



DUTCH DISEASE RESEARCH REPORT

FINANCE AND INVESTMENT CELL
SHRI RAM COLLEGE OF COMMERCE

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OVERVIEW

Dutch Disease is an economic phenomenon that arises when a country experiences a resource boom or large foreign capital inflow, leading to a sharp appreciation of its currency. This appreciation makes exports from sectors like manufacturing and agriculture more expensive and less competitive internationally, while making imports cheaper for domestic consumers. As a result, non-resource sectors face declining output and employment, creating an imbalance in the economy. Over time, the country becomes overly dependent on the booming resource sector, making it vulnerable to external shocks such as price volatility. This shift can also worsen income inequality and hinder long-term, inclusive economic growth.

The term 'Dutch disease' was coined in 1977 by the British magazine 'The Economist' to describe the economic challenges faced by the Netherlands in the 1960s. After discovering vast natural gas reserves in the North Sea, it started experiencing a resource boom that led to a significant appreciation in its currency, the Dutch Guilder. This currency appreciation caused the decline of its manufacturing sector, as Dutch exports became less competitive globally, showcasing the negative effects of resource wealth. The term has since been applied to similar situations in other countries.

Understanding Dutch Disease is crucial for policymakers to design strategies that prevent or mitigate its consequences. By recognizing the potential for economic imbalance, countries can implement

measures to maintain diversification, ensure long-term stability, and avoid over-reliance on a single sector. Proper management of resource wealth is essential for fostering sustainable development and reducing vulnerability to external shocks, such as commodity price fluctuations.

In this report, we analyze Dutch Disease, its economic implications, causes, socio-economic factors, and possible solutions to mitigate its ill effects. Additionally, we examine the case studies of various countries affected by Dutch Disease by critically assessing their policies and sectors that contributed to the spread of Dutch Disease and those that mitigated its effects. Finally, we provide the key policy recommendations that various countries can implement to mitigate Dutch Disease.

LITERATURE REVIEW

Dutch Disease refers to the paradoxical economic phenomenon where a resource boom leads to a decline in other sectors, particularly manufacturing and agriculture, due to currency appreciation and resource-driven imbalances.

Dutch Disease has drawn more and more scholars' interest in the decades, especially as more nations experience economic instability tied to resource booms. The conceptual framework may have already started in the 1960s, its relevance however, gained steam with the economic collapse of the countries previously on the cusp of affluence. Such is the case of Venezuela, a nation that had tremendous economic potential but eventually fell victim to the

dangers of over-reliance on resources.

Despite its significance, instances of Dutch Disease are still quite under-explored, as there are an estimated 30,000 documents containing the term “Dutch Disease” according to Google Scholar. That number also gets smaller if a particular case in point, for example, Venezuela, is chosen, which has roughly 11,000 to 12,000 writings.

BASIS AND EARLY CONTRIBUTIONS

The "Dutch Disease" term was coined in the 1970s following the Netherlands' natural gas boom that caused manufacturing to decline. However, formal theoretical frameworks were established by Corden and Neary (1982), who modeled Dutch Disease through two effects:

1. **Spending Effect:** Resource windfalls inflate demand for non-tradables, appreciating the exchange rate.
2. **Resource Movement Effect:** Labor and capital shift to the resource sector, starving other sectors.

These dual effects help explain why some sectors contract during resource booms. Their model laid the foundation for later theories linking resource-driven wealth to economic imbalances. Sachs and Warner (2001) expanded on this by framing the phenomenon as part of the broader "resource curse," arguing through cross-country regressions that resource-rich economies tended to experience slower growth.

SHIFTS IN RESEARCH FOCUS: INSTITUTIONS AND GLOBALIZATION

Concurrently, globalization and the 2000s commodity boom encouraged studies on emerging economies:

- **Venezuela's oil collapse** became a cautionary tale of mismanagement (Gylfason, 2001).
- **Chile's copper-driven economy** highlighted the stabilization funds' role (Van der Ploeg, 2011).

The 2008 financial crisis also diverted focus to **sovereign wealth funds (SWFs)** as tools to mitigate Dutch Disease. Norway's Government Pension Fund Global, which sterilized revenues from oil to shield manufacturing, was a benchmark (Sachs & Warner, 2001).

EMPIRICAL TRENDS: CASE STUDIES AND POLICY APPLICATIONS

1. Norway's Institutional Success

- Norway's effective avoidance of Dutch Disease can largely be attributed to investments in education and the establishment of the Government Pension Fund Global (GPF), currently the world's largest sovereign wealth fund. Designed with the primary objective of managing the country's petroleum revenues, the GPF has also influenced research on fiscal discipline.

Its success has significantly shaped academic discourse, with scholars such as Van der Ploeg (2011) identifying “institutional quality” as the most crucial determinant in the successful governance of natural resource wealth.

2. Botswana and Malaysia: Diversification Strategies

- **Botswana** used diamond revenues to fund education, reaching an annual growth rate of 6% (Mulwa & Mariar, 2020).
- **Malaysia's** shift to electronics manufacturing reduced oil dependency, influencing policies in Saudi Arabia's Vision 2030 (Center for Global Development, Barder, 2012).

3. The UAE and Australia: Labor Market Dynamics

- **United Arab Emirates:** The post-1975 oil boom in the UAE exemplified the labor market effects of Dutch Disease, with construction and services dominating tradables.
- **Australia's** 2000s mining boom attracted professionals from manufacturing, increasing sectoral wages by 15% (Bjørnland et al., 2020).

MODERN TRENDS: CLIMATE CHANGE & GREEN TRANSITIONS

Recent literature explores the risk of Dutch Disease amid transitions to renewable energy. Chile's lithium boom, for instance, risks replicating its earlier copper-driven imbalances, while Norway's hydropower

investments offer a template for sustainable resource management. Kojo (2014) cautions that real exchange rate appreciation should not be universally interpreted as harmful, especially if offset by increased productivity and institutional adaptability. ESG (Environmental, Social, Governance) factors segue the conversation by linking resource wealth management to environmental sustainability and diversification efforts.

Influential Scholars and Paradigm Shifts

- **Corden and Neary (1982):** Established Dutch Disease's theoretical bedrock.
- **Sachs and Warner (2001):** Linked Dutch Disease to the resource curse, emphasizing institutions.
- **Van der Ploeg (2011):** Advocated SWFs and diversification, shaping policy frameworks.
- **Barder (2012):** Bridged theory and practice, offering policymakers guidelines for mitigation.

CONCLUSION

The research on Dutch Disease has been shaped by economic crises, policy experiments, and academic innovation. Early models by Corden and Neary provided a structural lens, while Sachs and Warner's institutional critiques redirected focus to governance. Case studies from Norway to Botswana underscored the role of strategic fiscal management, while modern trends integrate climate and sustainability. As economies navigate green transitions, Dutch Disease research remains vital, continually reshaped by global challenges and scholarly dialogue.

DUTCH DISEASE IN CHILE: A CASE STUDY

THE TRIGGER

The Chilean economy was overly reliant on copper, which accounted for 57% of the country's export revenue and 20% of its GDP in 2006. Given the dominant share of copper in exports and the volatility of copper prices, which were set by global markets, these price fluctuations significantly impacted the exchange rate and led to a decline in GDP. Chile's economy, heavily reliant on copper, had long been a textbook example of the Dutch Disease. Chile had benefited immensely from global demand for the metal. However, the very success of the copper industry triggered a set of paradoxical challenges.

ECONOMIC IMPACT

1. Currency Appreciation where there was a robust influx of foreign exchange due to high demand for Chilean copper. Other exports (e.g., agriculture, forestry, manufacturing) became more expensive in the international market. As a result, these sectors became less competitive, and overall exports plummeted outside the copper industry.

2. Deindustrialization led to a decline in the industrial and manufacturing base of the economy, as businesses in these sectors were unable to compete with cheaper imports, reducing the diversity of the economy and shifting the economic activity more heavily toward the resource sector.

3. Widening Income Inequality where the resource boom primarily benefited those working in or related to the copper industry, which gave impetus to the growing income inequality in Chile. While workers in copper mining and extraction saw their wages rise and job growth, other sectors of the economy experienced stagnation or even job losses instigating social tensions and lower social mobility.

SOCIAL IMPACT

1. The central theme throughout the last century of Chilean economic history seemed to be the lack of state autonomy and the disproportionate role of the elites. This accounted for the “wasting” of the nitrates boom, the failure of the ISI strategy, and then ultimately stagnation.

2. NRBI have generated limited linkages within and between industries and between the private and public spheres, contributing to a narrow firm capability base with slow and uneven progress of social capabilities.

3. Inequality of access to education.

4. Unskilled wages increased while most of the profits generated in the nitrate sector went outside the country. As a result, personal income distribution among Chileans fell in the context of economic growth.

THE CORDEN-NEARY MODEL

The paradigm adopted by the Chilean economy to understand and abate the effects of the disease was the Corden-Neary model. The model delves into 6

factors and comprehends the problems by listing them under the listed number of categories. Its implications and certain takeovers in the context of the Chilean effect stand below-

1. Resource Boom (Copper Exports):

- The copper sector in Chile contributes to around 20% of the GDP and 50-60% of total exports.
- led to higher national income, increased government revenues, and enhanced economic growth in the short term.

2. Appreciation of the Chilean Peso:

- The increase in exports led to the appreciation of the Chilean Peso. This made Chilean non-resource exports more expensive on global markets and less competitive.
- For example, sectors such as agriculture (fruit, wine), manufacturing, and technology suffered from reduced demand abroad due to the stronger peso, which may lead to deindustrialization over time.

3. Impact on Non-Resource Sectors:

- The services sector, including areas like tourism and information technology, also faced similar challenges, as their products or services became more expensive in international markets.

4. The Crowding-Out Effect:

- The increase in copper-related revenues initially was beneficial to crowd out investment in non-resource sectors.
- Unfortunately, it exacerbated over-reliance on the resource sector, making the economy more vulnerable to commodity price fluctuations. When the copper prices fell, Chile faced significant

economic disruption, as non-resource sectors weakened over time.

5. Government Revenues and Fiscal Policy:

- During periods of high copper prices, the government benefited from a windfall in revenue, which led to increased public spending.
- Chile occasionally implemented capital controls, such as taxing speculative investments, to reduce market volatility and protect the economy.

6. Social and Economic Imbalances:

- This led to regional disparities within the country. For example, regions with high copper production like Antofagasta experienced economic growth, while others that rely on agriculture or manufacturing faced decline.

SOLUTIONS

To mitigate the effects of Dutch Disease, Chile adopted several key strategies aimed at reducing its economic reliance on copper:

1. Stabilisation and Sovereign Wealth Funds

- **Copper Stabilization Fund (CSF):** Established in 1985, the CSF helped Chile manage copper price volatility by saving surplus revenues during high-price periods and using these savings when prices dropped. This buffer prevented overspending, kept inflation in check, and avoided rapid currency appreciation.
- **Sovereign Wealth Fund (SWF):** Chile created the Economic and Social Stabilization Fund (ESSF) to diversify financial resources in 2006. The SWF

allowed the government to invest in surpluses internationally, reducing dependence on copper and helping fund infrastructure, education, and healthcare.

- **Structural Balance Rule:** Introduced in 2001, this rule limited government spending based on the long-term copper price trend, avoiding excessive public spending during copper booms and stabilizing the economy.

2. Economic Diversification

Chile actively diversified its economy to reduce its reliance on copper:

- **Non-Copper Exports:** Chile expanded exports in agriculture (grapes, berries, avocados), wine, forestry, and fisheries, helping reduce the impact of copper price fluctuations.
- **Technology and Innovation:** Through initiatives like Start-Up Chile, the country encouraged innovation and entrepreneurship, positioning itself as a tech hub in Latin America.
- **Education and Human Capital:** Investments in education, particularly in STEM fields, created a skilled workforce capable of contributing to non-copper industries.

3. Long-term investments in Infrastructure and Social Programs

- **Infrastructure Investments:** Chile made significant investments in transportation, energy, and telecommunications, which supported the growth of non-copper industries and attracted foreign investment.
- **Social Programs:** Revenue from copper exports and sovereign funds was used to finance healthcare, education, pensions, and poverty reduction, ensuring the

benefits of copper wealth were widely distributed and contributing to political stability.

4. Social Diversification

Chile implemented a range of social and economic strategies to reduce its reliance on copper exports and enhance long-term resilience:

- **Commodity Taxation and Offshore Saving:** A tax was imposed on copper sales, and the resulting revenues were offshored into a sovereign wealth fund. This prevented excessive domestic spending and limited appreciation of the Chilean peso.
- **Stabilization Fund:** A dedicated stabilization fund was established to shield the economy from copper price volatility, ensuring a smoother economic trajectory during downturns.
- **Countercyclical Fiscal Rules:** Chile adopted fiscal rules to ensure government spending remained countercyclical, avoiding economic overheating during copper booms.
- **Temporary Subsidies for Key Sectors:** sectors like agriculture and manufacturing were supported with temporary subsidies to promote diversification and reduce dependency on copper.
- **Investments in Education and R&D:** Targeted investments in education, research, and technological development helped cultivate a more skilled and adaptable workforce, supporting the expansion of non-copper industries.

T-TEST ON REAL EFFECTIVE EXCHANGE RATE (REER)

Analysis: t-Test and Dutch Disease in Chile
The hypothesized mean difference being 0, the t-test was performed to check whether the mean REER in 1995–2004 differed significantly from 2005–2014. The test found no statistically significant difference, meaning that the observed changes in REER could be due to random variations rather than a structural shift.

Key Findings from the T-Test & Their Relevance

1. No Statistically Significant Change in REER

- The mean **REER slightly declined** from 101.75 (1995–2004) to 98.42 (2005–2014).
- However, the t-statistic (0.961) was **lower than the critical values** (1.833 for one-tail, 2.262 for two-tail).
- The p-values (0.1809 one-tail, 0.3618 two-tail) exceeded 0.05, meaning we **failed to reject the null hypothesis**.

Relevance to Dutch Disease:

- If the Dutch Disease were severe, we would expect a **significant increase in REER over time**, reflecting sustained appreciation due to commodity exports (copper).
- The lack of a significant increase suggests that **Chile's currency appreciation pressure was either mild or well-managed through economic policies**.

- This aligns with Chile's efforts to mitigate Dutch Disease through fiscal rules, stabilization funds, and monetary policy.

2. REER Volatility Decreased in 2005–2014

- The variance in REER was much higher in 1995–2004 (96.76) than in 2005–2014 (10.93).
- This suggests that REER fluctuations were more pronounced in the earlier period.

Relevance to Dutch Disease:

- The high variance in **1995–2004** corresponds to the **Asian Financial Crisis (1997–1998)** and the transition to a **fully floating exchange rate system** after 1999.
- The lower variance in **2005–2014** aligns with **Chile's successful implementation of stabilization mechanisms**, including:
 - a. Copper Stabilization Fund (1985)
 - b. Economic and Social Stabilization Fund (2006)
 - c. Countercyclical fiscal policies to reduce exchange rate shocks
 - d. This suggests that Chile's policies helped smooth REER fluctuations, preventing extreme appreciation or depreciation.

3. Weak Correlation Between the Two Periods (-0.1918)

- The Pearson correlation between the two periods was **negative but weak (-0.1918)**.
- This suggests that REER trends in the first decade were **not strongly related to those in the second decade**.

Relevance to Dutch Disease:

- If Dutch Disease had persisted strongly, we would expect a **high positive**

correlation, meaning the same appreciation trend continued.

- The weak correlation might indicate that Chile’s policy interventions altered the REER trend over time, decoupling it from previous patterns.

Conclusion

- The t-test does not show a significant difference in REER between 1995–2004 and 2005–2014, meaning the observed changes were **not statistically significant**.
- **Dutch Disease symptoms (currency appreciation)** were present early on, but Chile’s economic policies likely helped stabilize REER in later years.
- The **reduction in REER volatility** supports the idea that **Chile successfully managed the effects of commodity dependence** through fiscal and monetary policy.
- The **lack of a statistically significant shift** suggests Chile’s economy has adjusted gradually rather than experiencing a **sudden structural break**.

REER AND GDP REGRESSION TEST

Detailed Analysis of Regression Between Real GDP and REER in Chile

This regression aims to determine whether the Real Effective Exchange Rate (REER) significantly affects the Real GDP in Chile, a key factor in assessing the presence of Dutch Disease.

1. Interpreting the Regression Output

1.1 Model Fit: How Well Does REER Explain GDP?

Statistic	Value	Interpretation
R Square	0.106	Only 10.6% of GDP variation is explained by REER. This is fairly low.
Adjusted R Square	0.059	When adjusted for sample size, explanatory power drops to 5.9%, indicating a weak relationship.
Standard Error	42.27	The average deviation of actual GDP from predicted values is high, suggesting a poor fit.

Conclusion: The regression does not explain GDP changes using REER alone, suggesting other factors are more important in driving GDP growth.

1.2 Statistical Significance: Is the Relationship Meaningful?

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	4.03676568	4.03676568	1.80549607	0.19409674
Residual	20	44.7164161	2.23582081		
Total	21	48.7531818			

Term	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	13.6269531	4.61480606	2.95287666	0.00786614	4.00063633	23.2532699	4.00063633	23.2532699
X Variable 1	-0.0619957	0.04613848	-1.3436875	0.19409674	-0.1582389	0.03424749	-0.1582389	0.03424749

- The F-statistic is 2.265, with a p-value of 0.1488.
- Since $p > 0.05$, the regression model is not statistically significant, meaning we cannot confidently say that REER influences GDP.

Conclusion: The model fails to establish a strong statistical link between REER and GDP.

1.3 Coefficients: How Does REER Affect GDP?

Term	Coefficient	Standard Error	t-stat	p-value	95% Confidence interval
Intercept	360.81	132.22	2.73	0.0133	[84.07,637.55]
REER (X Variable 1)	-1.98	1.32	-1.50	0.1488	[-4.75, 0.78]

- Interpretation of REER Coefficient (-1.98):
- A 1-unit increase in REER is associated with a 1.98-unit decrease in GDP.
 - This suggests a negative relationship, which aligns with the Dutch Disease theory (currency appreciation weakens GDP by hurting exports).
 - However, the p-value (0.1488) is insignificant, meaning this result could be due to random chance.
 - Confidence Interval (-4.75 to 0.78):
 - Since the interval includes 0, we cannot reject the null hypothesis (that REER does not affect GDP).
 - There is too much uncertainty to conclude a definite negative effect of REER.

Conclusion:

- While the negative coefficient suggests that higher REER may lower GDP, it is not statistically significant.
- The relationship is weak and inconclusive, meaning Dutch Disease cannot be confirmed using this model alone.

2.Residual Analysis: Are There Unexplained Patterns?

- The residuals (errors between predicted and actual GDP values) are quite large, suggesting that REER alone does not capture all influences on GDP.
- The largest residual is +73.61 GDP units, indicating significant unexplained variation.

Term	Coefficient	Standard Error
1	7.7311617	-3.2311617
2	7.52657588	-1.6265759
3	7.15460166	-2.4546017
4	6.9996124	-0.6996124
5	6.50984635	-0.4098463
6	6.64003732	-0.3400373
7	6.96861455	2.83138545
8	7.02441068	2.17558932
9	7.68156514	1.41843486
10	7.94194709	0.95805291
11	8.28292346	0.21707654
12	7.98534409	0.81465591
13	7.65676686	0.34323314
14	7.42118319	0.27881681
15	7.58237201	-0.482372
16	7.53277545	0.26722455
17	7.7311617	1.9688383
18	7.42738276	0.97261724
19	7.38398576	-0.0839858
20	7.24759522	-0.5475952
21	7.34058877	-1.1405888
22	7.92954795	-1.229548

Conclusion:

- The model lacks key explanatory variables, such as commodity prices, global economic trends, or fiscal policies.
- Including these variables could improve the accuracy of the regression.

3. Dutch Disease Implications: Is There Evidence?

Supporting Evidence for Dutch Disease:

- The negative REER-GDP relationship aligns with the Dutch Disease theory (currency appreciation harms GDP by making exports less competitive).
- Chile’s economy is resource-dependent (copper), so exchange rate appreciation could hurt manufacturing and non-resource sectors.

Weaknesses in Evidence:

- The relationship is statistically insignificant ($p = 0.1488$).
- Only 10.6% of GDP variations are explained by REER, meaning other factors are likely driving GDP changes.
- Chile has implemented economic policies (e.g., stabilization funds) that might have mitigated the effects of Dutch disease.

Final Conclusion of the T-test:

- The negative effect of REER on GDP is weak and statistically insignificant.
- More data and additional variables (e.g., commodity prices, trade balance, sectoral GDP) are needed to confirm Dutch Disease in Chile.

Final Takeaway: No Strong Evidence of Dutch Disease (Yet)

- The results suggest a possible inverse effect of REER on GDP but are not statistically significant.
- The low explanatory power ($R^2 = 10.6\%$) means that other factors play a more significant role in Chile’s GDP.

REGRESSION ANALYSIS: REER & UNEMPLOYMENT RATE IN CHILE (1993–2014)

1. Regression Summary

- **Dependent Variable:** Unemployment Rate
- **Independent Variable:** Real Effective Exchange Rate (REER)
- **Number of Observations:** 22

Statistic	Value
R-squared	0.0828
Adjusted R-squared	0.0369
Coefficient (REER)	-0.0619
Intercept	13.6269
Standard Error	1.4953
P-value (REER coefficient)	0.1941

2. Interpretation of Results

- The REER coefficient is -0.0619, suggesting that for every 1-unit increase in REER, the unemployment rate decreases by approximately 0.062 percentage points.
- However, the P-value of 0.1941 indicates that this relationship is not statistically significant at conventional levels (e.g., 0.05).
- The R-squared value of 0.0828 shows that only 8.28% of the variation in unemployment is explained by REER, indicating a weak explanatory power.

3. Implications in the Context of Dutch

- According to Dutch Disease theory, a resource boom (e.g., copper exports in Chile) should lead to REER appreciation, which could reduce competitiveness in tradable sectors and lead to higher unemployment.
- In this regression:
 - The coefficient is negative, suggesting that REER appreciation is associated with lower, not higher, unemployment.
 - This contradicts the classic Dutch Disease expectations.
- The lack of statistical significance and the low R-squared suggest that REER changes do not significantly explain unemployment trends in Chile during the period.

4. Possible Explanations

- Macroeconomic management in Chile may have mitigated Dutch Disease effects, such as:
 - Adoption of a floating exchange rate regime.
 - Establishment of a structural fiscal surplus rule.
 - Use of sovereign wealth funds to stabilize spending.
- Other variables (e.g., global economic conditions, labor market policies, copper price shocks) might affect unemployment more significantly than REER.

5. Conclusion of the regression analysis

The regression analysis does not provide strong evidence for Dutch Disease in Chile via the unemployment channel. While the REER appears to have a negative association with unemployment, the relationship is weak and statistically insignificant.

To strengthen the analysis, further investigation could include the following:

- Structural break analysis across policy regimes.
- Multivariate regression, including additional macroeconomic indicators.
- Sectoral employment analysis to detect deindustrialization effects.

Conclusion

The literature on Dutch Disease highlights the paradoxical consequences of resource booms, particularly in small open economies. Foundational models by Corden and Neary (1982) introduced the structural dynamics of the 'spending effect' and 'the resource movement effect', while subsequent work by Sachs and Warner (2001) extended the discussion to incorporate institutional weaknesses. Gradually, scholars like Van der Ploeg (2011) and Kojo (2014) pointed towards the roles played by governance quality, budgetary discipline, and diversification policies in cushioning these effects. These perceptions cumulatively reveal that Dutch Disease is not an inevitability but highly contingent upon policy design and institutional response.

In Chile's case, despite an economy heavily reliant on copper, the government instituted a range of preemptive and reactive measures to avoid structural damage in the long term. From stabilization funds and fiscal rules to innovation and education-based diversification, Chile was able to strike a balance between leveraging its resource wealth and sustaining economic resilience.

Empirical evidence supports this narrative. The t-test comparing 1995–2004 and 2005–2014 REER reveals no statistically different

outcome, therefore, the real exchange rate appreciation, if present, wasn't severe enough or long enough to be considered textbook symptoms of Dutch Disease. Moreover, the sudden reduction in REER volatility in the second decade coincides with Chile's policy initiative timeline, indicating successful macroeconomic stabilization.

Moreover, regression tests of REER against both GDP and unemployment revealed that the associations were weak and statistically insignificant. The theoretically expected negative coefficients of Dutch Disease (i.e., the detrimental effect of currency appreciation on output and employment) are supported by low R-squared values and significant p-values, indicating that other influences were likely stronger in driving GDP and labor market trends.

On a general basis, Chile's case shows that even though there were symptoms of Dutch Disease, particularly during copper booms, these were managed successfully through targeted interventions. The country avoided structural degeneration over the long term through investments in institutions, human resources, and diversification of its economy. In a world in transition towards cleaner energy and ESG-based economic policies, the vision-based orientation of Chile provides a template that other resource-endowed economies wish to follow for converting boom episodes into sustained expansion.

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LINKS

1. [Regional Disparities, Growth, and Inclusiveness in: IMF Working Papers Volume 2021 Issue 038 \(2021\).](#)
2. <https://lup.lub.lu.se/luur/download?func=downloadFile&recordId=8948526&fileId=8948529> Full article: [Regional inequality in multidimensional quality of employment: insights from Chile, 1996–2017](#)

APPENDIX

Term	Coefficient	Standard Error	
1	165.5022807	-69.18228065	4786.187956
2	153.5934568	-48.67345685	2369.105402
3	148.6314469	-36.57144693	1337.470731
4	132.9514956	-12.61149559	159.0498211
5	137.1195839	-11.74958392	138.0527224
6	147.6390449	-22.60904495	511.1689135
7	149.4253685	-18.18536852	330.7076282
8	170.4642906	-35.08429057	1230.907445
9	178.8004672	-39.08046723	1527.282919
10	189.716889	-43.39688905	1883.289979
11	180.18983	-22.12983001	489.7293762
12	169.670369	-4.480368983	20.07370622
13	162.1281139	13.06188609	170.6128683
14	167.2886042	16.95139578	287.3498188
15	165.700761	25.52923895	651.7420414
16	172.0521337	17.03786626	290.2888866
17	162.3265943	37.8234057	1430.610018
18	160.9372315	51.67276847	2670.075002
19	156.5706628	69.1293372	4778.865262
20	159.5478688	73.61213125	5418.745867
21	178.4035064	58.93649356	3473.510273
TOTAL			33954.82664

REGRESSION STATISTICS	
Multiple R	0.326339497
R Square	0.106497467
Adjusted R Square	0.059471018
Standard Error	42.27405988
Observations	21

Term	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Intercept	360.806991	132.2206712	2.72882438	0.013332628	84.06594577	637.5480362	84.06594577	637.5480362
X Variable 1	-1.984803967	1.318921882	-1.504868479	0.148800931	-4.745339192	0.775731258	-4.745339192	0.775731258

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	4047.109992	4047.109992	2.26462914	0.148800931
Residual	19	33954.82664	1787.096139		
Total	20	38001.93663			

Term	Variable 1	Variable 2
Mean	101.75	98.42
Variance	96.75833333	10.9284444
Observations		10
Pearson Correlation	-0.191859756	
Hypothesized Mean Difference	0	
df	9	
t Stat	0.96062977	
P(T<=t) one-tail	0.180917127	
t Critical one-tail	1.833112933	
P(T<=t) two-tail	0.361834254	
t Critical two-tail	2.262157163	

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