Deglobalization and Import Substitution Industrialization
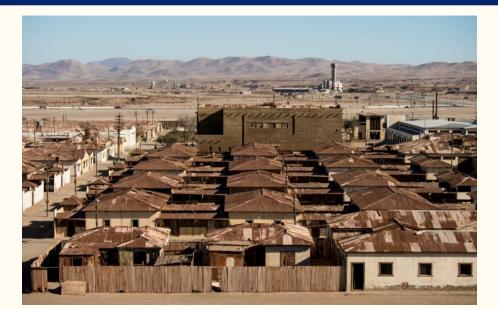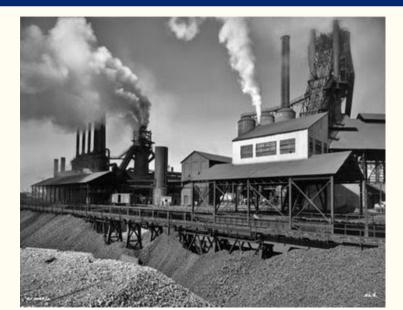
Jesús Fernández-Villaverde[1], Angel Alvarado[1], Fernando Arteaga[1] and Ivan Luzardo Luna[1]
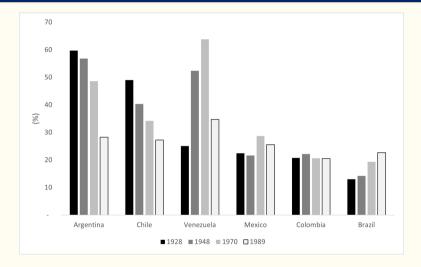
April 30, 2023

[1]University of Pennsylvania

GDP per capita relative to that of the USA, 1928-1989

Source: Maddison dataset.

GDP per capita relative to that of France, 1928-1989

Source: Maddison dataset.

Outline

- Deglobalization, the Great Depression, and WWII.

- Theory Behind the Import Substitution Industrialization Strategy.

- Import Substitution Industrialization as an application of strategic trade.

- Institutions: the cases of Mexico, Chile and Colombia.

Deglobalization and the Great Depression

Deglobalization and the Great Depression

- The Great Depression brings a deglobalization and a sharp decline in international trade.

- Macroeconomic instability and the rise of protectionism.

- Capital inflows towards Latin America are interrupted (sudden-stop).

- Again, most of the countries go into default (exception: Argentina).

- Long-lasting implication: shifting from export-led growth toward inward-looking industrialization (up to the 1990s).
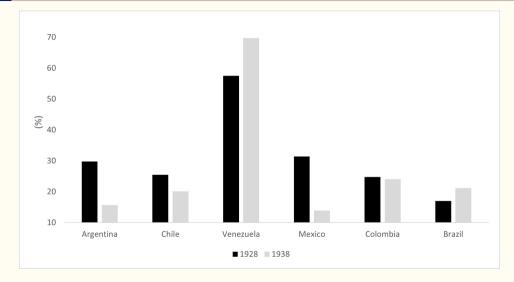
Political and social changes in the early 20th century

- Urbanization.

- Unions.

- The rise of middle and working classes.

- The Mexican revolution (1910-20).

Real GDP per capita change between 1929-33 ($ PPP, 2011=100)

Year	Argentina	Bolivia	Chile	Mexico	Uruguay
1929	6,961	2426	5,679	2,424	5,128
1933	5,772	1954	3,618	2,071	4,112
% Change	-17.1%	-19.5%	-36.3%	-14.6%	-19.8%

USA	Germany
11,954	6,457
8,048	5,668
-32.7%	-12.2%

Source: Maddison dataset.

Exports/GDP, 1928-38

Export prices 1932 (1928=100)

Source: Bulmer-Thomas (2014).

Net barter terms of trade 1932 (1928=100)

Source: Bulmer-Thomas (2014).

Figure 2.2. Boom and bust cycles in Latin America, 1850–1940.

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Figure 1. Economic Crises of Latin America 1820-2008.

A. Number of countries on a currency, external debt, or banking crisis

B. Number of country/years in crisis by period

	1828-1837	1876-1885	1914-1923	1930-1939	1957-1966	1981-1990	1994-2003
Currency	3	4	20	41	34	109	41
External Debt	125	103	51	112	16	124	45
Banking	0	3	6	3	1	47	52

Source: Reinhart and Rogoff (2009).

14

Why was Latin America hit hard by the Great Depression?

- International trade: an engine for economic growth during the export-led growth (1870-1929).

- Government revenues: highly dependent on customs and duties on international trade.

- Capital inflows: critical for investment (transportation) and public finances.

How did Latin America manage the Great Depression?

Initial orthodox reaction, but gradually:

- Sovereign debt defaults.

- Tariff and non-tariff barriers.

- Different exchange rates.

- Expansionary fiscal and monetary policies (budget deficits).

How did Latin America manage the Great Depression?

- Capital controls.

- Financial repression (forced loans).

- Development banks (preferential loans).

- Also, unorthodox policies in some countries (price controls).

Money supply, 1929-36 (1929=1)

Table 2.6. *Latin America's adoption of capital controls as of 1939*

Country	Exchange control, 1930–9			Free market activity			Black market
	None	Begun	Abolished	Tolerated	Controls	None	
Argentina		1931			•		
Bolivia		1931			•		•
Brazil		1931				•	
Chile		1931			•		
Colombia		1931				•	•
Costa Rica		1932			•		
Cuba	•			•			
Dominican Republic	•			•			
Ecuador		1933	1937	•			
El Salvador	•			•			
Guatemala	•			•			
Haiti	•			•			
Honduras		1934				•	
Mexico	•			•			
Nicaragua		1932			•		
Panama	•			•			
Paraguay		1932					
Peru	•			•			
Uruguay		1932				•	
Venezuela		1936		•			

Source: Herbert M. Bratter, "Foreign Exchange Control in Latin America," *Foreign Policy Reports* 14, 23 (1939): 274–88.

Development banks

Mexico:

- Nacional Financiera (1934).

Chile:

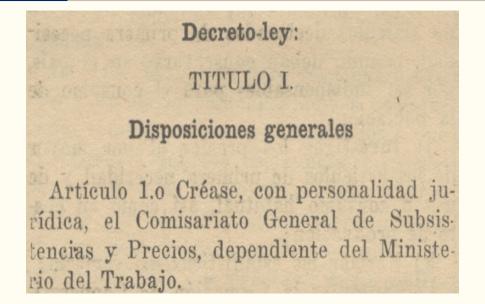- Corporación de Fomento de la Producción de Chile -Corfo (1939).

Colombia:

- Instituto de Fomento Industrial - IFI (1939).

Brazil:

- Banco Nacional de Desenvolvimento Economico e Social-BNDES (1952).

Decreto-ley:

TITULO I.

Disposiciones generales

Artículo 1.o Créase, con personalidad jurídica, el Comisariato General de Subsistencias y Precios, dependiente del Ministerio del Trabajo.

Sources of economic growth (%), 1929-1939

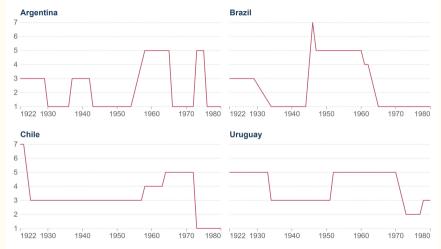|	1929-39			1932-39		
Country	Home final demand	Change in import coefficient	Export promotion	Home final demand	Change in import coefficient	Export promotion
Argentina	51	84	-36	102	6	-8
Brazil	39	31	31	74	-11	37
Chile	67	28	5	71	-24	53
Colombia	61	24	15	117	-35	18
Mexico	113	61	-74	108	1	-9
Venezuela	19	67	14	80	-1	21

Source: Bulmer-Thomas (2014).

Constraints on the executive, 1922 to 1980
Based on the classification and assessment by Polity 5 (2021).

Source: Polity 5 (2021)
OurWorldInData.org/democracy • CC BY
Note: The Chart tab uses numeric values, ranging from 7 for an subordinated or on-par executive, to 1 if executive is unconstrained.
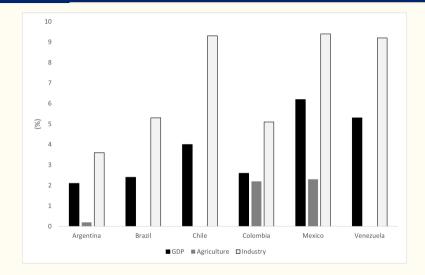
23

Constraints on the executive, 1922 to 1980
Based on the classification and assessment by Polity 5 (2021).

Source: Polity 5 (2021)

OurWorldInData.org/democracy • CC BY

Note: The Chart tab uses numeric values, ranging from 7 for an subordinated or on-par executive, to 1 if executive is unconstrained.
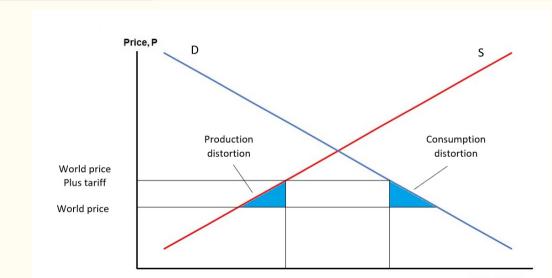
WWII

- Another major external shock.

- 10 years since the collapse of the export-led growth model (1870-1929).

- Trade with the US: the Metals Reserve, the Rubber Reserve Company, and the Inter-American Coffee Agreement.

- More interventionist states.

Agricultural, industrial and economic growth rates, 1939-45

Source: Bulmer-Thomas (2014).

Theory behind the import substitution industrialization strategy
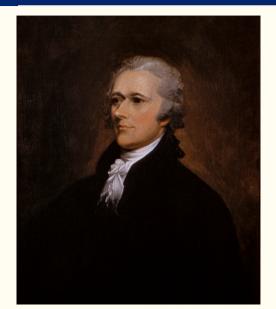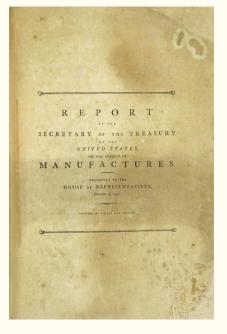
A case for free trade

Strengthening this result

- There may be additional gains from trade if some economies of scale exist over some part of the production function.

    1. If an industry is protected from foreign competition, it will have higher profits, encouraging more firms to enter and limiting scale economies at a firm's level.

    2. It also may encourage entrepreneurs to innovate because they will face a larger world market when there is no protection.

    3. Additionally, the most productive firms will likely find it profitable to export. They will grow in size relative to less productive firms increasing the overall efficiency of production.

Arguments against free trade

1. A large open economy can move the terms of trade in its favor with a tariff: the price of its exports rises relative to the price of imports.

   - In general, however, the optimal tariff is small.

   - Thus, Uruguay may face different incentives than the European Union.

2. Knowledge spillovers from one industry to other sectors:

   - There are additional social benefits to protecting that industry.

3. Industries may become more profitable over time, perhaps due to learning by doing.

   - It may be worthwhile to protect those industries initially because, in the long run, the gains will outweigh the short-term welfare costs of protection.

   - As Hamilton points out (Report on Manufactures, 1791), once the industry matures, it should be able to compete independently, so protection should be relatively short-lived.

REPORT

OF THE

SECRETARY OF THE TREASURY

OF THE

UNITED STATES,

ON THE SUBJECT OF

MANUFACTURES.

PRESENTED TO THE

HOUSE OF REPRESENTATIVES,

December 5, 1791.
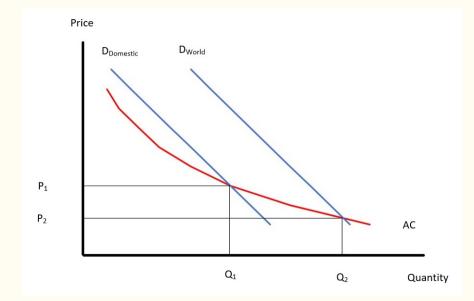
PRINTED BY CHILDS AND SWAINE.

External economies of scale

"The mysteries of the trade become no mystery, but are as it were in the air... Good work is rightly appreciated, inventions and improvements in machinery, in processes and the general organization of the business have their merits promptly discussed: If one man starts a new idea, it is taken up by others and combined with suggestions of their own; and thus it becomes the source of further new ideas. As well, allowing firms to scale up may help create a specialized pool of labor." Alfred Marshall

- Reasons:
    1. Production may require specialized suppliers, but until scale is built up, there is not enough demand for those specialized suppliers to exist.
    2. Allowing firms to scale up may help create a specialized labor pool.
    3. New industries may require specialized knowledge that can come from innovation or learning from competitors.

- Examples: semiconductors, finance, or clothing production in China (where one town accounts for a large share of the world's underwear). Latin America?
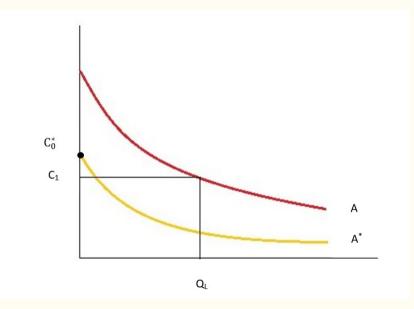
Strategic trade policy

- With external economies, government intervention is potentially welfare improving.

- Ceteris paribus, a larger industry generates larger economies of scale.

- We have the usual downward sloping demand curve, but now the industry supply curve is downward sloping as well.

- For each firm in the industry: $C_i = C(w, r, Q)$, where Q is total industry output.

- Because of the externality, costs are falling with Q.

- Suppose one country has lower unit costs before opening to trade.

Initial conditions and dynamic inefficiencies

- What determines who will dominate which industry?

- Initial low labor costs or an accident (London and New York in finance, or Silicon Valley because Hewlett and Packard started there)

- However, external economies open up the possibility that production may not be optimally situated worldwide.

- Having a head start could mean that production is in a place that has large scale, not in a place that is best suited.

The learning curve

- Can there be circumstances where you would want to protect an infant industry?

- Suppose there is knowledge spillover across firms and costs depend on experience. And the more produced, the more experience an industry acquires.

- This situation is referred to as **dynamic increasing returns**.

- For example, the cost of producing steel may depend on how much steel was produced in the past.

- Summarized by a **learning curve** that relates cost to cumulative output.

- In what follows, Latam is the foreign country, and the U.S. is home.

- The Latam average cost curve is below the U.S.'s but has no experience.

C_0^*
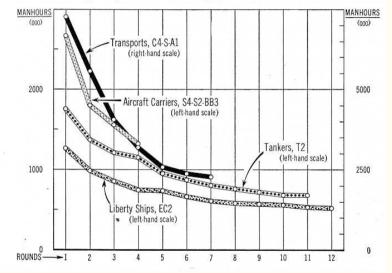
C_1

A

A^*

Q_L

Locking in an early advantage

- Like ordinary external economies, dynamic external economies can lock in an initial advantage of having a head start.

- Europe is producing at Q_L, at cost of C_1, making it too costly for Latam to enter.

- Latam could benefit by either subsidizing the industry (or awarding bounties) or placing a tariff on the foreign good so that its price is above C_0.

- Then, the Latam industry could gain experience by producing domestically, eventually out-competing the U.S.

- However: the protection must be temporary. A point emphasized by economists!

- Also, while the industry is learning, prices in Latam will be higher than with trade.

Evidence of learning-by-doing

- Importantly, there is evidence that learning by doing is an important mechanism of growth.

- In a seminal article on productivity growth in cotton textile mills in Lowell (Massachusetts), Paul David finds that early on from 1833-39, roughly 80% of the annual productivity growth was accounted for by learning-by-doing (.0202/.0260).

- For later periods, such as the 1850s, learning-by-doing was no longer a significant contributor.

- Thus, initially protecting Lowell's cotton mills may make sense because, as a developing economy, the U.S. may eventually enjoy a comparative advantage in textiles, but the first mills will not have the expertise and hence productivity to compete with those of Great Bitain.

- May make sense to let them get a toehold.

Jim Hoffman

MANHOURS PER SHIP FOR VESSELS BUILT IN NEW YARDS
Selected Types By Rounds Of the Ways

Transports, C4-S-A1
(right-hand scale)

Aircraft Carriers, S4-S2-BB3
(left-hand scale)

Tankers, T2
(left-hand scale)

Liberty Ships, EC2
(left-hand scale)

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Where is the market failure?, I

- If the industry will eventually be profitable, private investors should be willing to suffer early losses to develop the industry. Think of Google's initial profits as opposed to today's.

- However, financial markets may not be well enough developed to raise the necessary capital to cover initial losses.

- As well, the innovating firm may face start-up costs that later entries may avoid because they learn from the start-up. In which case, potential future profits will be competed away.

Where is the market failure?, II

- Additionally, there may not be sufficient capital in place to make manufacturing, especially large-scale manufacturing, attractive.

- Think of South Korea, which became an exporter of cars in the 1980s after rapid savings had built up the capital stock. Protecting car manufacturing in 1960 would have been a bad idea.

- However, many countries have had high protection rates forever and have experienced dismal growth.

- Political-economic considerations.

Long run vs. short run

- For the policy to make sense, the long-run gains must outweigh the short-run costs (higher prices or subsidies).

- Here is where the sectional rivalries come into play, with the northern and middle states having more to gain than the southern states.

- Infant industry protection often fails because politicians are not usually good at identifying the right industries, and protectionism often does not incentivize domestic producers to improve.

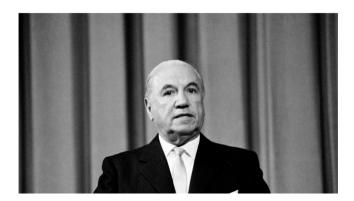- Once protection is entrenched, it may be hard to remove.

Import substitution industrialization as an application of strategic trade

The 1950s and 1960s

- After WWII, Latin America faced a dilemma: an inward-looking model of development (ISI) vs. an export promotion model.

- In the 1950s, Latin America opted for the ISI model.

- Why?

- Intelectual reasons: the ECLAC's influence (founded in 1948).

- Economic structure: vulnerability to external shocks (WWI, the Great Depression, and WWII).

- Political economy: interest groups and captive markets.

Four stages in the ISI's implementation

- 1st stage. Reaction to the Great Depression: tariff and non-tariff barriers, preferential loans, different exchange rates.

- 2nd stage. Deglobalization in the 1930s: price controls, public companies, public banking.

- 3rd stage. WWII and the ECLAC School: development banking, fiscal and monetary disorder (persistent fiscal deficits), nationalizations.

- 4th stage. Deep and prolonged financial crisis and hyperinflation (the "lost" decade in the 1980s).

Import Substitution Industrialization (ISI)

- Rationality: protection of infant industries to boost internal production.

- Linked with CEPAL, Raúl Prebisch (1901-1986), and Celso Furtado (1920-2004).

- Industrial policy: strong interventionist.

- Tools: tariff, quotas, subsidies, and regulation.

- But also financial repression.

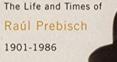- Unlike the "export-promotion" model, ISI focused on the national markets.

THE ECONOMIC DEVELOPMENT
OF LATIN AMERICA
and its principal problems

ECONOMIC COMMISSION
FOR LATIN AMERICA

UNITED NATIONS
DEPARTMENT OF ECONOMIC AFFAIRS
Lake Success, New York, 1950

Edgar J. Dosman

The Life and Times of
Raúl Prebisch
1901-1986

Table 13.8. *Nominal rates of protection, circa 1960*

Country	Consumer non-durables	Consumer durables	Semi-manufactures	Industrial raw materials	Capital goods
Argentina	176%	266%	95%	55%	98%
Brazil	260%	328%	80%	106%	84%
Chile	328%	90%	98%	111%	45%
Colombia	247%	108%	28%	57%	18%
Mexico	114%	147%	28%	38%	14%
Uruguay	23%	24%	23%	14%	27%
EEC	17%	19%	7%	1%	13%

Source: Alan M. Taylor, "On the Costs of Inward Looking Development: Price Distortions, Divergence, and Growth in Latin America," *Journal of Economic History* 58 (March 1998): 1–28.

TABLE 9.3. *Intraregional Exports by Product Group as Percentages of Total Exports by Product Group, 1965, 1970, and 1975*

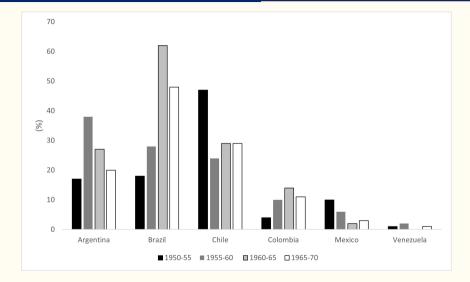| Exports	1965	1970	1975
Basic foodstuffs and raw materials			
1. Food and live animals	8.8	8.0	10.0
	(27.1)	(22.2)	(17.1)
2. Beverages and tobacco	7.6	12.2	8.5
	(0.3)	(0.5)	(0.4)
3. Crude materials, inedible	9.4	9.9	8.2
	(12.2)	(10.3)	(6.2)
4. Fuels and mineral fuels	13.9	14.0	16.7
	(31.5)	(22.9)	(29.3)
5. Animal and vegetable oils and fats	13.3	14.6	16.6
	(1.8)	(1.7)	(1.2)
Subtotal	(72.9)	(57.6)	(54.2)
Manufactured products			
Chemical elements and compounds	36.1	48.2	53.9
	(5.6)	(7.4)	(8.2)
Manufactured goods, classified by material	15.6	18.0	27.1
	(13.3)	(19.6)	(16.3)
Machinery and transport equipment	70.2	51.0	52.6
	(4.1)	(9.2)	(15.4)
Miscellaneous manufactured articles	70.0	55.2	38.5
	(3.7)	(5.5)	(5.3)
Subtotal	(26.7)	(41.7)	(45.2)
Other products	27.5	38.9	16.4
	(0.4)	(0.7)	(0.6)
Total	12.6	14.0	17.9
	(100)	(100)	(100)

Source: Bulmer-Thomas (2014).

Table 13.7. *Foreign investment in Latin America as a percent of GDP*

Country	Year							
	1900	1914	1929	1938	1950	1970	1980	1990
Argentina	4.15	2.6	1.12	0.87	0.12	0.14	0.23	0.64
Brazil	2.55	2.96	0.92	0.7	0.18	0.17	0.32	0.36
Chile	1.88	2.11	1.56	1.63	0.49	0.38	0.27	0.4
Colombia	0.74	0.27	0.34	0.35	0.24	0.19	0.13	0.21
Mexico	1.55	1.83	1.28	0.79	0.17	0.12	0.23	0.32
Peru	1.78	1.21	0.64	0.46	0.22	0.22	0.32	0.48
Uruguay	3.14	1.62	0.67	0.59	0.18	0.13		0.31
Venezuela	2.52	0.98	1.05	0.73	0.55	0.36	0.32	0.47

Source: Alan M. Taylor, "Latin America and Foreign Capital in the 20th Century," in Stephen Haber, ed., *Political Institutions and Economic Growth in Latin America: Essays in Policy, History, and Political Economy* (Stanford, CA, 2000), 129.
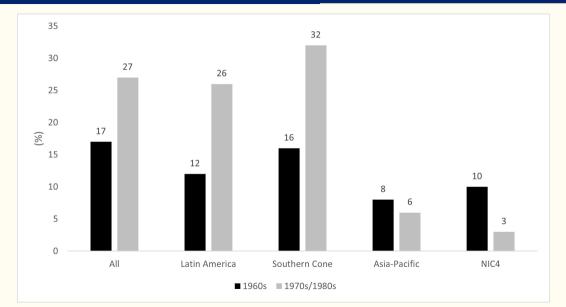
Annual average rate of inflation (%)

Source: Bulmer-Thomas (2014).

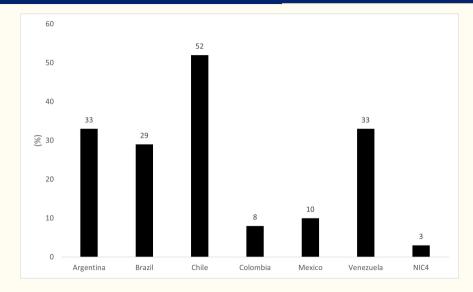# GDP per capita relative to that of Korea, 1955-1990

Source: Maddison dataset.

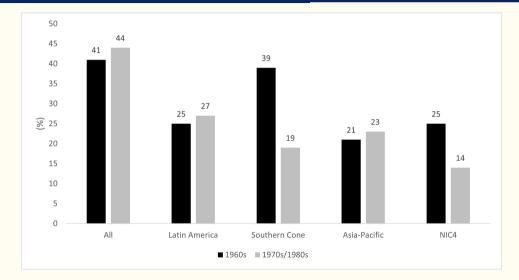# Black market premium on the exchange rate, 1960s-80s
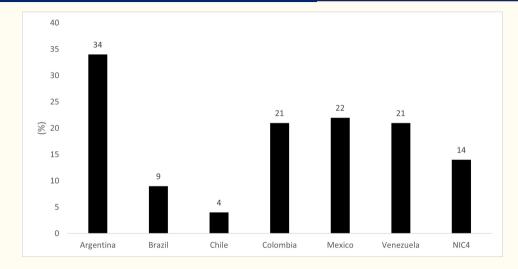

56

Black market premium on the exchange rate, 1970s-80s

Source: Taylor (1998).

Distortion on price of capital, 1960s/1980s

Source: Taylor (1998).

Source: Taylor (1998).

Underemployment (%)

TABLE 9.5. *Underemployment as Percentage of Population Economically Active, 1950, 1970, and 1980*

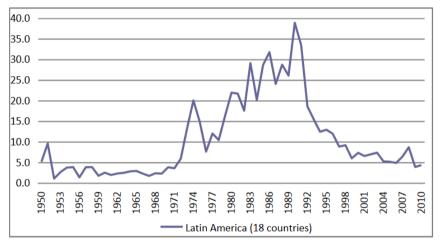| Country	1950	1970	1980
Argentina	22.8	22.3	28.2
	(7.6)	(6.7)	(6.8)
Bolivia	68.7	73.1	74.1
	(53.7)	(53.5)	(50.9)
Brazil	48.3	48.3	35.4
	(37.6)	(33.4)	(18.9)
Chile	31.0	26.0	29.1
	(8.9)	(9.3)	(7.4)
Colombia	48.3	40.0	41.0
	(33.0)	(22.3)	(18.7)
Costa Rica	32.7	31.5	25.1
	(20.4)	(18.6)	(9.8)
Ecuador	50.7	64.9	62.0
	(39.0)	(41.2)	(33.4)
El Salvador	48.7	44.6	49.0
	(35.0)	(28.0)	(30.1)
Guatemala	62.7	59.0	56.7
	(48.7)	(43.0)	(37.8)
Mexico	56.9	43.1	40.4
	(44.0)	(24.9)	(18.4)
Panama	58.8	47.5	36.8
	(47.0)	(31.7)	(22.0)
Peru	56.3	58.4	51.6
	(39.4)	(37.7)	(31.8)
Uruguay	19.3	23.7	27.0
	(4.8)	(6.9)	(8.0)
Venezuela	38.9	42.3	31.1
	(22.5)	(19.9)	(12.6)
Latin America	**46.1**	**43.8**	**38.3**
(14 countries)	**(32.5)**	**(26.9)**	**(18.9)**

Note: Figures in parentheses refer to underemployment in agriculture as percentage of agricultural labor force.
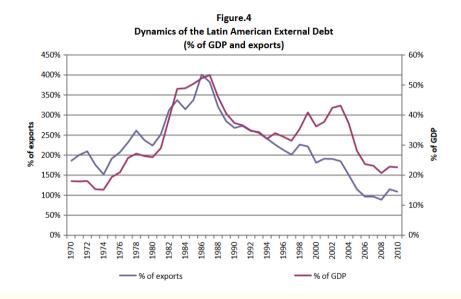*Source:* Wells (1987), table 2.1, 96–97, based on estimates by PREALC.

Figure 7
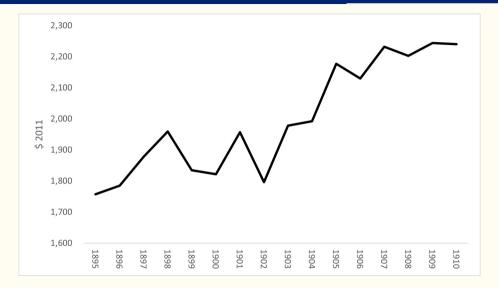**A. Inflation rate in Latin America (CPI, annual percentage change)**
A. Median

Source: Bértola and Ocampo (2012).

Figure.4
Dynamics of the Latin American External Debt
(% of GDP and exports)

Source: Bértola and Ocampo (2012).

Outcome

- Latin America completed the "easy" stage of ISI: consumer goods for internal markets.

- But failed in the "difficult" stage: capital goods and to export manufactures.

- Also, that strategy came with costs: macroeconomic disorder and difficulties in reforms.

- Taylor (1998): distortions on prices and incentives, particularly after the 1970s.

Why did ISI fail?

"On the one hand, industries that have been created under this instrument [protection], they only survive in uneconomic conditions or take advantage of their monopolistic position; on the other hand... the level of protection has gone beyond the necessary limits to help firms at their initial stages. Thus, inefficiencies and lack of a healthy competition have persisted." Gerardo Bueno, 1970

Institutions

The Mexican Revolution, 1910-20

- Porfirio Díaz's long dictatorship.

- Land distribution.

- Poor economic performance during the last years of the Porfiriato.

- Early transition from the export-led growth model toward inward-looking industrialization.
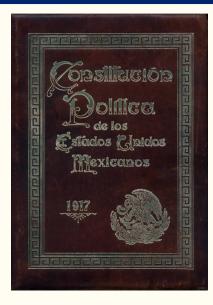
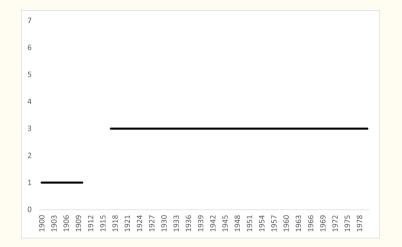# GDP per capita, 1895-1910

Source: Maddison dataset.

Source: Marshall and Robert (2021).

The Mexican case

- A relative success within the region until the 1970s.

- Large industrial sector (unlike the rest of Latin America, except Brazil).

- Relationship with the US and mobilization for WWII.

- Informal agreement: stability around a single party system (until 2000).

- Oil nationalization: source of rent.

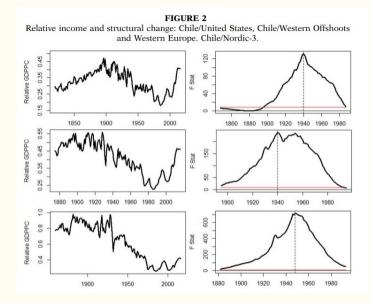# Real GDP per capita in logs, 1945-1980 (2011 $)

Source: Maddison dataset.

Chile and the transition to the ISI model

- The decline of the nitrate industry.

- Urban poverty.

- A new constitution in 1925.

- The "radical" governments era (1938-52).

- ISI and state-owned companies: CORFO (1939), Empresa Nacional de Electricidad-ENEL (1943), Compañía de Acero del Pacífico-CAP (1946), and Empresa Nacional del Petróleo-ENAP(1950).

FIGURE 2
Relative income and structural change: Chile/United States, Chile/Western Offshoots and Western Europe. Chile/Nordic-3.

Source: Couyoumdjian, Larroulet, Díaz (2022).

Colombia and the transition to the ISI model

- Moderate conservative regime (1904-1930).

- The "Liberal Republic" era (1930-45).

- Relatively orthodox fiscal policies.

- ISI in the case of Colombia: mainly focused on protectionism in international trade and final repression.

- 1931: La Caja Agraria (Agricultural fund), Banco Central Hipotecario-BCH (Central Mortgage Bank), and La Corporación Colombiana de Crédito (Colombian Credit Corporation).

- 1939: Instituto de Fomento Industrial-IFI, Instituto de Crédito Territorial (Regional Credit Institute), Fondo Nacional de Ganaderíaa (National Livestock Fund), and Instituto de Fomento Industrial (Industrial Development Institute).

Presidents Enrique Olaya (1930-34), Enrique Santos (1938-42), Alfonso López Pumarejo (1934-38 and 1942-45)