

Extractivism, economic diversification and prospects for sustainable development in Ecuador

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Abstract

Ecuador ranks among the most biodiverse countries in the world and it is an oil exporter since 1972. Although oil became the backbone of the economy, the country's extractive capacity is declining and diversification is necessary. Extractive-based economies in developing countries have been affected by weak economic performance, low diversification, structural unemployment, limited institutional development and high environmental impacts. Nevertheless, experiences in Latin America are diverse, with strong problems in Bolivia, Peru, Venezuela, and relatively favorable results in Chile. The paper's objectives are analyzing Ecuador's long-term performance, and briefly evaluating prospects for overcoming extractivism.

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Introduction

Ecuador, a small South American country, ranks 89th among the 187 countries on the UN Human Development Index. Within Latin America, it is clearly a less developed country, with a per capita income below the regional average (UNDP, 2013)². Ecuador's economic diversification remains low, and according to ECLAC, in 2011 primary products still represented 92% of exports, mostly composed of crude oil, bananas, shrimp, coffee, cacao, fish and flowers (ECLAC, 2013). Petroleum, the single most important product in the economy, accounted for 55% of total exports between 2000 and 2012, and oil revenues made up on average 29% of the government's revenues in the same period (Banco Central, 2013).

Ecuador has one of the most diverse natural and cultural endowments in the world, with the highest number of vertebrates per square kilometre on earth (Josse, 2001). Additionally, Ecuador ranks among the first ten most abundant countries in the absolute number of amphibians, birds, and butterflies. More specifically, Ecuador has the second highest number of orchid species in the planet, after Indonesia.³ Ecuador also has a rich cultural diversity, with 14 indigenous nationalities and 13 spoken languages.

In 1967 large oil reserves were discovered in the Amazon region, and from 1972 onwards Ecuador has been an oil exporter. Four decades later, it can be concluded that oil contributed little to equitable and sustainable development, in spite of some economic and social transformation. Economic growth remained evasive and instable, with an average annual growth rate of 1.38% in per capita income between 1972 and 2010 (Chart 1). Despite important social achievements from 2006 onwards, social, ethnic, and regional disparities that have historically affected the country remained pervasive, as 35% of the population lived below the poverty line in 2011, underemployment affected 56% of the urban labour force (INEC, 2013), and social inequality barely declined, as the Gini coefficient remained at 0.46 in 2011 (CEPALSTAT, 2011, Larrea, 2010, Falconi, Vallejo, Larrea, and Burbano, 2011).

Since oil extraction in Ecuador is located in a formerly undisturbed region in the Amazon basin, the environmental effects of oil activity have been severe, particularly regarding deforestation, loss of biodiversity, pollution, and human health hazards (Herbert, 2010, Amazon Defense Coalition, 2012).

Future oil exports in Ecuador are constrained by limited reserves. Currently, proven reserve estimates vary between 3.65 (Ecuador's Government estimate)⁴, 6.5 (Energy Information Administration, 2011) and 8.2 billion barrels (OPEC, 2012), which in any case will not permit more than 30 years of continued net exports, depending on future discoveries (Chart 2). Net oil exports

¹ Professor, Universidad Andina Simón Bolívar, and former technical director of the Yasuni-ITT Initiative.

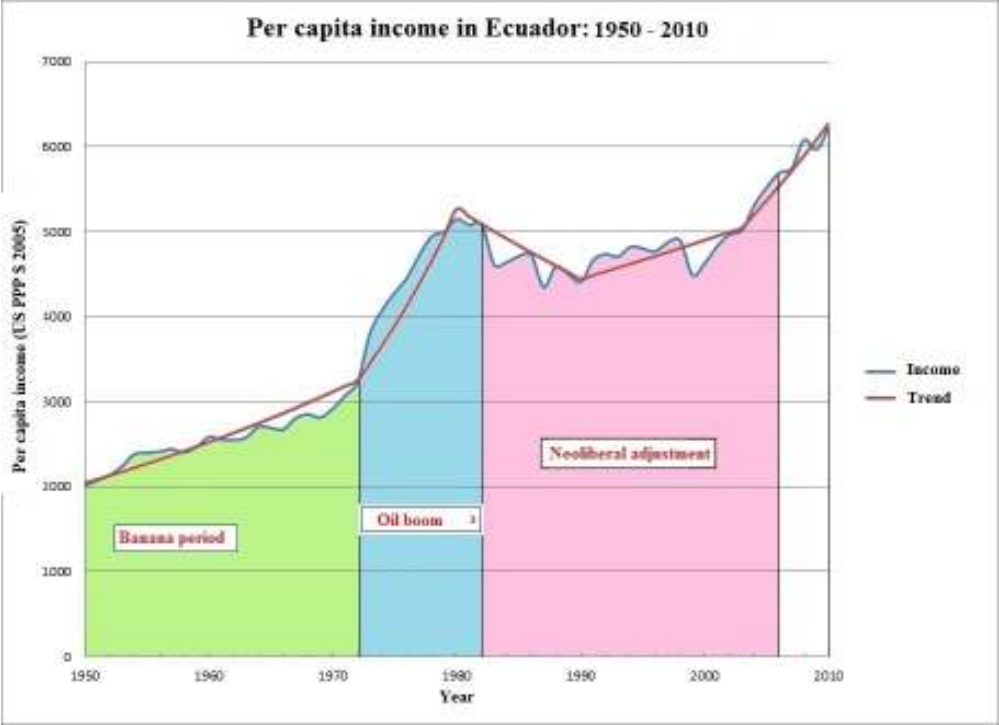
² Ecuador's per capita GDP was 7,443 PPP Dollars, compared with the Latin American average of 10,429 dollars in 2011.

³ Ecuador has 4,015 species of orchids, while Indonesia has about 5,000. World identified species are 27,934, the third country is Colombia, with 3,516 species. (Hassler & Rheinheimer, 2013).

⁴ El Comercio, July 16, 2012. The official source is the National Hydrocarbon Direction.

have already declined by 21% since 2004 (Table 1). Therefore, a turn to alternative development strategies is required.

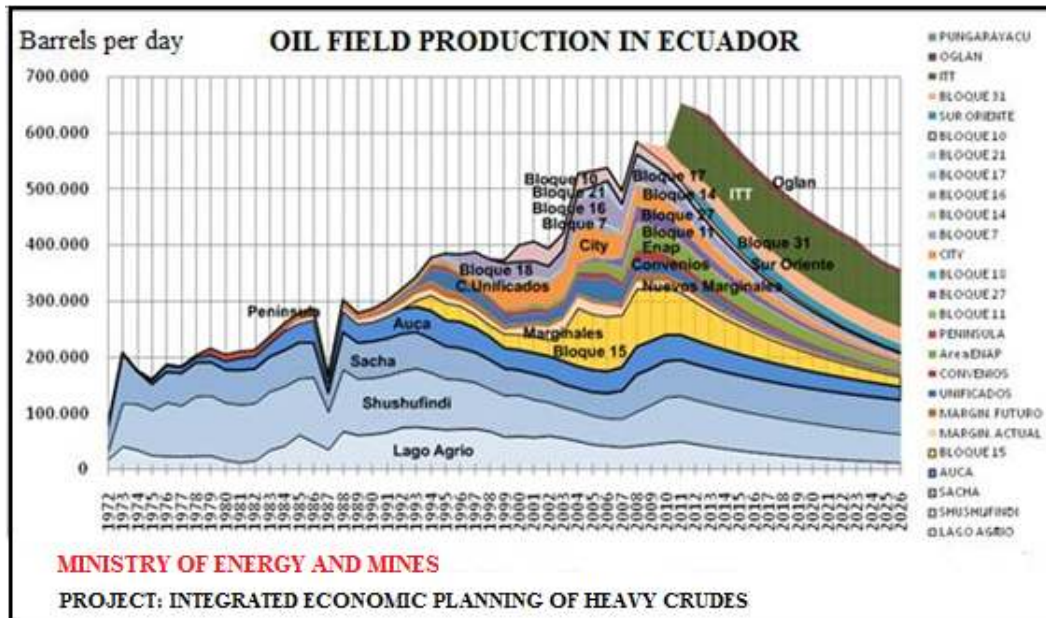
Chart 1



Source: Alan Heston, Robert Summers and Bettina Aten, 2012.

The objectives of this paper are first, evaluating economic, social and environmental effects on oil extraction in Ecuador during the last 41 years, and second, briefly discussing prospects to achieving a sustainable and equitable development path in the future, in the context of declining oil reserves. The current government is pursuing an extractivist policy, based on expanding oil extraction in formerly unexploited fields -including those inside the Yasuni National Park- and starting large-scale mining exploitation. Two future options will be evaluated, first, an expansion of extractive activities, and second an alternative based on conservation, with sustainable use of natural resources (e.g. ecotourism, agroforestry, bio-knowledge), without oil field expansion and mining.

Chart 2
Oil Extraction by fields in Ecuador: 1972-2026



Source: Ministerio de Energía y Minas, Ecuador, 2007.

Table 1
Oil extraction, exports and imports in Ecuador: 2000-2012 (thousand barrels)

Year	Extraction	Exports			Derivative Imports (I)	Internal consumption	Net Exports (X-I)
		Crude	Derivatives	Total (X)			
2000	146209	86197	15802	101999	5832	50042	96167
2001	148746	89907	14332	104239	8693	53200	95546
2002	143759	84263	13268	97531	6153	52381	91378
2003	153518	92442	11632	104074	15759	65203	88315
2004	192315	129409	13556	142965	17348	66698	125617
2005	194172	131595	12799	144394	22173	71951	122221
2006	195523	136634	13615	150249	25932	71206	124317
2007	186547	124098	15160	139258	29329	76618	109929
2008	184706	127395	15416	142812	27859	69753	114953
2009	177408	119558	12334	131892	32179	77696	99713
2010	177422	124464	10259	134723	41004	83702	93719
2011	182357	121732	11527	133259	37435	86533	95824
2012	184315	129516	10038	139554	40266	85028	99287

Source: Banco Central del Ecuador (June 2013 and previous issues). Información Estadística Mensual (www.be.fin.ec).

Theoretical Framework

Most oil exporter developing countries share difficulties in reaching sustained and equitable growth. Several studies have found that oil exports have had negative impacts on development. Prebisch and Singer pointed out, since the 1950s, disadvantages of primary export specialization, as international commodity prices face short term instability and a declining long term trend. A comparative World Bank investigation concluded that most oil-exporting countries failed to efficiently channel oil revenues into development during the 1970s. In general, the economic results for national development were disappointing, as “Dutch Disease” and other shared problems reduced the possibilities of economic diversification and stability (Gelb et al, 1988).

The “Dutch Disease” theory refers to the negative effects of primary export booms on long term development prospects for industrialization and economic diversification. Booming export activities generate effects on the exchange rate and domestic demand, which over-expand both the booming traded and shielded sectors, making other traded and import competing activities less competitive. Once the boom is over, the economy is affected by low diversification and deindustrialization. The term originated in Holland after the discovery of North Sea gas (Gelb, 1988).

Jeffrey Sachs, based on a sample of 97 developing countries between 1971 and 1989, found a negative and significant correlation between natural resources exports and economic growth (Sachs, 1995). Albert Berry, based on a comparative analysis of Indonesia, Venezuela, Chile, and Nigeria, found poor outcomes in job creation and income distribution in oil and mineral exporting countries (Berry, 2008). Terry Karl explains how oil exporting developing countries trend to excessively rely on oil revenues as fiscal resources, weakening taxation systems and state institutions (Karl, 1997, 1999). Rosemary Thorp points out that mining and oil producer countries have generally serious long-term institutional development problems (Thorp et al, 2012), although in some exceptional cases, such as Chile and Botswana, solid institutions prevented detrimental effects and allowed certain growth and diversification. Bebbington, based on a comparative analysis of Peru, Bolivia and Ecuador, analyses the effects of extractive activities on local development in mining and oil extraction regions. Linkages of extractive industries with local economies are generally weak, as well as the results of local development projects promoted by extractive corporations. Local redistribution of fiscal linkages may contribute to development only in an infrequent context of efficient institutions, both national and local. Oil and mining regions are also severely affected by environmental degradation. The case studies show, in most cases, highly conflictive social scenarios with disappointing redistributive development results (Bebbington, 2013). In general, countries that are dependent on oil or mineral exports are vulnerable and fragile, and they share poor records in economic growth, diversification, institutional development, job creation, and equity (Larrea and Warnars, 2009).

Hypothesis

1. Generally, the contribution of oil extraction to sustainable and equitable development in Ecuador during the last four decades has been weak. Economic growth was slow and instable, diversification remains minimal, social development, albeit significant in the 1970s and 2000s, is still insufficient, and the environmental impact of oil and other economic activities has been severe, threatening sustainable future.
2. Nevertheless, the state capacity to promoting economic growth and social improvement

varied substantially between 1972 and present, with better results during the initial oil boom (1972-1982) and in the post-neoliberal (2004-2013) periods, and a disappointing performance during the neoliberal phase (1982-2004). The most important internal factors contributing to positive linkages are state participation in the oil revenues and the institutional capacity of the state for investing in economic and social development. A third explanatory variable is the real price of oil, and the fourth factor is the quantum of oil extraction.

3. The current strategy pursued by the government, to expand oil extraction exploiting the ITT and other fields, and starting large-scale open-pit mining in the Amazon basin, will have a significant environmental impact and barely contribute to sustainable development in the medium and long term.
4. An alternative development option, based not only on a coherent environmentalist strategy to progressively eliminate deforestation, but also on promoting economic diversification and sustainable uses of biodiversity (ecotourism, agroforestry, bio-knowledge) is feasible and will provide more favourable economic and social results for Ecuador towards equity and sustainability.

Ecuador's Biodiversity and cultural heritage

In all, Ecuador has 17 different ecosystems, and about 35% of its land still remains covered by undisturbed ecosystems, mostly in the Amazon region. Although protected areas cover about 20% of the national territory, Ecuador has one of the highest deforestation rates in South America (1.4% per year)⁵, mostly as a result of oil expansion in the Amazon (ECLAC, 2010, FAO, 2010).

The Yasuni National Park is the most important biological reserve in the Amazon basin. According to recent research, it is the most biologically diverse hotspot in the Western Hemisphere (Bass, Finer, Jenkins, et al., 2010). It was created in 1979 and declared a UNESCO World Biosphere Reserve in 1989. The Park is located in the upper Napo basin in the western Amazon region, and it has an area of 928,000 ha. Its strategic position, close to the equator and the Andean mountains, provides unique climatic conditions, with relatively high and uniform temperatures and rainfall levels.

Scientists agree on the park's unique value due to its extraordinary biodiversity, state of conservation, and cultural heritage. The reserve has an estimated 2,274 tree and bush species, and 655 species have been counted in just one hectare; this is similar to the total number of native tree species in the United States and Canada combined. The park has 593 recorded bird species, making it one of the world's most diverse avian sites. There are 80 bat, 150 amphibian and 121 reptile species as well as 4,000 vascular plant species per million hectares. The number of insect species is estimated to be 100,000 per hectare, the highest concentration on the planet. Furthermore, the species found in the park have a high level of endemism.

The park has the highest density of amphibian, mammal, bird, and plant species in the Amazon region. In addition to high biodiversity, the projected temperature rise in the park due to climate change will be comparatively moderate, which makes the region strategically important for the

⁵ According to recent research, Ecuador's deforestation rate may be lower, but still very high (0.9% per year). See: Sierra, 2013.

future conservation of species (Bass, Finer, Jenkins, et al., 2010; Hoorn, 2006).

The Yasuni Park is also home of the two only uncontacted indigenous peoples living in Ecuador, the Tagaeri and Taromenane, which belong to the Wuaorani people, deeply affected by oil activity since the 1970s.

Oil and Development in Ecuador

The overall economic record of Ecuador during the oil extraction period is poor, with an average growth in per capita income (1.38% per annum) lower than the pre-oil period (2.42%),⁶ and minimal economic diversification. Only two new primary products, shrimps and flowers, were added with significant shares to the export basket in four decades, and manufacturing did not increase its participation in GDP.

Nevertheless, the oil period has been unstable and uneven, with two phases of significant economic growth, at the beginning and end of the period, and a long crisis during the 1980s and 1990s (Table 2).

Table 2
Average annual growth rates of per capita income in Ecuador by periods

Period	Years	Growth rate
Banana period	1950-1972	2.1
Oil Boom	1972-1980	6.2
Debt crisis	1980-1990	-1.7
Neoliberal adjustment	1990-2003	1.0
Current recovery	2003-2010	3.2

Source: Chart 1.

Note: Growth rates were estimated by kinked exponential regressions, adjusted for first order autocorrelation.

Two explanatory factors will be analysed. They are, first, the national participation in oil revenues, and second, the institutional capability of the state to efficiently invest in economic and social development. Additionally, as contextual variables, the volumes of oil extraction and real oil prices will be taken into account.

Three main periods are differentiated. They are the oil boom (1972-1982), the neoliberal period (1983-2003) and the current post-neoliberal recovery (2004-2013). Table 3 summarizes comparative factors and results for the 3 main periods analysed.

The initial oil boom (1972-1982). Shortly after the start of Amazon oil exports in Ecuador in 1972, an international scenario of rising oil prices, increasing OPEC influence and favourable negotiating conditions for oil countries emerged (Chart 3). Ecuador implemented a new nationalistic policy increasing State participation in oil revenues to 80%, and created a state-owned oil company (CEPE). The State pursued a development strategy based on import substituting industrialization (ISI) and agricultural modernization, investing in infrastructure, and using subsidized credit, tariff

⁶ Growth rates were estimated by kinked exponential regressions, adjusted for first order autocorrelation.

protection, tax incentives and favourable exchange rates to promote growth and diversification. An important investment in education, health, housing and social infrastructure also was implemented.

Ecuador experienced rapid economic growth (Table 2), but the sectorial performance was uneven, with the fastest growth rates in manufacturing and construction, while agriculture barely kept the pace of population growth.

While social conditions improved sharply in education, health and housing, the employment performance was disappointing, as underemployment did not decrease. In other words, growth was fuelled by capital intensive investment, with small job creation and limited trickle-down effects (Larrea, 1993).

The environmental impacts of Texaco oil activity in the Amazon were devastating. According to Bob Herbert, New York Times columnist:

Much of that area has been horribly polluted. The lives and culture of the local inhabitants, who fished in the intricate waterways and cultivated the land as their ancestors had done for generations, have been upended in ways that have led to widespread misery.

Texaco came barreling into this delicate ancient landscape in the early 1960s with all the subtlety and grace of an invading army. And when it left in 1992, it left behind ... widespread toxic contamination that devastated the livelihoods and traditions of the local people, and took a severe toll on their physical well-being.

A brief filed by the plaintiffs said: "It deliberately dumped many billions of gallons of waste byproduct from oil drilling directly into the rivers and streams of the rainforest covering an area the size of Rhode Island. It gouged more than 900 unlined waste pits out of the jungle floor — pits which to this day leach toxic waste into soils and groundwater. It burned hundreds of millions of cubic feet of gas and waste oil into the atmosphere, poisoning the air and creating 'black rain' which inundated the area during tropical thunderstorms."

The quest for oil is, by its nature, colossally destructive. And the giant oil companies, when left to their own devices, will treat even the most magnificent of nature's wonders like a sewer. But the riches to be made are so vastly corrupting that governments refuse to impose the kinds of rigid oversight and safeguards that would mitigate the damage to the environment and its human and animal inhabitants.⁷

The structural adjustment period (1983-2003). The rapid growth in the 1970s was partially financed with foreign debt, which accumulated and become unsustainable under rising interest rates in the early 1980s. After the Mexican debt moratoria in 1982, International Financial Institutions imposed rigid conditions to Latin American countries, the ISI strategy collapsed, and structural adjustment and liberalization strategies were implemented. Policies included drastically reducing State intervention in the economy, pursuing fiscal austerity, declining social investment, liberalizing exchange rates and labor relations, as well as opening the economy to foreign competition and investment.

⁷ Herbert, Bob. "Disaster in the Amazon". New York Times, June 4, 2010.

Table 3**Periods in oil export phase in Ecuador: basic economic and social traits**

Period	Years	Export Oil Quantum (KT/year)	Real oil prices (2005\$/bbl)	Purchasing power Index	State Share in oil revenues	State development capacity	Economic model	Social priority	Per Capita GDP Growth rate
Oil Boom	1972-1982	6.9	48.2	100.0	Up to 80%	High	ISI	High	4.3
Structural Adjustment	1983-2003	12.1	26.2	95.3	declining to 20%	Low	SAP	Low	-0.2
Post-neoliberal	2004-2013	19.7	60.6	359.0	Up to 75%	High	Infrastructure	High	3.5

Note: Per Capita Income growth rates were estimated by kinked exponential regressions, adjusted for first order autocorrelation.

In Ecuador, as well as in most Latin American countries, structural adjustment and export promotion strategies failed to recover economic growth (Tables 2 and 3), per capita income stagnated or even declined, and the country was affected by several financial shocks in 1983 (El Niño floods), 1987 (diving oil prices and an earthquake) and 1999 (collapsing oil prices, worst El Niño floods and private financial bankruptcy), which led to the dollarization of the economy in 2000.

As real oil prices dropped dramatically mostly in 1986 and 1998 and foreign debt remained unmanageable, the State turned to expanding oil extraction, by opening the oil frontier to the south and East of the Amazon, increasing pipeline capacity and attracting oil foreign investment with favorable conditions, As a consequence, new oil contracts had only 20% of state participation in foreign revenues, and oil extraction expanded even into the Yasuni and Cuyabeno National Parks.

During the period of structural adjustment and export promotion policies, social inequality, exclusion, and poverty remained pervasive in Ecuador. In 1995, poverty affected to 56 % of total population and reached 76 % in the countryside. These percentages were higher than the Latin American average. Income concentration, estimated by the Gini Coefficient (0.57) placed Ecuador in the third worst position in the region, only after Brazil and Paraguay (IADB, 2000). In 1994, 57 % of urban population had low productivity jobs (CEPAL, 2001), illiteracy affected 10.5 % of the population, and adult schooling averaged 7 years in 1995 (PNUD, 2001). In 1998, 26 % of children younger than five years suffered from chronic malnutrition (Larrea, Freire y Lutter, 2001).

Summarizing, the state capacity to turn oil exports into development during the neo-liberal period collapsed. In spite of increasing oil extraction (and environmental impacts), prices dived, state participation in revenues dropped as well. Most of reduced oil revenues were devoted by the state to debt payments. Additionally, under structural adjustments policies, public institutions were seriously weakened. Social expenditure, as a share in GDP, declined by about 50%, and the national planning board was almost eliminated.

The post-neoliberal period (from 2004 onwards). After 2000 oil prices began recovering again, stimulated by increasing Chinese demand and a global supply peek. Oil extraction was boosted from 2004 onwards by a new pipeline (OCP), which doubled transport capacity. As a consequence, from 2004 onwards, Ecuador experienced the largest expansion of oil exports in its history, as they strongly grew by both quantum and prices (Charts 3, 4 and 6).

From 2005 onwards, after the nationalization of Occidental oil fields (Block 15) and the approval of new legislation, national participation in oil revenues recovered again to about 75%. From 2007 onwards, the government adopted a new development strategy, increasing state participation in development, and expanding public investment in renewable energy, infrastructure, and human capital.

In a context of increasing oil prices, higher oil extraction, recovered State shares in oil revenues, and improved public institutions, both economic and social results turned favorable. Sustained economic growth came back, and social indicators improved, as poverty and inequality declined, with substantial improvements in education, health, employment and housing.

However, oil extraction is facing an irreversible declining trend since 2004, as the Hubbert oil peak was reached and reserves are limited (Chart 2). In spite of public policies, results in economic diversification are poor, and long term prospects in oil prices are less favorable, in the context of the

current interactional financial crisis and increasing oil production in the US. Future economic prospects are, at least uncertain.

Economic diversification during the oil period

This section analyzes economic diversification from three perspectives: industrialization, export composition and other forms of sectorial change.

Industrialization. Although economic growth in the 1970s was significant, diversification was limited and short lived. In spite of the impressive manufacturing growth (10.1% per year between 1972 and 1980), the sectorial performance was weak and, in the words of the World Bank, "disappointing" (World Bank, 1984, p. 63). In fact, during the bonanza, structural diversification of manufacturing was minimal. Finished consumer goods remained dominant, with minimum development of intermediate and capital goods, and of internal linkages. Moreover, output remained highly concentrated in the metropolises, while a capital and import intensive technology, with reduced employment generation, prevailed. Additionally, an early monopolistic structure characterized most branches while inefficiency and reduced utilization of installed capacity were widespread.

Whereas some diversification the composition of manufacturing output by sub-sectors took place both before and after the petroleum bonanza, the structure remained almost unchanged between 1972 and 1982. A purely "horizontal" expansion prevailed, without the development of domestic internal linkages. Rob Vos analyses the changes in internal structure in manufacturing, using Leontief's input-output matrices. He concludes that domestic linkages in manufacturing were low and changed little during the oil bonanza (Vos, 1987, pp. 53-72). World Bank conclusions are similar (World Bank, 1984). According to the Bank, Ecuador's "modern manufacturing developed almost as an enclave." As a result of growth without diversification, the internal composition of manufacturing in Ecuador -concentrated mostly in traditional consumer goods- remained at an early stage of development, compared with other developing countries, as Table 4 shows (Larrea, 1993).

Industrialization was mostly a short lived effect of demand expansion in a shielded economy between 1972 and 1982. After 1982, in the context of the debt crisis, the State progressively dismantled the ISI model and since de 1990s open the economy to foreign competition, drastically reducing manufacturing protection. As a result, the manufacturing share in GDP declined, eliminating the gains of the 1970s (Chart 5). However, during the neo-liberal period, some diversification took place, as processed food and beverages, chemical and metal machinery improved, while the textile industry performed poorly in the face of foreign competition. Recent policies, aimed since 2007 to "selective import substituting industrialization" failed to diversify the internal structure of manufacturing, as no significant change can be observed between 2005 and 2009 in Table 4.

Agriculture. In spite of subsidized credit and other incentives, agricultural modernization did not lead to sectorial growth during the oil boom. Per capita agricultural output for domestic consumption actually declined, and export agriculture had a slow expansion.

Table 4**STRUCTURE OF MANUFACTURING OUTPUT BY SUB-SECTORS: 1966-2009
(Percentages)**

SUB-SECTOR	1965	1972	1977	1982	1988	2005	2009
Food, Beverages and Tobacco	58.1	46.3	42.8	41.6	37.5	36.3	37.2
Textiles and Clothing	16.2	22.1	23.6	22.1	19.8	8.8	8.1
Wood and Wood Products	6.2	6.0	5.9	5.3	5.7	5.7	5.7
Paper and Printing	7.4	7.1	6.0	6.3	7.3	6.5	5.9
Chemical Products	4.8	5.7	6.5	6.1	6.5	14.4	13.4
Non-metallic minerals & basic metals	5.4	9.1	10.0	12.4	12.7	12.7	13.2
Metal Products and Machinery	2.0	3.6	5.3	3.1	4.7	10.6	11.3
Other	0	0	0	2.9	5.8	5.0	5.2

Note: Percentages were calculated from data at 1975 prices up to 1998 and at 2007 prices since 2005.

Source: Banco Central del Ecuador, Cuentas Nacionales 13 (1990), and Cuentas Nacionales Anuales Base 2007 (www.bce.fin.ec), visited August 2013.

Non-oil Export performance. Non-oil exports, mostly composed by bananas, coffee and cacao, had favorable international prices in the 1970s and received also subsidized credit and other benefits, but, as predicted by Dutch Disease models, they were affected by overvalued exchange rates that prevailed during the oil boom period (Larrea, 1993). As a result, they experienced slow growth. Export diversification was also moderate in the 1970s, with only one significant achievement, the expansion of fish and farmed shrimp exports. Sea product exports accounted for 3% of total exports in 1972, 9.2% in 1982, 20% in 1993 and 12% in 2012. However, shrimp aquaculture has had a high environmental cost, as mangrove destruction has been severe, destroying about 50% of the ecosystem. Additionally, farmed shrimp proved vulnerable to plagues, which strongly reduced production in the late 1990s.

The only new significant addition to Ecuador's export basket since the 1990s has been that of fresh flowers. In spite of its dynamic expansion, its contribution to total exports is still small (3.2% in 2012). During the 1990s, banana export expansion was also important, and a group of non-traditional exports maintained a steady growth from the early 1990s to present, currently accounting for 9% of total exports.

However, from a long-term perspective, export diversification has been small and insufficient, as Chart 8 shows. Three groups of mostly primary goods -namely oil, bananas and sea products- have been accounting for about 80% of Ecuador's exports during the last four decades, without a significant diversification trend.

Although in the three cases an important quantum expansion took place, all products face serious constraints in the future, as oil extraction capacity will inevitably decline given limited reserves, sea products may face environmental constraints due to overfishing and restrictions in farmed shrimp, and banana markets are almost saturated. Although the future of terms of trade is highly uncertain,

it is dubious that the current ascending trend will continue in the medium term, in the context of the international financial crisis and the slowdown of China and other emerging economies.

Social development

Broadly, speaking, social indicators followed the economy boom-bust-recovery trend, as Chart 9 shows. Oil extraction has a very low direct employment generation, and in Ecuador case, both backward and forward productive linkages are weak, so the sector is an enclave. The social effect is mostly the result of the fiscal linkage, in other words, the taxing state capacity, coupled with the State capability to effectively promote social development.

Both in the 1970s and after 2006, the State was able to both appropriating a significant fraction of oil revenues and effectively promoting social development. As a result, education, health and housing conditions improved, as Table 4 demonstrates.

Table 4
Selected Social Indicators in Ecuador: 1962-2010

Year	1962	1974	1982	1990	2001	2010
Average years of schooling	3.03	3.71	5.16	6.67	7.28	8.69
Illiteracy rate	32.8	26.1	16.5	11.7	9.1	6.7
% dwellings with piped water	13.0	20.0	31.9	38.3	47.9	55.3

Note: Indicators are defined as average years of schooling of person older than 23 year, illiteracy rate among persons older than 14 years, and percentage of dwelling with piped water inside the house.

Sources: INEC, Censos de población, 1990, 2001, 2010, Minnesota Population Center. Integrated Public Use Microdata Series-International: Version 4.0. Minneapolis: University of Minnesota, 2008. Based on: INEC. Censos de población 1962, 1974, 1982.

Table 5
Structure of Labor Force in Ecuador
(Percentages of total Economically Active Population (EAP))

Year	Wage earners/EAP	Agriculture	Manufacturing	Wage earners / agricultural EAP	Wage earners/ manufacturing EAP
1962	46.2	59.0	14.2	38.8	38.3
1974	50.2	45.7	11.8	36.9	50.7
1982	51.6	36.7	13.3	29.8	58.4
1990	44.4	35.8	12.5	25.5	45.4
2001	44.0	31.1	11.2	26.2	49.7
2010	60.9	21.7	10.1	52.4	66.2

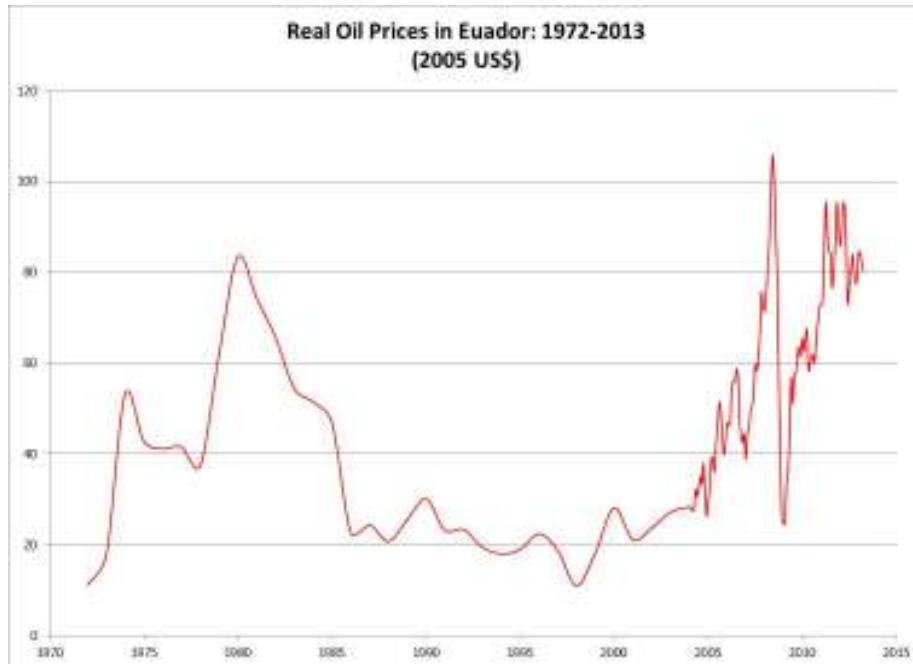
Sources: INEC, Censos de población, 1990, 2001, 2010, Minnesota Population Center. Integrated Public Use Microdata Series-International: Version 4.0. Minneapolis: University of Minnesota, 2008. Based on: INEC. Censos de población 1962, 1974, 1982.

Nevertheless, several critical social problems prevailed. Ecuador inherited, from the colonial period, an extremely unequal social structure, with widespread poverty, severe ethnic discrimination and massive structural underemployment. Employment indicators barely improved during the oil boom,

as a result of a capital intensive growth model, deteriorated during the neo-liberal phase, and recovered after 2006, as real wages increased, and employment expanded with construction and investment in public infrastructure (Table 5).

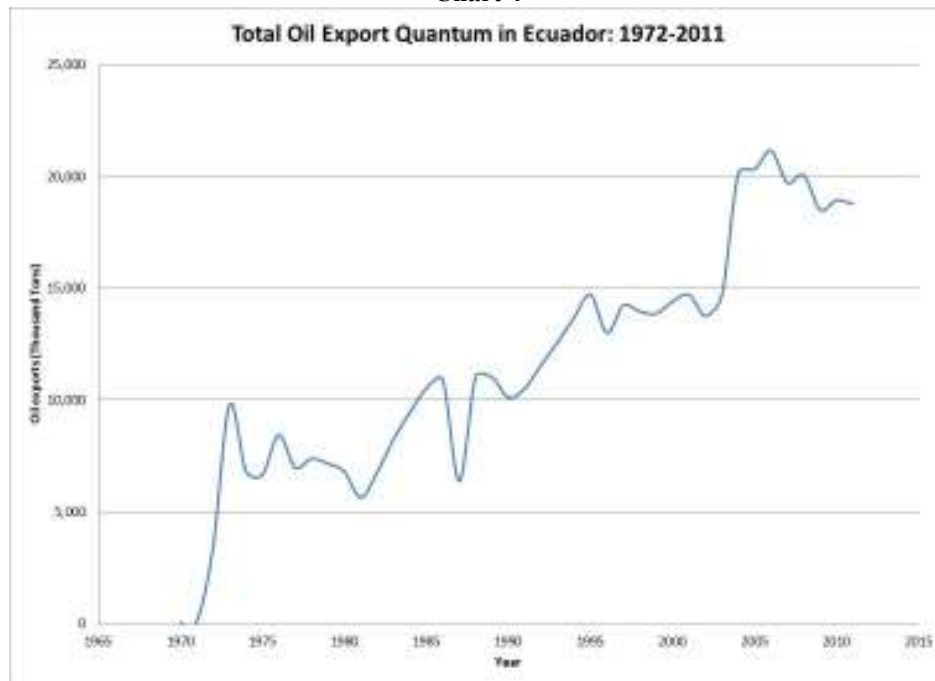
However, given the lack of economic diversification, employment gains may be short lived and dependent on contingent fiscal buoyancy. Additionally, as capital and land assets remained highly concentrated and no social redistribution took place, the structural roots of inequality did not change.

Chart 3



Sources: Banco Central del Ecuador, Información Estadística Mensual (www.bce.fin.ec), U.S. Department Of Labor (<http://www.bls.gov/cpi/>). Visited August 2013.

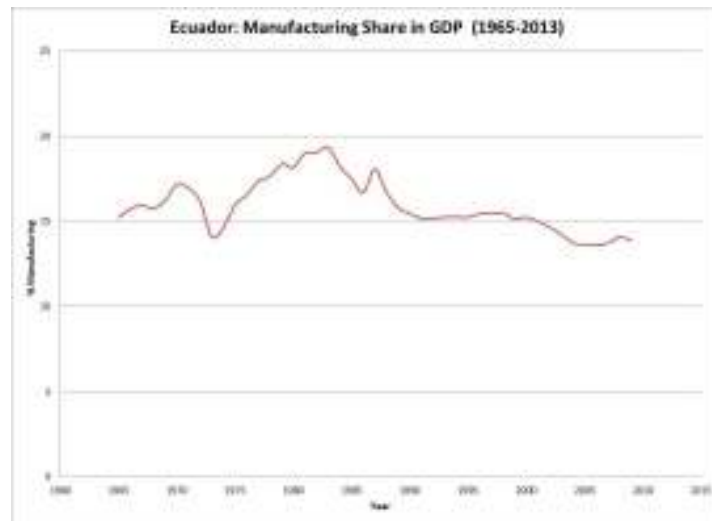
Chart 4



Note: Total oil exports include crude oil and derivatives.

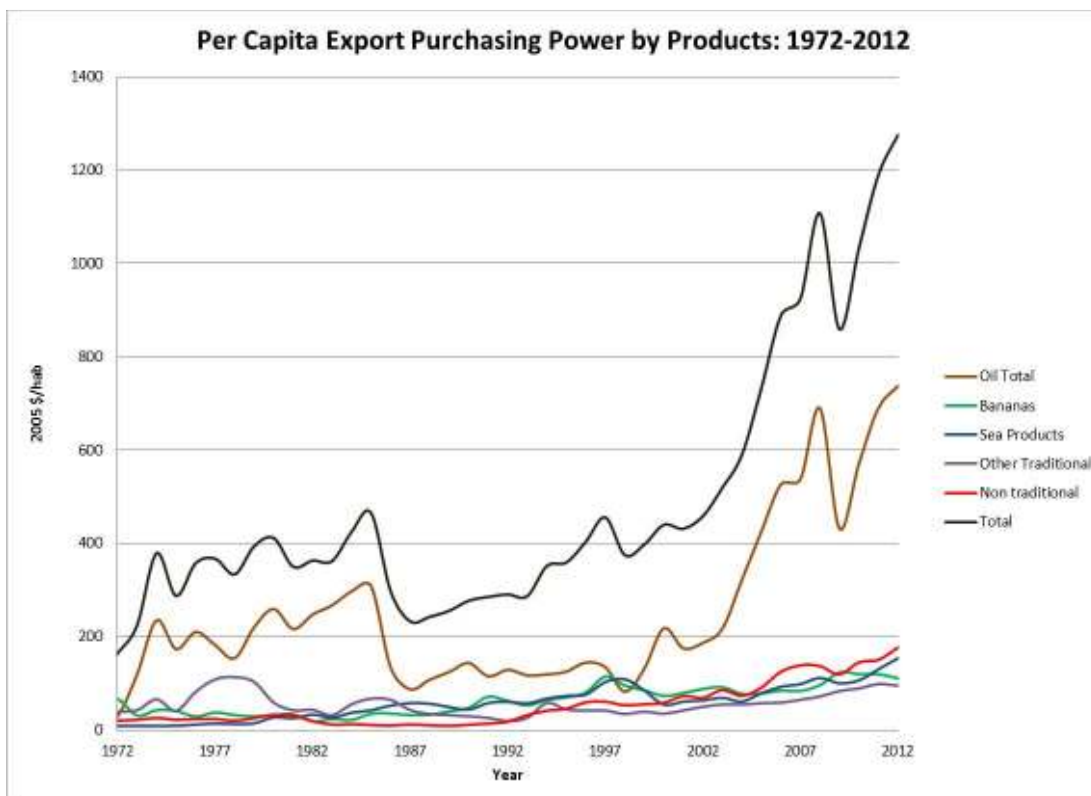
Source: Banco Central del Ecuador. Boletín Anuario (2012 and previous issues).

Chart 5



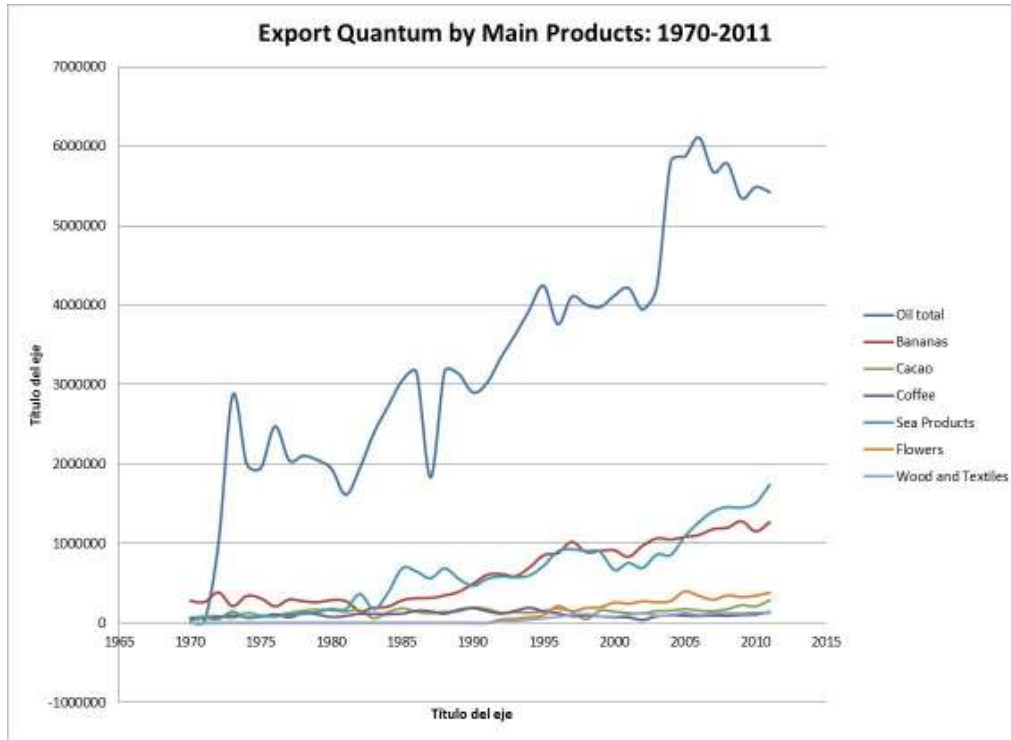
Note: Percentages were calculated from data at 1975 prices up to 1998 and at 2007 prices since 2005.
Source: Banco Central del Ecuador, Cuentas Nacionales 13 (1990), and Cuentas Nacionales Anuales Base 2007 (www.bce.fin.ec), visited August 2013.

Chart 6



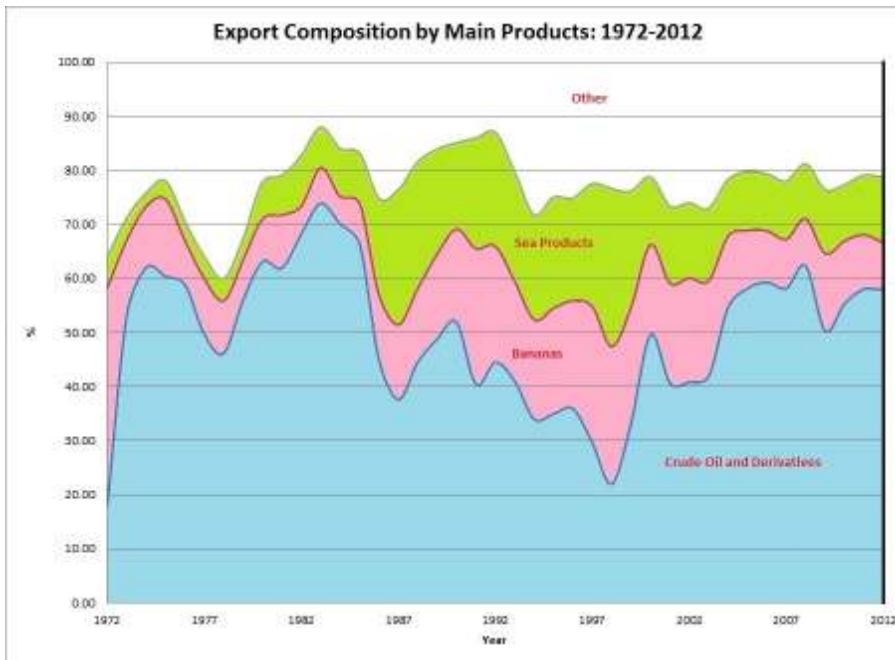
Source: _

Chart 7



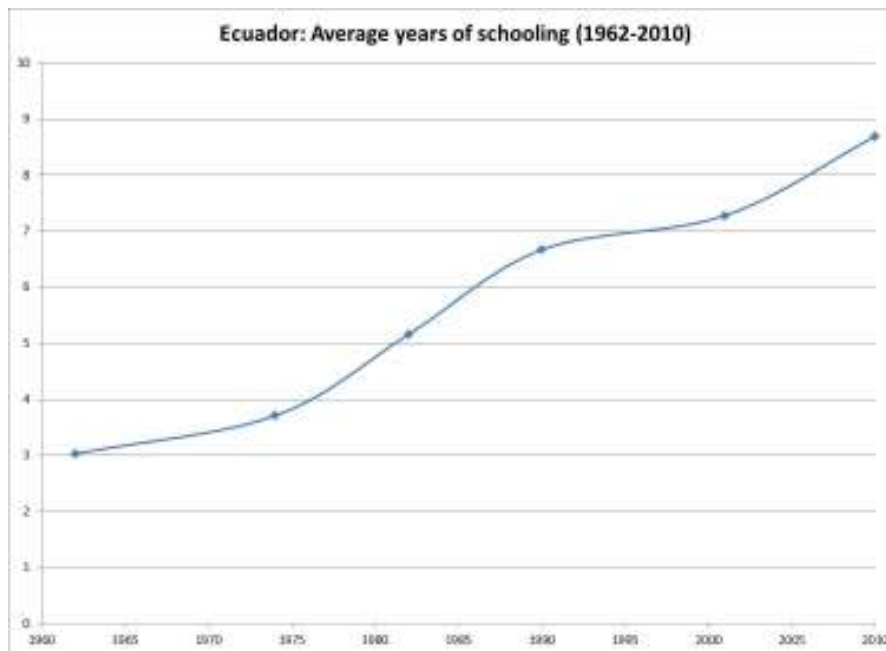
Sources:

Chart 8



Sources

Chart 9



Sources: INEC, Censos de población, 1990, 2001, 2010, Minnesota Population Center. Integrated Public Use Microdata Series-International: Version 4.0. Minneapolis: University of Minnesota, 2008. Based on: INEC. Censos de población 1962, 1974, 1982.

Alternative development paths for Ecuador

Although Ecuador experienced an important process of economic growth and social improvement during the last ten years, this process is unlikely to continue with the same strength and, in the medium term, can be exhausted or even reversed. The following reasons explain this argument.

1. The recent economic expansion was financed by a particular convergence of three favourable factors: a) A sharp increase in real oil prices, as they doubled between 2004 and 2012, b) A 50% jump in export oil volumes from 2004 onwards, as a result of the construction of the new heavy oil pipeline (OCP), and, c) An important expansion of foreign debt, particularly to China, which lent about 12.3 billion dollars to Ecuador in the form of “anticipated oil purchases” (Hoy, 2013). Those factors may be weakened or even reversed in the future.

Real oil prices may decline in the future, as the global economic growth is affected by the financial crisis. Particularly China and other emerging economies have already reduced their growth rates by about 40%. On the supply side, the expansion of oil and gas extraction in the US may drastically reduce or eliminate US oil imports. Demand has already declined by about 10% in OECD countries (The Economist, 2013), as an effect of rapid technological change to new energy sources. Both the World Bank and IMF forecast slightly lower oil prices in the next decades.

Future volume expansion in oil exports is unlikely, as export quantum have already fallen by 21% since 2004 as most of oil fields are in a declining phase, and domestic consumption is soaring (Table 2). As mentioned, reserves are limited and net oil exports will hardly last more than 20 years. The declining trend in oil volumes may be postponed for up to four years, with improved extraction in mature fields and the exploitation of the ITT reserves, but net exports will continue fallen after that.

As the Ecuadorian experience in the 1980s and 1990s shows, foreign debt may reach its limits and severely reduce growth prospects in the future.

2. Sustained future growth requires diversification. As already explained, the Ecuadorian economy failed to diversify in the last four decades, affected by multiple problems associated with extractivism. Moreover, most of the investment, both public and foreign, has been concentrated in infrastructure (hydroelectricity and roads), oil and mining, while private investment and, generally, investment in economic diversification, remained reduced. In fact, while both investing and savings were low, sumptuary consumption soared. As a consequence, the trade balance has been consistently negative from 2009 onwards.

Two alternative models can be envisaged for future development in Ecuador.

“Deepening extractivism to overcome it”

The current government strategy promotes the expansion of the oil extraction frontier to formerly undisturbed regions in the Amazon, including the Yasuni National Park, and the starting of large-scale open pit mining (copper and gold) in several environmental sensitive spots in the Amazon and Highland regions. The government plans to use these short-term resources to further invest in biotechnology and other biodiversity-based services.

The feasibility of this strategy seems dubious, given the lack of success of all the policies aimed to economic diversification in the last four decades. Additionally, the environmental impact of expanded oil extraction and mining in highly sensitive areas may be too large and irreversible, limiting the feasibility of a turning point towards a sustainable development path. Severe climate change effects will be added to destructive impacts of extractive industries in the medium term.

Is still feasible a road towards sustainability in Ecuador?

An alternative path may be based on stopping oil frontier expansion, banning large-scale mining in environmentally sensitive areas, and applying a coherent policy aimed to remaining ecosystem conservation, human development, and the promotion of sustainable uses of biodiversity, based initially on ecotourism, tourism, agroforestry, and international cooperation towards rainforest conservation, biodiversity protection and climate change mitigation.

A similar experience in Latin America is that of Costa Rica, a small Central American country, which had the same export base as Ecuador in the 1950s (bananas, coffee and cacao). Costa Rica applied a long term development strategy investing in human capital, biodiversity protection and social equity. Currently, Costa Rica social achievements are among the best in Latin America, per capita income is about twice as Ecuador's and tourism share in both employment and GDP is at least three times higher than the correspondent figures in Ecuador.

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