriculture, making it one of the oldest and most powerful carbon price signals with the largest sectoral coverage in the world (currently at around €120/t Co_2 e). The Swedish government has also introduced a voluntary international system for exchanging so-called "green certificates," or the Renewable Energy Certificate System, which increases the proportion of electricity produced from renewable energy sources. This is increased by paying a tax proportional to a certaine portion of the electricity consumed during the first year, Consumers are required to purchase 7.4 percent of the electricity generated from renewable energy sources (Johannes Ackva, 2018).

The Swedish experience in implementing a carbon tax has provided many lessons, including (Ihab , 2024):

- ✓ Environmental awareness: One of the most important factors in the success of carbon tax implementation is raising awareness of the negative impacts of emissions.
- ✓ Gradualism and balance: The Swedish experience indicates that the successful implementation of a carbon tax requires a gradual and balanced approach for businesses and society.
- ✓ International cooperation: The Swedish experience has emphasized the importance of international cooperation in influencing the effectiveness of a carbon tax, which enhances the chances of its successful implementation and achieving positive change at the international level.
- ✓ Enhancing transparency: Implementing a carbon tax requires a commitment to transparency to maintain the trust of individuals and businesses and enhance policy commitment. Therefore, governments must publish accurate and reliable information about the tax's financial returns and how the proceeds are used.
- ✓ Directing tax revenues: To promote adoption of a carbon tax, its revenues must be directed effectively towards environmental sustainability, such as developing renewable energy sources or improving transportation, allowing individuals to benefit from its revenues.
- ✓ The table below shows the effectiveness of the carbon tax on total emissions, distributed across economic sectors.

Table 07. Impact of carbon tax on total Co_2 emissions in Sweden (unit: million Swedish kronor)

Years	Carbon Taxes C02	Total CO2 Emissions	Percentage of GDP
2018	22983	52,15	2,03
2019	22167	50,81	2,00
2020	20388	46,29	1,98
2021	21921	45, 34	1,93
2022	21229	45,43	1 ,66

Source: Prepared by the researchers based on: (Tax, 2025)

Table No. 07 shows the impact of carbon tax on total Co_2 emissions in Sweden distributed according to the economic sectors in Sweden, where the treatment of carbon emissions led to approximately 55 million Swedish kronor/ton annually. This is due to the adoption of green technology by Swedish companies, as Sweden

registered the largest percentage of patents. Sweden was also able to reduce carbon emissions, while maintaining the growth of the gross domestic product.

Conclusion

Carbon taxes are a market-based policy tool aimed at reducing energy-related carbon dioxide emissions from fossil fuel use. They tax fossil fuels based on their carbon content, thereby setting a price for carbon dioxide pollution. This approach is consistent with the "polluter pays" principle, offering the potential for cost-effective environmental benefits.

From the above, a set of results can be concluded, which we mention below:

- ✓ Implementing a carbon tax is a tool to combat polluting emissions. However, Algeria faces an additional challenge: large sectors of the economy are likely unregulated, making carbon tax implementation difficult. This supports our study's hypothesis.
- ✓ Carbon tax impacts the poor more than the upper income brackets, and the government must provide fair compensation to individuals harmed by these policies by directing tax revenues to lower-income households.
- ✓ Sweden has achieved encouraging results with its carbon tax, making it one of the Scandinavian countries most successful in reducing carbon emissions despite experiencing a period of economic growth. This demonstrates that its taxation has contributed to reducing emissions without hindering economic growth.

Through the results obtained, a set of suggestions were developed which we mention below:

- ✓ The gradual implementation of carbon taxes, given their potential economic impacts, should be implemented gradually, allowing businesses and individuals to adapt to mitigate their negative impacts. The tax should be reinvested in renewable energy projects and distributed to low-income households. For example, the British Columbia carbon-neutral tax was created to effectively combine carbon pricing with tax relief.
- ✓ Collaborate with leading countries in carbon tax implementation. Carbon emissions are a global issue that requires international cooperation. Policymakers should adopt approaches to implementing a carbon tax that can help reduce the risk of carbon leakage.
- ✓ Currently, it is not necessary to implement a carbon tax in Algeria, given the circumstances of the Algerian economy and society. The implementation of carbon tax mechanisms can be postponed until economic conditions improve and research and studies on carbon tax implementation are completed.

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