

DISCUSSION OF
“EXORBITANT PRIVILEGE GAINED AND LOST:
FISCAL IMPLICATIONS”

BY CHEN, JIANG, LUSTIG, VAN-NIEUWERBURGH, XIAOLAN

PRESENTED IN NBER-ASSET PRICING (2022)

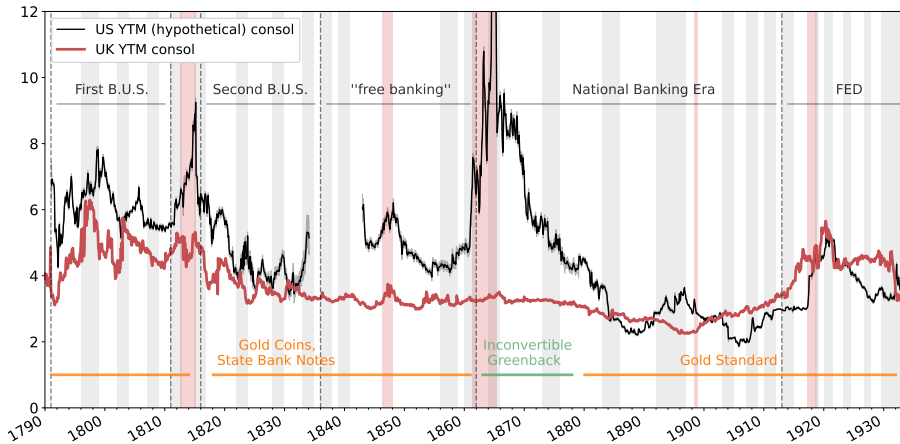
Jonathan Payne
Princeton University

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INTRODUCTION

- ★ Interesting paper, which I really enjoyed reading!
- ★ Studies three centuries of UK and US fiscal history.
- ★ Calculates the “fiscal capacity” of the UK and US governments
 - ★ Uses similar technique to Jiang, Lustig, Van Nieuwerburgh, Xiaolan (2019)
 - ★ Forecasts dynamics of taxes, spending, and GDP
 - ★ “Fiscal capacity” = $PDV[\text{future surpluses} + \text{convenience seigniorage}]$
- ★ Tells story about the UK losing status as “safe asset” issuer
 - ★ Pre-WWI, UK was safe asset issuer with 3/4 UK debt backed by surpluses
 - ★ Post-WWII, US was safe asset issuer with 1/3 US debt backed by surpluses

UK YIELDS LOWER THAN US YIELDS UNTIL 1880s



Note: Gray intervals show recessions. Red intervals show major wars. Black line is posterior mean with 5% – 95% iq-range. (From [Hall, Payne, Sargent, and Szőke, 2021](#)).

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CJLVX (2022) METHODOLOGY AND RESULTS

MY COMMENTS

PDV OF NET REVENUE (“FISCAL CAPACITY”)

- ★ Assumptions: no arbitrage, transversality condition holds (no bubble)
- ★ Then market value of government bonds is PDV of future net revenues:

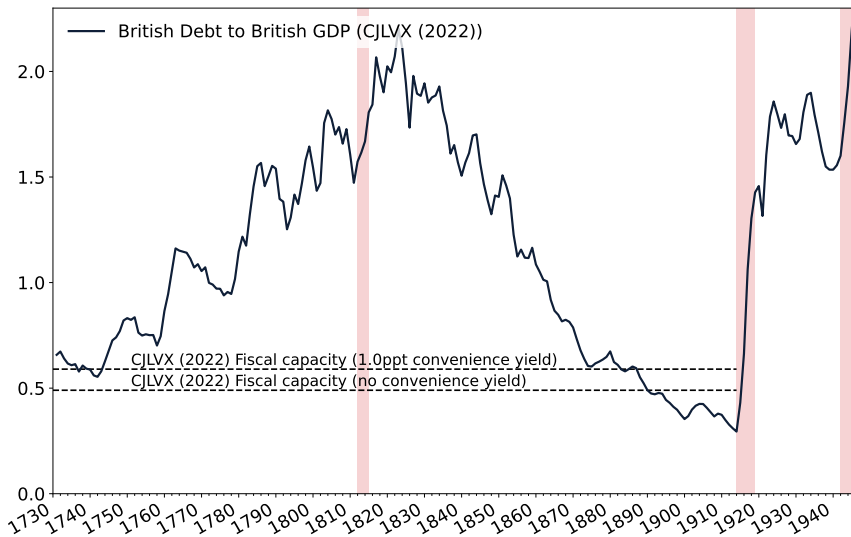
$$D_t = \mathbb{E}_t \left[\sum_{j=0}^{\infty} \underbrace{M_{t,t+j}^{\$}}_{\text{SDF}} \left(\underbrace{T_{t+j}}_{\text{Taxes}} - \underbrace{G_{t+j}}_{\text{Spending}} + \underbrace{(1 - e^{-\lambda_{t+j}}) \sum_{h=1}^H Q_{t+j,h}^{\$} p_{t+j}^{\$(h)}}_{\text{seigniorage revenue from convenience yield}} \right) \right]$$

- ★ Estimating D_t/Y_t (“fiscal capacity”) requires estimating future taxes, spending, convenience yields, and risk prices implied by SDF.

“STEADY STATE” ANALYSIS OF FISCAL CAPACITY

- ★ Authors first calculate “long-run average” fiscal capacity.
- ★ For UK over 1729-1914, they estimate:
 - ★ Average Tax-to-GDP (τ_0) = 9.0%
 - ★ Average Spending-to-GDP (g_0) = 6.6%
 - ★ Convenience yield $\approx 1ppt$.
 - ★ Calculated as average spread b/n yield on UK debt and other countries’ debt
 - ★ Comparison to: US, Austria, Belgium, France, Germany, Holland, Japan, Italy, Denmark, Finland, Norway, Portugal, Spain, Sweden, Switzerland
 - ★ Tax, spending, and GDP risk premium $\approx 3\%$:
 - ★ Assume same risk premium on taxes, spending, and GDP.
 - ★ Estimate GDP risk premium as premium on unlevered stock market claim.
- ★ Estimates of UK steady state “fiscal capacity” over 1729-1914:
 - ★ Without convenience yield: $\bar{D}/\bar{Y} = 0.49$
 - ★ With convenience yield: $\bar{D}/\bar{Y} = 0.59$

DEBT/GDP CAPACITY VS ACTUAL DEBT/GDP



“DYNAMIC” ANALYSIS OF FISCAL CAPACITY

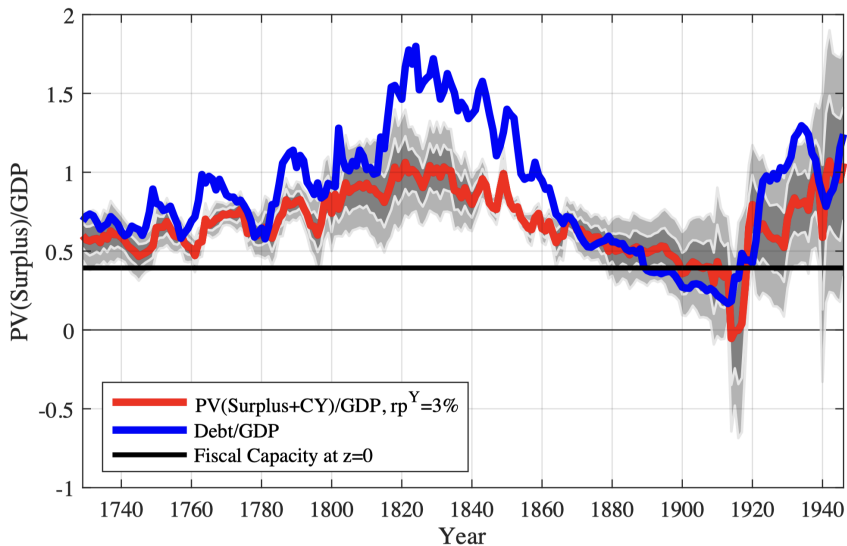
- ★ Authors then estimate dynamic fiscal capacity D_t/Y_t
- ★ Do this by fitting a Gaussian first-order VAR for pre-WWII & post-WWII

$$z_t = \Psi z_{t-1} + u_t$$

- ★ z_t is a vector of state variables (see table below):
- ★ $u_t \sim i.i.d.N(0, \Sigma)$ are homoscedastic innovations

Position	Variable	Mean	Description
1	π_t	π_0	Log Inflation
2	$y_t^{\$}(1)$	$y_0^{\$}(1)$	Log 1-Year Nominal Yield
3	$yspr_t^{\$}$	$yspr_0^{\$}$	Log 10-Year Minus Log 1-Year Nominal Yield Spread
4	x_t	x_0	Log Real GDP Growth
5	Δd_t	μ_d	Log Stock Dividend-to-GDP Growth
6	d_t	$\overline{\log d_0}$	Log Stock Dividend-to-GDP Level
7	pd_t	\overline{pd}	Log Stock Price-to-Dividend Ratio
8	$\Delta \log \tau_t$	μ_{τ}	Log Tax Revenue-to-GDP Growth
9	$\log \tau_t$	$\log \tau_0$	Log Tax Revenue-to-GDP Level
10	$\Delta \log g_t$	μ_g	Log Spending-to-GDP Growth
11	$\log g_t$	$\log g_0$	Log Spending-to-GDP Level

DYNAMIC FISCAL CAPACITY: UK (1729–1946)



DYNAMIC FISCAL CAPACITY: US (1793 – 1946)

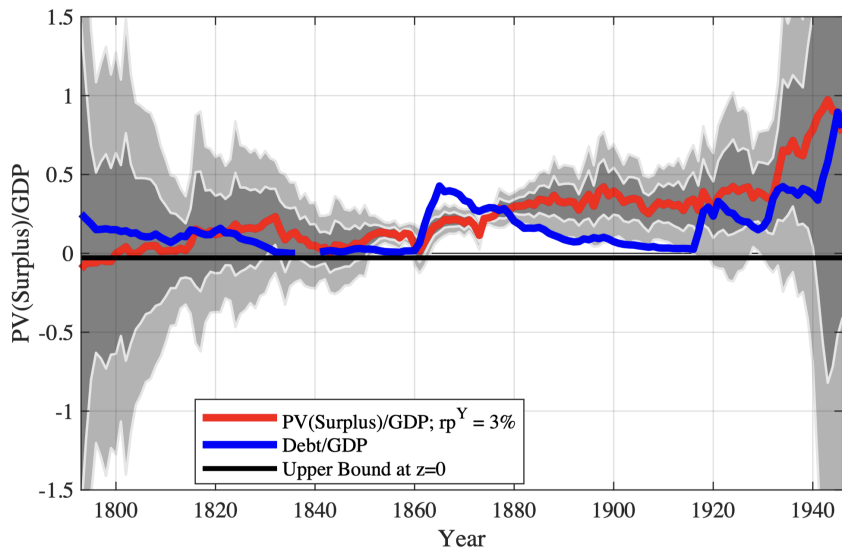


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CJLVX (2022) METHODOLOGY AND RESULTS

MY COMMENTS

OVERVIEW OF MY COMMENTS

1. Methodological questions remain
2. Potentially important to incorporate British colonial tax base
3. US historical data suggests convenience yield could be greater than 1ppt
4. “Fundamental value” or “fiscal backing” might be a better label than “fiscal capacity”

C1: METHODOLOGICAL QUESTIONS

- ★ Methodology has similar strengths and weaknesses to JLVX (2019) (which focused on the US in the post WWII period)
- ★ Some areas where more clarification would be helpful:
 - ★ How the model satisfies the restrictions outlined by Hansen and Sargent (1991) to be able to test government budget balance
 - ★ Unclear that a fixed parameter VAR makes sense for long time series (e.g. 1729-1946) with potential stochastic trends
 - ★ Unclear that the VAR allows the surplus process to react sufficiently to fiscal constraints (e.g. allowing response to Debt-GDP ratio)
 - ★ Unclear that the model has the right SDF for discounting surpluses
- ★ ... But I am sympathetic to the difficulties of working with these datasets!
- ★ ... And I want to focus on some new issues with the historical UK data

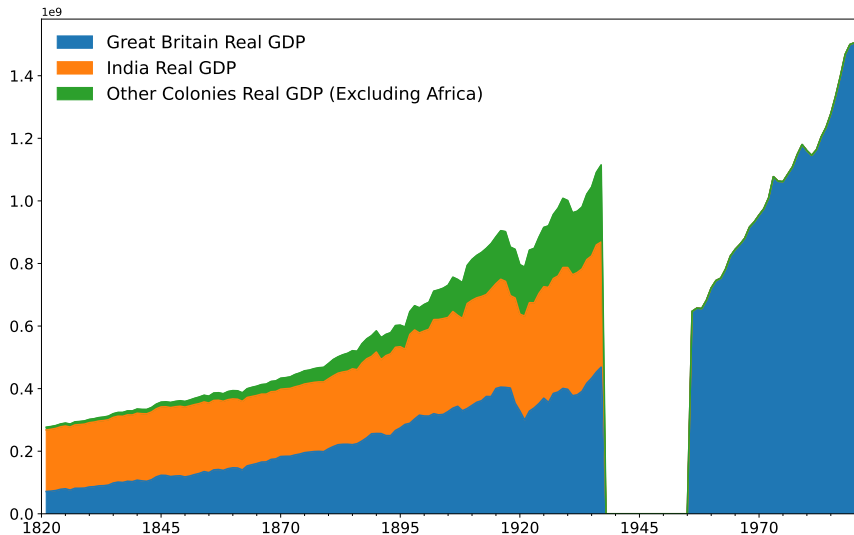
C2: BRITISH EMPIRE AND FISCAL CAPACITY

- ★ UK borrowed in 18th & 19th century to build colonial empire
- ★ Colonies potentially expanded British capacity to borrow:
 - ★ Potentially increased the UK tax base (explicitly and/or implicitly),
 - ★ Colonies could potentially be sold to service debt (e.g. France selling Louisiana to US)
 - ★ Increased the convenience yield on UK debt (since the colonies were “forced” to use British financial markets rather than set up their own)
- ★ Working out how to incorporate colonial empire seems like an important extension for this paper but poses new estimation challenges:
 - ★ Unclear whether UK government had similar ability to tax colonies and domestic production
 - ★ Unclear how the UK government treated debt issuance by colonies
 - ★ Unclear whether colonial and domestic UK surpluses have same risk price

C2: BRITISH EMPIRE AND FISCAL CAPACITY

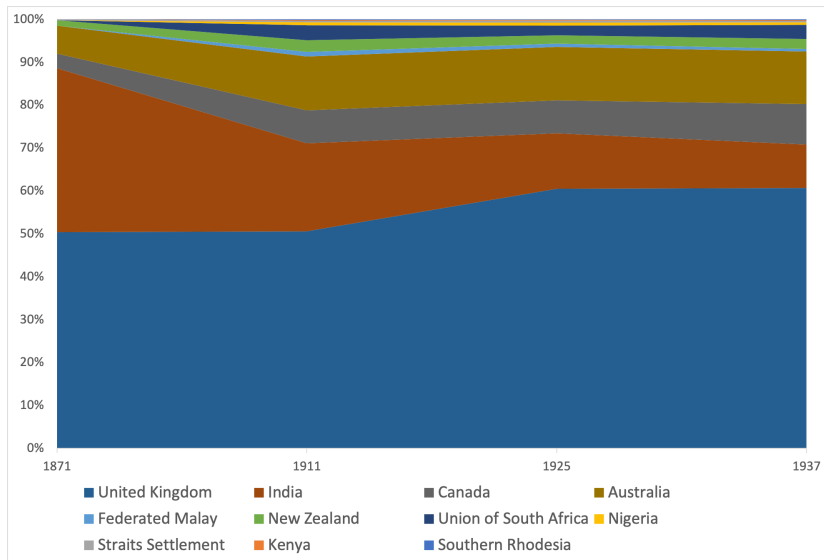
- ★ I am Australian so I am from one of the colonies the UK was taxing
- ★ ...I have put together some *very* preliminary observations on how this might change the analysis

C2: BRITISH EMPIRE REAL GDP (2011 DOLLARS)



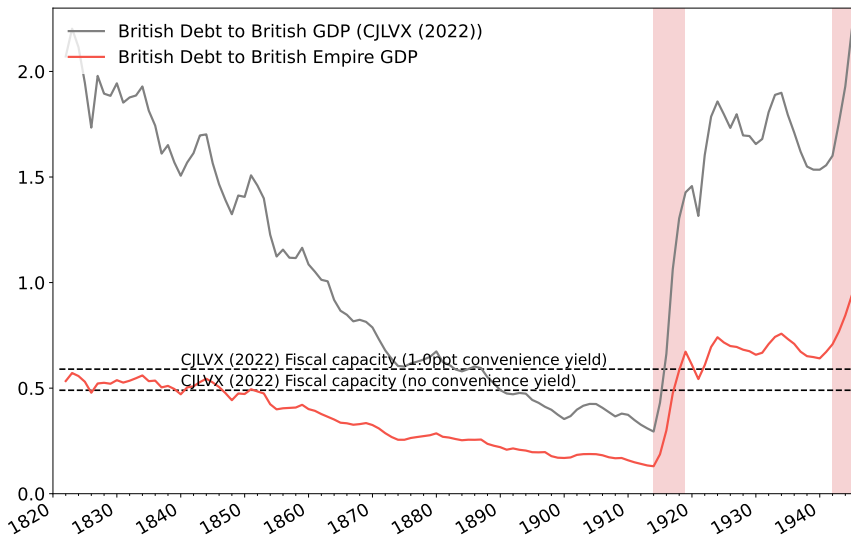
Note: Other colonies include Great Britain, Australia, Bangladesh, Burma, Canada, Egypt, Hong Kong, India, Iraq, Malaysia, New Zealand, Oman, Singapore. Source: Maddison Project.

C2: BRITISH EMPIRE GROSS PUBLIC REVENUE



Note: Includes colonies with gross revenue > 3m pounds in 1937. Source is Frankema (2010)

C2: BRITISH DEBT TO BRITISH GDP

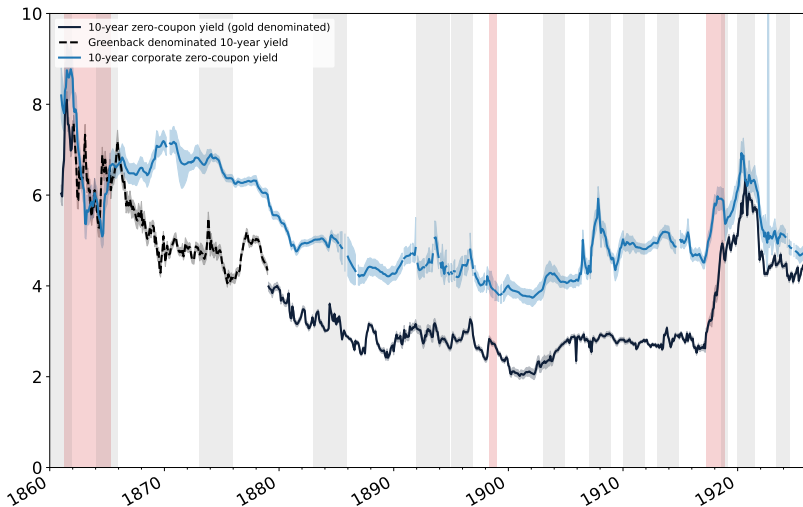


Note: Source: A Millennium of Macroeconomics Data, Maddison Project.

C3: CONVENIENCE YIELDS

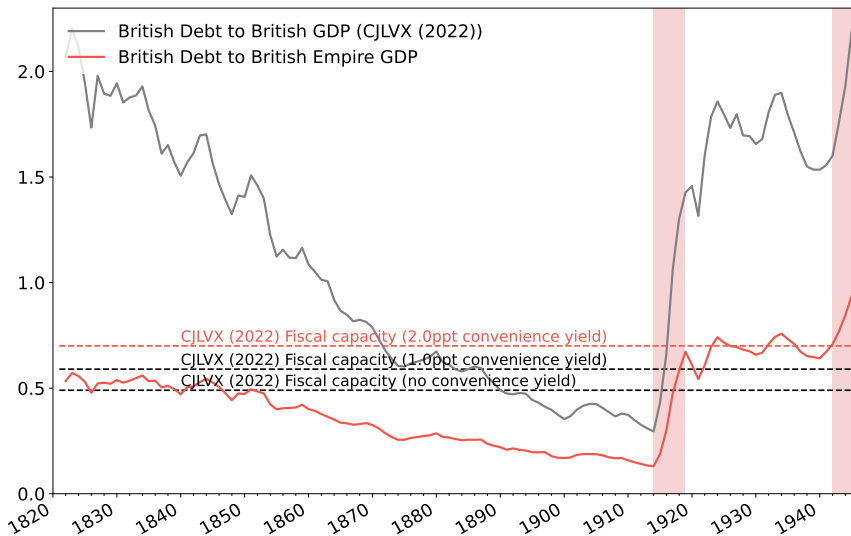
- ★ Historical convenience yields are very difficult to estimate
- ★ Unclear authors have the right spread for the historical convenience yield, ... which suggests caution about claims that convenience yield cannot explain how UK debt-gpd was backed
- ★ Might be possible to exploit the institutional structure of British colonial debt markets to get a cleaner estimate of convenience yield (e.g. Australian bank bonds trading in London v.s. UK debt)
- ★ I can show some preliminary estimates of historical convenience yields from the US ...

C3: US CONVENIENCE YIELD CLOSE TO 2PPT



Note: The light gray intervals depict recessions; red intervals depict wars. (From [Payne and Szöke, 2022](#)) Compared to Debt/GDP

C3: FISCAL CAPACITY REVISITED AGAIN



Note: Source: A Millennium of Macroeconomics Data, Maddison Project.

C4: FISCAL CAPACITY VS FISCAL BACKING

- ★ **Fiscal capacity:** how much revenue a government can generate
- ★ The authors calculate the present discounted value of forecast future surpluses given typical past behavior and call this fiscal capacity
 - ★ This not really a measure of government's capacity to raise taxes
 - ★ Perhaps better interpreted as “**fundamental value**” or “**fiscal backing**” of outstanding debt?
- ★ Mixing concepts leads to potential confusion. E.g. authors write:

“Whenever the U.S. goes to war, the estimates of fiscal capacity increase as the VAR forecasts larger surpluses in the near future.”

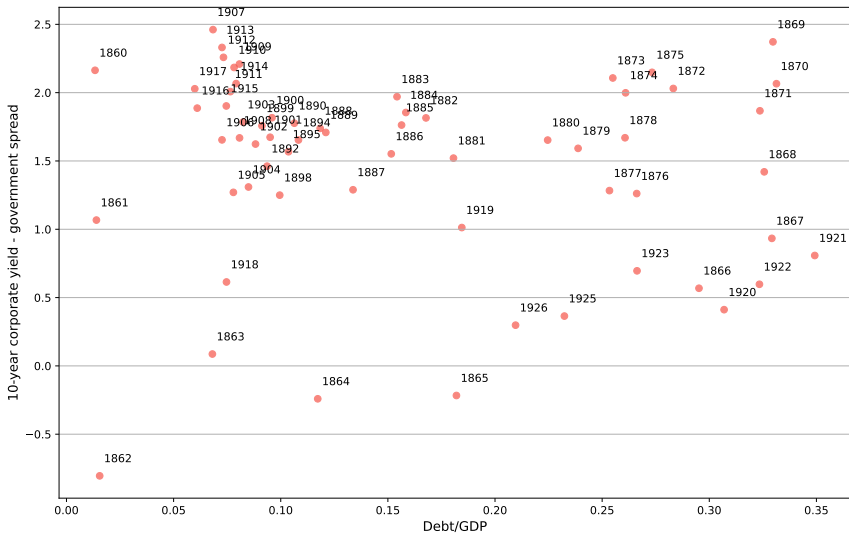
 - ★ What their model is saying is that the US borrows heavily during wars and, based on past behavior, this predicts they run surpluses to repay debts
 - ★ It is not saying that during the war the US capacity to raise taxes increases

CONCLUSION

- ★ Interesting, thought provoking, and very topical paper!
- ★ Important to understand how “exorbitant privilege” moved from UK to US debt in late nineteenth or early twentieth century.
- ★ I would be interested to see the authors think more about:
 - ★ How to deal with UK colonies, and
 - ★ Other ways of estimating the convenience yield on UK debt
- ★ These considerations might allow authors to rationalize UK debt-to-gdp using their model of fiscal backing.

THANK YOU

SPREAD “STABLE” WITH DEBT/GDP (1860-1926)



Note: (From Payne and Szöke, 2022) [Back](#)