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Global Warming, Elites and Energy in Latin America: The Chilean Case

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Abstract: Adaptation and mitigation measures and changes in production and consumption patterns are necessary to face the risks of the impacts of global warming. They imply large investments the costs of which companies and governments, in charge of elites are not always willing to endure. Changes in elites have a direct impact on public policy and environmental governance of societies. Are the new elites willing to change traditional patterns of energy consumption if the change could threaten investment and economic growth? Based on empirical research this paper analyzes the role of elites in a developing Latin American country (the Chilean case) in decisions adopted about the explanations of climate change and specially on the set of measures for adaptation and/or mitigation, focusing on the energy sector of the economy, one of the key sectors directly implied with the possibilities of reducing greenhouse gases emissions.

Key words: Global warming, elites, energy, climate change, sustainable development, environmental governance.

1. Introduction

Global warming is affecting biodiversity and life forms on the planet and has clear economic and social consequences. The risk and vulnerability in an unequal world increases, and proposes to help mitigate the impact of these changes urges. Adaptation and mitigation measures and changes in production and consumption patterns are necessary. They imply large investments the costs of which companies and governments in charge of elites are not always willing to endure.

This paper analyzes the role of elites in a developing Latin American country (the Chilean case in particular) in decisions adopted about the explanations of climate change (CC) and specially on the set of measures for adaptation and/or mitigation, focusing on the energy sector of the economy, a key element directly implied with the possibilities of reducing the greenhouse gases (GHG) emissions.

1.1 Debate on Global Warming and Climate Change Scientific Knowledge

The global network of scientists and research centers worldwide, with support of many governments, has generated a clear consensus on the conclusions of the IPCC [1] that CC is anthropogenic [2]. But such a conclusion is uncomfortable for both the highly industrialized countries (U.S., Europe and Japan), the new emerging powers (China, India, Brazil) as well as multinational industries related to production and consumption of carbon based energy, as multinational oil companies and automobile industries. On the other side the general accepted argument by environmental movements as well as Third World countries is that the highly industrialized countries must “pay the debt” by the so-called carbon footprints assuming that changes in climate are the result of years of pollution generated by the industrial mode of production with the use of conventional energy patterns.

The position of the elites in peripheral developing

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countries will be precisely determined by the fact that these countries do not feel responsible for the global environmental problems given the fact that the industrial production has been led by the industrialized West. The needs to promote economic growth within a highly competitive globalization world makes emerging countries (Brazil, Argentina, Chile) and other developing countries in Latin America view mitigation and adaptation measures to CC as less urgent. The implementation of them could eventually slow their economies towards growth. All this is particularly evident in terms of investment decisions in the energy sector in which the priorities are for power supply based mainly on coal-fired power plants over other alternatives such as biomass and clean renewable energy.

The battle for legitimacy of the scientific knowledge of CC is more evident in industrialized countries and mainly in the USA. "Powerful industries affected by proposed climate crisis solutions have used all the political tools at their disposal in opposition" [3]. This opposition includes media campaigns, lobbying and generating pseudo scientific theories denying the scientific consensus.

Despite the clarity of the conclusions of scientific knowledge the subject has turned controversial. The deniers seek to delegitimize the analysis of the scientists and tend to question the need for reduction measures of emission of GHGs. The controversy involves the power struggles within the ruling elite so that while there are interest groups that support the scientific discourse of the IPCC, others try to interfere with the dissemination of findings. Independent investigations have concluded that for the case of several U.S. government agencies they have not interfered with the conclusions of scientists but have hampered heavy public dissemination. They have partially censored analysis and conclusions, or diminished the mandatory nature of the impacts of CC [4].

Gore [5] in his famous report "An Inconvenient Truth" states that since 1989 several representatives in Congress have set the issue of CC but not in proper terms for a change of attitude of the Congress. In his book, Choice et al [3] proposes a set of suggestions to solve the urgent climate crisis. Conservatives oppose dealing with the challenge of CC as referred to as a covert form of bringing about change and engaging state interventionism. The scientific discourse is discredited as a way to disorient business and civic elites. A study on increasing public awareness of global warming in U.S. says: "Consciousness does not necessarily imply acceptance, though polls indicate that more than half of Americans believe climate change as real, there is still uncertainty widespread public about the extent to which human activities are involved, and how much CO_2 emissions should be reduced" [6].

1.2 The Need to Implement Serious Changes

We are facing serious limits to growth of the capitalist economy based on "business as usual" and found on conventional carbon energy. According to estimates by the International Energy Agency [7], coal demand will grow between 2007 and 2030 by 53% and natural gas demand will grow by 42%. As global demand for electricity will grow by 76% between 2007 and 2030, it is estimated that demand will be mainly met by burning fossil fuels. Without a change in energy policy, the world is on track to global temperature increase up to 6 ° C, with catastrophic consequences for our climate.

For these reasons, the chief economist of the International Energy Agency said in November 2009 in Rome that "assuming climate change and increase energy security requires a massive decarbonization of the energy system. To limit the temperature rise of 2 ºC, it requires a huge reduction in emissions in all regions" [8].

The reduction of GHGs emissions involves several changes in the mode of production, services and transport. Changes imply large investments and costs

for companies and governments, so they are often not willing to endure.

A change towards a free carbon footprints economy involves assessing investment in long terms. On the contrary local business in a developing capitalist economy tends to maximize profits in the short term. A short-term logic of business local elites together with political elites (caught in democratic societies by the logic imposed by the political cycle of elections and electoral interests) make them lose sight of long term considerations.

Latin America, although with a minor role in the generation of global GHGs, due to its lower participation in power generation by burning fossil fuels, however, is also called to revise its forms and modes of production in general, and power generation in particular, which involves considerations that cannot stay in short terms. In terms of generation of emissions by the use of fossil fuels, Latin America (included Chile) face two major challenges according to ECLAC [9]: (i) address the challenge of energy efficiency, facing the economic and population growth in the coming decades and (ii) "pointing for a competitive position in a new global low-carbon economic paradigm" [10].

Faced with the urgency of global warming, there are a set of measures and alternatives that have been tested in various industrialized and developing countries. But the measures so far seem to be ineffective in countering the real and increasing emission of CO_2. The United Nations Environment Programme [11] supports the need to advance a "green economy" that is to advance to a "green industrial revolution". This is a plan that encourages a new generation of assets such as ecosystems and renewable energy, products and services derived from biodiversity, green jobs, new technologies for handling chemicals and waste, climate change mitigation and "Green Cities" (buildings, structures and transportation systems safe for the environment).

The effort of companies seeking to be socially responsible is focused on mitigating of GHG emissions, adapting to changing weather conditions and applying existing and innovative technology to improve energy efficiency. But still the main trend of public and private companies in Latin America is to promote changes, including green jobs, as a marginal solution.

Employment is one of the main challenges facing the needed changes. Green jobs proposed by the International Labor Organization [12] aims to prevent unemployment. Promotion of green jobs has the advantage that achieves the goal of employment; it also fulfills the purpose of promoting sustainable development.

A major difficulty to agree on effective measures that address deep global warming, which may affect the slow progress of green economy and jobs, is that as the economy is mainly supplied by fossil fuel, changing all the mode of production will undermine the goals that the current capitalist economy favors: the profitability of business and economic growth.

1.3 New Elites and the Environment in Latin America and Chile

The BP oil spill in the Gulf of Mexico, in 2010, one of the most serious pollution phenomena known to date, has relocated once again in world public opinion the problematic links between multinational energy interests and environmental risks. This case has shown the importance of elites as a relevant social group in negotiation between business interests, state institutions and society.

The growing relationship between the political field and the market (based on global economic transformations in Latin America and the world) has restructured economic and political elites that circle the exercise of power in the state. Currently the operation of the state apparatus is based on new forms of elites relationships, these elites being understood as those groups that "have the command of the major hierarchies and organizations of modern society: rule

big business, govern the state machinery and demand prerogatives, direct the military organization, occupy the helm of the social structure ... ”[13].

For Van Dijk [14] the power of the elite can be defined in terms of the type or amount of control that they have on the actions and minds of others. According to this author business corporations occupy a prominent place in studies of elites, whether it is owners and managers, corporate elites are taking an increasing economic and financial power, manifested in the political, social and cultural arena.

In Latin America the historically dependent development models based on the exploitation of natural resources or substituting industrialization were implemented by elite groups that dominated the state. Democratic transitions and the neo-liberal turn of the 1980’s and 1990’s brought new studies that considered new political, technocrats and business elites as the agents of change in the established order [15]. These changes in elites have an impact on public policy making and governance of corporations [16].

In fact Neo-liberal policies of the 1980’s and 1990’s brought new groups to political and economic power. The power of these groups goes beyond the economic sphere [17]. Indeed they have a vision of the country and themselves, and of the social relationships in various areas of society. These new business elites show some sensitivity for the environment, more for reasons of competitiveness and of exports to developed countries than anything else, but its policies toward the environment tend to focus on the free market, defense of private initiative and ownership and non-state intervention [18]. These new business and political elites currently in power in many Latin American countries have pledged to innovate in environmental policies, but there have been no fundamental changes in the mode of production and move towards a “sustainable and green” economy, except environmental legislation and certain norms on investment in regulatory terms.

The remaining question is: To what extent the new elites, which are strategic actors, are truly imbued with an awareness of CC and their alternative energy solutions point to a real reduction of GHGs and to production of energy with less carbon footprint?

2. Methods and Data

This work builds on sociological research we are currently doing in Chile about the elites and their attitudes towards climate change. We consider the social and political context of the debate on CC and the issue of the new elites and their attitudes toward the environment in Latin America and Chile. Conclusions are drawn from the analysis of secondary sources about the recent evolution of official policies towards the environment in Chile and from the output of recent surveys and qualitative and quantitative data from Chile and elsewhere. Two surveys conducted by us in 2009 and 2010 in particular are analyzed in the next section of this paper.

Pollution in Chile has been the most discussed by the media and opinion polls, but CC has attracted attention only in recent years. There have long been public surveys about pollution and environment civic awareness [19]. Regarding CC, the Institute of Political Ecology conducted a survey in five districts of Santiago de Chile, in 2008 (January). In this survey a majority of Santiago residents, 97% recognized the importance of the problem, 94% is aware that its effects are “serious” and 97% calls for “urgent measures” to cope with the consequences. However, they do little at home and in daily life to mitigate global warming, for example, 32.9% uses their car for transportation, 30% uses public transportation and only 1.4% uses the bike.

The results of our research on science and technology within university students of 2006-2007 indicate a change in the collective representations to nature. Rapid development of S & T beyond its formidable achievements has triggered ecological problems [20] and impact on university students. Faced with the question: should human beings to dominate or coexist with nature? 86% of them are favorable to

coexist in harmony with nature, leaving the premise of the Enlightment that progress is the result of the better exploitation (via technology) of nature [21].

In the end of 2010 we conducted a random sample of undergraduate students of all the top and main universities in the country representing 60% of the universe of all university students in the Country. N = 1318. In this survey 94.5% said that human beings should seek to coexist with nature and only 5.5% prefer the option that humans should "dominate nature".

In 2008 we surveyed secondary and university students (representing five regions of the Country) and 87% of them claim that global warming is caused by GHGs and that they increase with the burning of fossil fuels. It appears that the level of information has declined over the years since the 2010 survey on undergraduate students in the country. Only 71.2% agree with the statement on global warming and 20.8% declared "not knowing ".

For the general population in 2006, 75% of Chileans surveyed by the WVE (World Value Survey) [22] thought that global warming is a "very serious" problem and another 22% consider it serious. In the survey of university students in 2010, 81.4% declared the global warming issue as "very serious" and 16.9% "serious".

Chileans do not differ largely from a general trend among Latin Americans, according to the WVS (2006) that Argentines were more concerned (84%), Mexican and Uruguayan slightly lower (69%) and Brazilians lower (61%). The weird thing is that this trend is in contrast with countries like Germany where the authorities and elites have taken a series of environmental measures for several decades, and 49% of its citizens say that the issue of global warming is "very serious".

This difference of public opinion in central industrialized and developing peripheral countries seems to correspond to the relative position in the global system and the respective impact of CC in the production and energy system and economic and social issues.

We read in a recent multi-country poll of the World Bank [23]: "The publics in most countries believed that scientists agree that climate change is an urgent problem which is understood well enough that action should be taken. Substantial majorities had this view in low-income countries, while majorities did not perceive this scientific consensus in Russia, the US, and Japan".

On the other hand, Chilean citizens, a trend shared with citizens of other countries in Latin America, say in a 68% that they prefer to prioritize the environmental protection over economic growth increase in the country. And even 57% state that they are willing to sacrifice part of their income to support environmental measures.

"Majorities in 14 countries were willing to pay between 1.0% and 0.5% of GDP per capita in higher prices resulting from steps taken against climate change. In nearly all countries, majorities supported key national steps to deal with climate change, even when the steps were described only in terms of costs, not benefits" [23].

About business elites we are carrying out an in-depth research. As a first step towards this social group and its representations of the CC and the global warming we conducted a preliminary survey to those attending the Seminar "Energy and Environment: A difficult equation for Latin America" held at the Institute for Advanced Studies in October 2009. Responses were from 70 people mostly consultants and professionals: 19 businessmen (mainly SMEs), 16 consultants, 16 students, 13 academics and 13 professional employees. The vast majority related to professions or occupations that are related to energy and/or the environment. The bias of this sample must be assed from a qualitative perspective. All of the interviewed are people who have an interest in the subject, they are in frequent contact with institutions and companies which carry out processes and/or projects related to energy. They

are in methodological terms “qualified informants” of common businessmen practices.

In an exploration on what can be called “elites of the future”, in the abovementioned university undergraduate students survey (2010) we have divided a sample of normal or common career students and another sample of top career students (ie occupations with social “distinction and prestige”, with a great cultural capital in Bourdieu’s terms) as lawyers, industrial engineers, business administrators and doctors who are the main occupations from where business and political elites are recruited in the country. The main results are analyzed in the next section of this paper.

3. Results

3.1 Recent Sociopolitical Setting: Growing Environmental Concern in Chile

For several years in Chile as in many Latin American countries the environmental issue is of public concern. Foremost the environmental damage was accepted as a necessary evil but in the middle of the 1980’s environmental problems worsened and the state should play a more active role. The Basic Law for the Environment was approved in 1994. In November 2009 after long negotiations an agreement was reached to co-laws between the executive and legislative branches creating a new institutional framework to regulate environmental protection in Chile, and among others, created the new Ministry of Environment.

The CC in Chile Report of the Sustainable Development Council (a Presidential Advisory Council) posed in 2008 that mitigation and adaptation measures should be taken. But this report was not conducive to a decisive shift in the energy production. It promoted the search for energy efficiency and diversification of its matrix. Non conventional renewable energy systems, such as solar, wind, tidal, biomass and geothermal were mentioned but subordinated to the need of the country: first, to generate more energy to meet development needs and, second, to achieve greater energy autonomy. Therefore, the aim of reducing carbon emissions, challenge of CC, is secondary and is diluted in a host of other priorities.

For its part, in the same strategic logic, the National Energy Commission in its 2008 report favors the goal of supplying energy in order to encourage growth needs and investments ensuring competitiveness.

Currently in the context of a right wing government, whose president, however, is at least in his discourse in favor of non-conventional renewable energies, there has been a whole controversy over the increase in new investments in coal based thermoelectric power plants.

In August 2010 the President Piñera decided to stop the project “Barrancones”. The Thermoelectric Power Plant of 540 MW was 25 km from the Nature Sanctuary “Punta de Choros”, currently hosting 85% of Humboldt penguins in the world. The citizen and environmentalist mobilization and pressures, mostly by social networks were of such magnitude that the Government had to yield. However, the project continues and the company Suez Energy must find a new location for the installation of the coal power plant.

A citizen posted on Twitter: “Chileans should be proud you fold the hand to the Government ... that is the way to defend our environment ..... No doubt that alternative energy sources like solar and wind energy are more expensive investment but in the long run they are cheaper because they are cleaner...”.

The bottom line, as is evident, is not whether a polluting plant is located near a nature sanctuary but the mode of energy production, with more or less carbon footprints. For the authorities economic growth is a priority therefore it is needed to favor investments to increase energy sources, whether clean or not for citizenship the aim is to advance real change towards a green economy based on renewable energy sources.

3.2 Empirical Data from Surveys

3.2.1 Chilean Professional and Consultants Elites and CC

The survey we carried on with a qualitative sample of SME businessmen, consultants, students, academics and employees related to professions or occupations linked to energy and/or the environment sectors, professional and consultants that form a "qualified informants" sample evidence both awareness of the problem of CC and give us information about common business practices.

Some 91% say that global warming is caused by GHGs being generated primarily by burning fossil fuels. 81.4% considered that the problem of global warming is "very serious".

In terms of priority options for the country, 43% choose to "protect the environment"; 17% choose to "generate economic growth and jobs" and 27% would prefer "both" alternatives at a time. Words are clear to a group that is involved in business but has mostly environmental awareness.

Regarding their views of the reaction of the businessmen and institutions in face of the crisis of CC, we can say that there is a significant percentage (40%) claiming that the business elite in Chile has taken measures or will take them, but a third is critical.

In fact, 10% said that the companies have recently significantly increased actions towards sustainability, 30% stated that they will increase the sustainability actions. However, another 30% believe that there have been no changes at all, while the 3.3%, say that actions towards sustainability "have failed" and 26.7% say that they have no comments because of lack of information.

Therefore, there is an account of a critical discourse that marks the deficiencies of businessmen and senior executives of the institutions in their responses to the challenges of the CC and sustainability.

Finally, there is a clear awareness that businessmen should take the environmental issue. 93% said that the concept of "corporate social responsibility" must consider the environment.

We note that we are here discussing the views of an elite group of advisors and consultants, not strategic actors themselves but influential on them. This group plays the role of mediator between strategic elites (businessmen or politicians) and the world of science and knowledge (Research, Development and Innovation).

According to the issues raised by Van Dijk [14] although elites normally represent the upper ranks of the institutions or organizations, some as famous writers and movie stars can exert their influence through power resources, such as prestige, respect and admiration. In this case it is otherwise made up of elite scientists and professional elites, usually consultants of private or government enterprises often grouped in Think Tanks, or simply in small agencies or consulting firms. This is certainly a group of no less importance in the social construction of knowledge and the performative discourses of the elites and ultimately on the definition of public policy.

In relation to alternative energies, this elite group strongly prefers measures that aim to reduce the burning of carbon and promote non conventional renewable energies. A 60% of them "strongly agree" with the statement "the burning of fossil fuels must be drastically reduced" and 30% said they "agree". Only 7% disagree.

In relation to renewable energies the preferences go to wind energy with 69.7% followed by solar energy (64.3%) and tidal energy (43.5%). The preferences for geothermal energy are 36.9%, biomass 36.2% and finally there is the alternative of nuclear energy (20%).

3.2.2 "Future Elites" and CC

Exploring what can be called "future elites", in the undergraduate students survey (2010) we have mentioned there is a different pattern of responses coming from the common career students sample and the top career students sample these represent of future elites.

The results on CC indicate that the top career students are relatively less inclined to accept the anthropogenic explanation of CC than their peers. Table 1 shows however that this trend is slight and not statistically significant.

On the CC and its causes originating in the burning of fossil fuels top career students have relatively less information than their peers (see Table 2). Here also the differences are slight and not statistically significant.

On global representations of the relationship between man and nature elite students tend to a less favorable vision for the coexistence of both and slightly more towards the idea of "dominating nature" (see Table 3). Here also the differences are slight, but the statistical significance of the Chi-square and contingency coefficient are relevant.

Finally, compared to the alternatives of creating programs and incentives for entrepreneurs to invest in mitigation or adaptation to CC (see Table 4) top career students are more inclined than their peers in common careers.

As shown the evidence is statistically significant.

These data about the future elites can be interpreted coarsely as there is only a slight difference between students from top careers and their peers of other careers. Notwithstanding, the elite student group shows a position with less knowledge about the causes of CC; a classical view about the need to exploit natural resources (regardless of ecosystems and environmental balance) and a more favorable position on measures for encouraging profitable investments for companies to assure mitigation and adaptation to CC. Yet the great majority is in favor of changes and supports measures to address the CC (see Table 5).

Table 1 Main cause of global warming. Q: You believe that the main cause of global warming of the earth in the last hundred and fifty years is? (Outputs in percentages) N = 1318.

Type of university student	A. Man's own activity	B. Long natural climate cycles	A combination of A and B	Do not know	Total %
Top careers	43.7	4.8	50.5	1.0	100
Common careers	46.9	4.0	47.1	2.0	100
Mean	46.1	4.2	47.9	1.8	100

Chi-square = 2.915; df =3; P value = 0.4048; C = 0.0472.

Table 2 Knowledge of causes of global warming. Q: Global warming is caused mainly by the effect of GHGs from burning fossil fuels? (Outputs in percentages) N = 1318.

Type of university student	Yes	No	Do not know	Total %
Top careers	69.1	9.3	21.5	100
Common careers	71.9	7.5	20.6	100
Mean	71.2	7.9	20.8	100

Chi-square = 1.325; df =2; P value = 0.5153; C = 0.0319.

Table 3 Representation of relationship between humans and nature. Q: Which is your option in the following dilemma: Human beings should "dominate nature" or human beings should "coexist with nature". (Outputs in percentages) N= 1318.

Type of university student	Dominate	More or less dominate	More or less coexist	Coexist	Total %
Top careers	2.0	6.9	24.4	66.7	100
Common careers	1.2	3.1	20.0	75.6	100
Mean	1.4	4.0	21.1	73.5	100

Chi-square = 13.9282; df = 3; P value = 0.0030; C = 0.1042.

Table 4 Opinion about investing in mitigation and adaptation to climate change. Q: Programs and incentives should be created for businessmen for investing in mitigation and adaptation to CC in Chile. (Outputs in percentages) N= 1318.

Type of university student	Strongly agree	Agree	Disagree	Strongly disagree	Total %
Top careers	74.5	21.0	4.5	0.0	100
Common careers	70.6	25.8	2.3	1.3	100

Mean	71.6	24.6	2.8	1.0	100

Chi-square = 10.6952; df =3; P value = 0.0134934; C = 0.0899.

Table 5 Opinion about the need to reduce burning of fossil fuels. Q: The burning of fossil fuels must be drastically reduced. (Outputs in percentages) N= 1318.

Type of university student	Strongly agree	Agree	Disagree	Strongly disagree	Total %
Top careers	51.0	45.2	2.9	1.0	100
Common careers	52.8	42.4	3.7	1.1	100
Mean	52.4	43.1	3.5	1.1	100

Chi-square = 1.1477; df = 3 ; P value = 0.7655; C = 0.0295.

So much so that an overwhelming majority of elite students (96%), without much difference with their peers from other careers as shown in the table, says drastic measures must be taken to curb the burning of fossil fuels, the main cause of GHG emission and CC.

4. Discussion

Despite the greater sensitivity to the environment and the fact that during the past two decades environmental and ecological awareness has increased in all ideological spectra [18], despite increasing sympathy for environmental and ecological movements official discourse about the CC is limited and gives secondary importance to the challenges of global warming.

The main official government policies favors the goal of supplying energy in order to encourage growth needs and investments ensuring competitiveness. Environmental considerations are present but are subordinate to the primary objectives of economic growth so that the shift in the modes of production to less carbon emissions is not the first priority.

Chilean position in the international system as a peripheral country is taken into account by the discourses of political elites and technocrats that have produced these reports. They try to justify not favoring the use of non-conventional renewable energies. It is recognized that the total emissions impact of Chile in the world is marginal (about 0.3% of total global emissions), but stands next line the report acknowledges that GHGs emissions will increase as new coal based power plants will be in operation by 2050. CO_2 emissions in the electricity sector (which contributes about 30% of total global emissions) in Chile will increase by 130%. Notwithstanding they state that Chile should contribute to the global effort on the CC, but taking into account of its relative contribution to the problem. The concerns of taking measures for reducing CO2 and others to face the serious consequence of CC and global warming comes from the fact that they could impose restrictions on trade or carbon taxes, and that they can eventually damage “the competitiveness of the economy”, and by this way, the economic development.

This trend of the official discourse of the elites, government officials, political and technical elite, to be aware of the issue of CC but not giving priority and subordinating it to economic growth is in contrast to the increased awareness of CC manifest in the general population as we have observed above.

In actual terms the climate change concerns seem to be related to the perception of closeness (or remoteness) of risk and vulnerability[1]. Accordingly assessing the impact of CC must take this fact into account. In this sense the impact of CC is generally indirect and medium or long-term and only in situations involving evident climatic disasters the impact is direct.

It seems that the professional and consultant elites can be more conscious of the need to address the CC than the elites directly involved in decision making at

[1] The UNDP Report [24] argues that surveys in developed countries, about the concerns of the population about CC rank at 13% the impact on their family while 50% think it will affect people from other countries. Most people still perceive that CC represents a moderate and distant risk.

the enterprise and political levels. In the context of a progressive international society in transition, albeit slowly towards green technologies, opinions of professional elites and consultants we have analyzed just coincide. Indeed the International Energy Agency has recently called attention to the fact that there is a rapid move towards electric vehicles and solar and wind energy. We are witnessing a transition towards low carbon technologies and several G20 countries are making rapid progress on the path to eliminate subsidies to conventional fuels that will make alternative sources a more attractive fuel.

Concerning the survey on top elite students (representative of groups where "future elites" are recruited) there are reasons to believe that the powerful influence of the campaigns contrary to the shift towards adaptation and mitigation of CC are not strong in these groups of Chilean students. Even though there would be a slight tendency for a less favorable option towards sustainability in the future elites of the country. On the basis of the positions that this students (future professionals) hold in the future, based on their roles in the higher echelons of government or corporations, taking into consideration the role taking of the future that can generate interest beyond individual preferences, we can conclude that there is a segment of these "future elites" with a conservative stand that could rise.

5. Conclusions

The study of elites should aim to understand how they socially construct their opinion about changes that takes into consideration factors of CC and its challenges and the need to generate a will to change the model of development towards a sustainable and green development.

Questions about global warming and CC, orientation towards non-conventional renewable energies, energy efficiency and sustainable development and environmental awareness urge us to understand theoretically speaking that we are not only studying collective representations in abstract, but models of collective action. The key issue lies in the phrase "changes in decision-making". Indeed operationally elites must be defined not only in conceptual terms as we did above, but also as groups with performative capacity as suggests Van Dijk [14]. This capacity should be drawn in their environmental discourse.

According to the results of our research, based on secondary and primary sources and empirical data, our main hypotheses can be sustained: economic and political elites in Chile, which appears not to be an exception for the rest of Latin America, is aware about the challenge of global warming and understands that CC is a scientifically proven fact and should be taken seriously. Campaigns that deny the scientific knowledge on CC have had less influence in Latin American public and elite opinion than in developed countries and especially in the U.S.. Therefore, the elites seem to have an open discourse to consider mitigation and adaptation measures to reduce the effects of emissions in the current economic situation.

However, our conclusion is that given its position as peripheral elites on the one hand, without having access to the big decisions that affect the global mode of production, and moreover, as elites who seek economic growth in a highly competitive globalized world, local elites are not willing to implement radical measures towards a green economy.

The measures and changes in a developing country, peripherical in the global economy, that involves real progress in reducing carbon footprints, that will strongly support non conventional renewal energies, will not come from decisions made by local elites and by themselves. They will gain ground to the extent that these elites are: (a) pressured by circumstances such as the increase in catastrophic CC impacts, (b) by changes in the regulatory framework at the international system (Environmental Summits and International Agreements), (c) changes in local political and institutional structures and forces and new forms of environmental governance, and (d) surely the pressure

of a public opinion much more aware of environmental challenges and the need to move to a sustainable development and to a green economy.

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