

Diversifying and Benchmarking Madagascar

Thorvaldur Gylfason
University of Iceland
and CESifo, Munich

Jean-Pascal N. Nganou
World Bank

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Overview I

Diversification matters for sustainable development

- Compare Madagascar (pop. 30 million) with structural, aspirational, and vulnerable peers
- Ponder lessons that can be drawn from such benchmarking to shed light on strategies to foster economic and societal diversification
- Consider economic and social policy and institutions, including ways to mitigate climate change and its consequences
- Explore potential benefits of diversification for Madagascar

Overview II

- View diversification as a source of increased efficiency and growth and apply our argument to Madagascar after 1990
- Chart cross-country patterns of diversification and growth and compare Madagascar with three groups of peers – structural, aspirational, vulnerable – to identify and illustrate channels through which diversification can support growth
 - Based on a simple model of production possibilities
- Present nontechnical narrative, eschewing mathematics and econometrics, leaving room for technical testing of our findings in future work

Aspects of diversification

Specialization boosts economic efficiency via gains from trade ...
... but there can be too much of a good thing

Three types of diversification, two economic, one political

- 1) Away from heavy dependence on a single sector or a few typically natural resource-based commodities
- 2) Change toward increased complexity, quality, and variety of output
- 3) Away from dependence on political elites toward more democracy

Benefits of economic diversification for growth

Exemplified by widely observed inverse relationship between heavy natural resource dependence and long-run economic growth

Multiple regression analysis

$$GNI = a_0 + a_1 EDI + a_2 DEM$$

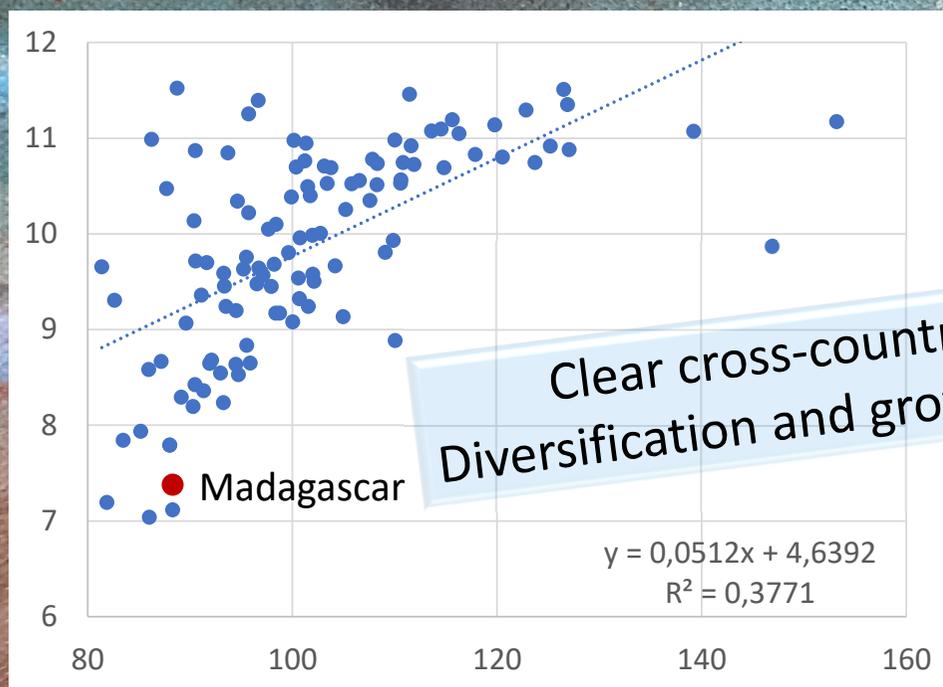
$$HDI = b_0 + b_1 EDI + b_2 DEM$$

	CONST	EDI	DEM	R ²
GNI	5.346 (8.6)	0.039 (5.7)	0.013 (3.8)	0.45
HDI	0.188 (2.4)	0.005 (6.0)	0.002 (4.4)	0.49

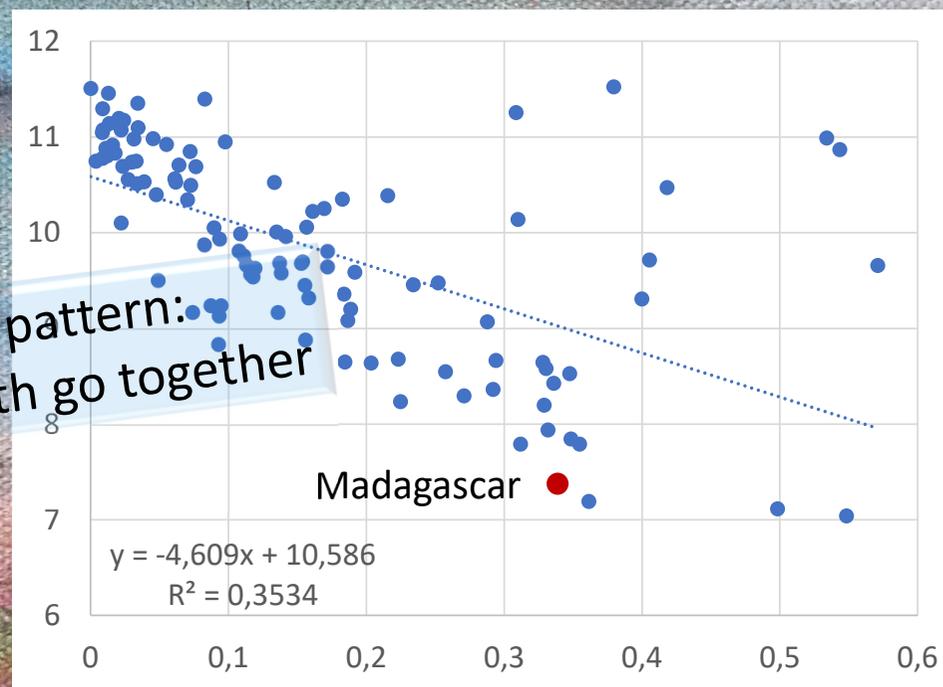
Note: 112 countries, t-values within parentheses.

Economic diversification, natural capital, and growth, 1995-2021

Log of per capita GNI 2021
and EDI 2000-2021
(USD, ppp, 112 countries)



Log of per capita GNI 2021 and share of
natural capital in total wealth 1995-2018
(USD, ppp, 108 countries)

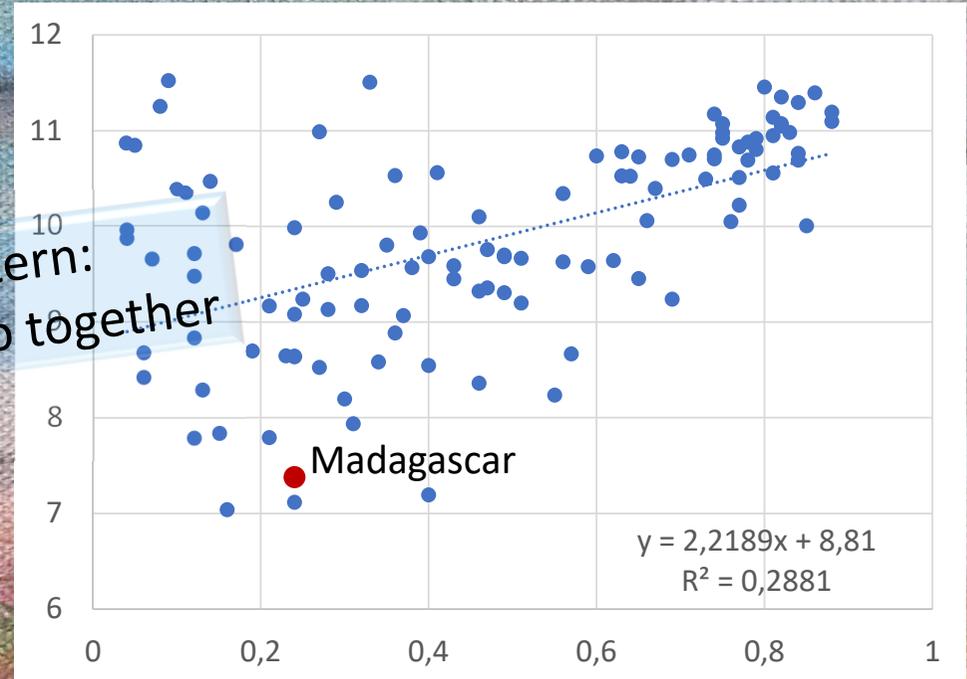
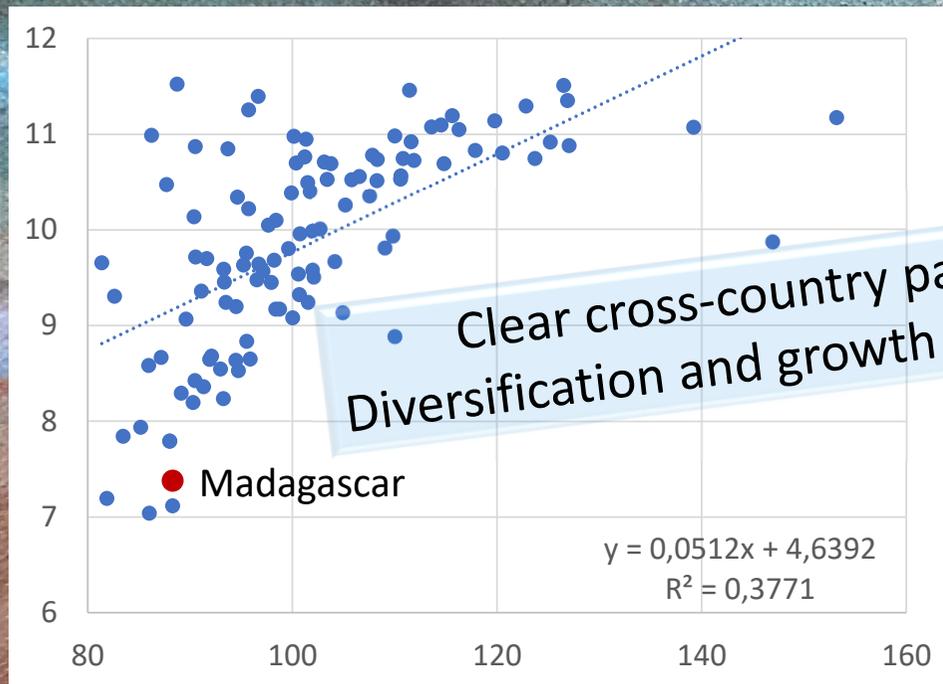


Source: Authors' computations, based on the [Global Economic Diversification Index](#) and World Bank, [World Development Indicators](#)

Economic and political diversification and growth, 1995-2021

Log of per capita GNI 2021
and EDI 2000-2021
(USD, ppp, 112 countries)

Log of per capita GNI 2021 and
democracy 2021
(USD, ppp, 112 countries)

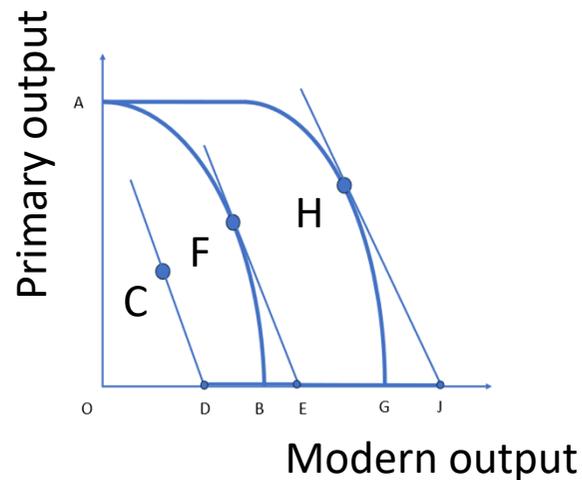


Source: Authors' computations, based on the [Global Economic Diversification Index](#) and World Bank, [World Development Indicators](#)

Background: Diversification and growth

Diversification shifts production frontier outward

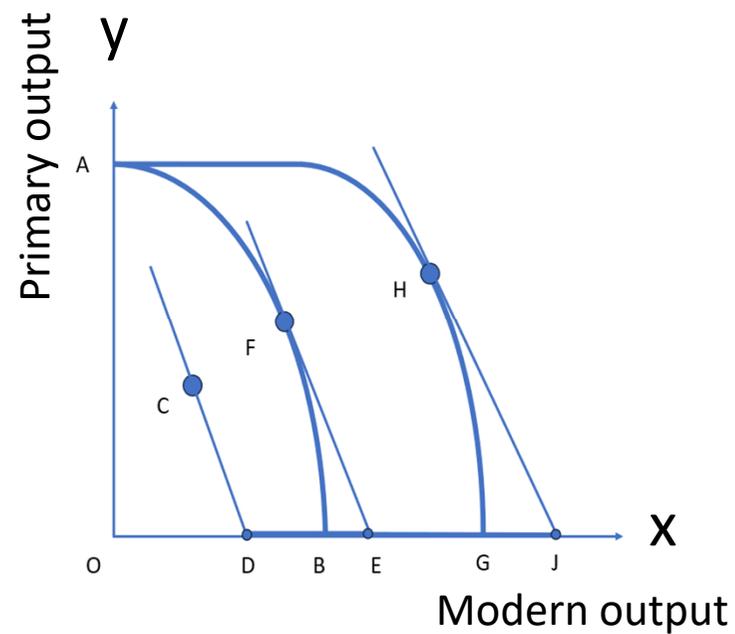
From unemployment to full efficiency through diversification



- **C** : Underutilized resources, with booms and busts, need stabilization
- From **C** to **F** : Full employment of all resources, entailing choice between primary output and modern output
- From **F** to **H** : Diversification, more efficiency, higher GDP per person

Diversification of production possibilities

- $y = a - \left(\frac{1}{2b}\right)x^2$
- $\frac{dy}{dx} = -\frac{1}{b}x = -1$
- $x = b$
- $y = a - \frac{b}{2}$
- $GDP = a + \frac{b}{2}$



Selected determinants of economic growth

GNI per person vs. Human Development

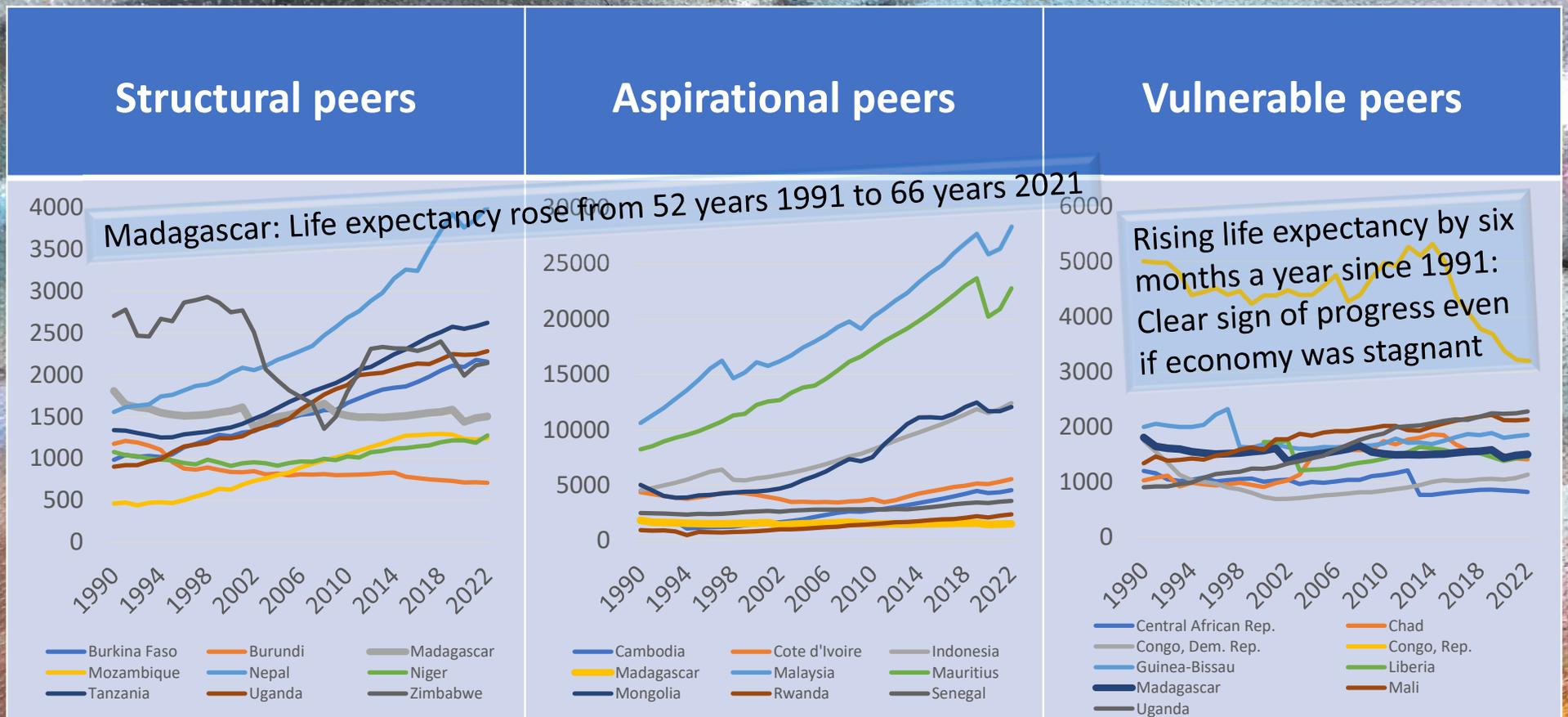
- ✓ HDI includes life expectancy and education

We emphasize

- ✓ Education
- ✓ Investment
- ✓ Trade and its diversification
- ✓ Economic organization, industrial structure
- ✓ Institutional, social, and natural capital
 - ✓ Equality, rule of law, transparency, trust, democracy, governance, etc.

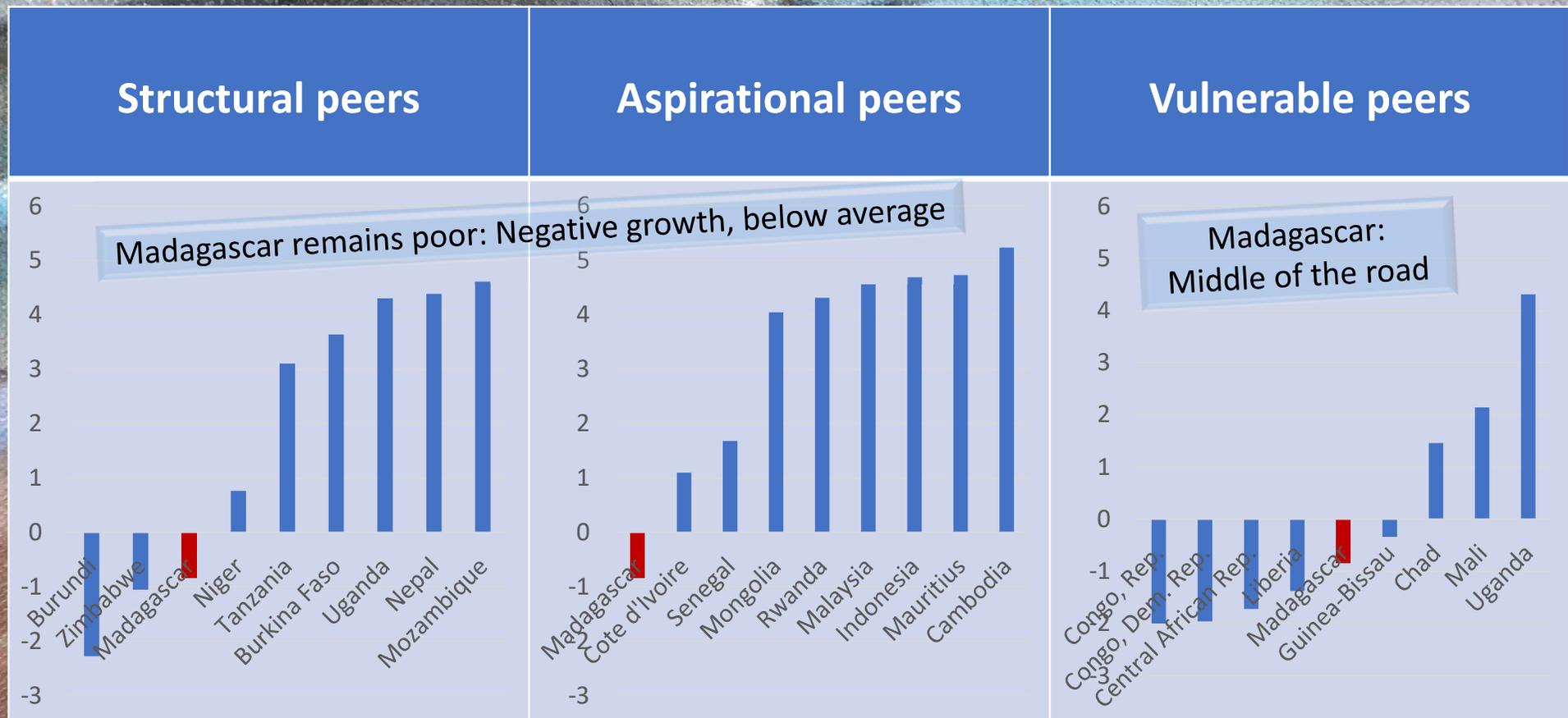
Let us walk you
through some charts

GDP per capita, PPP 1990-2022 (constant 2017 international \$)



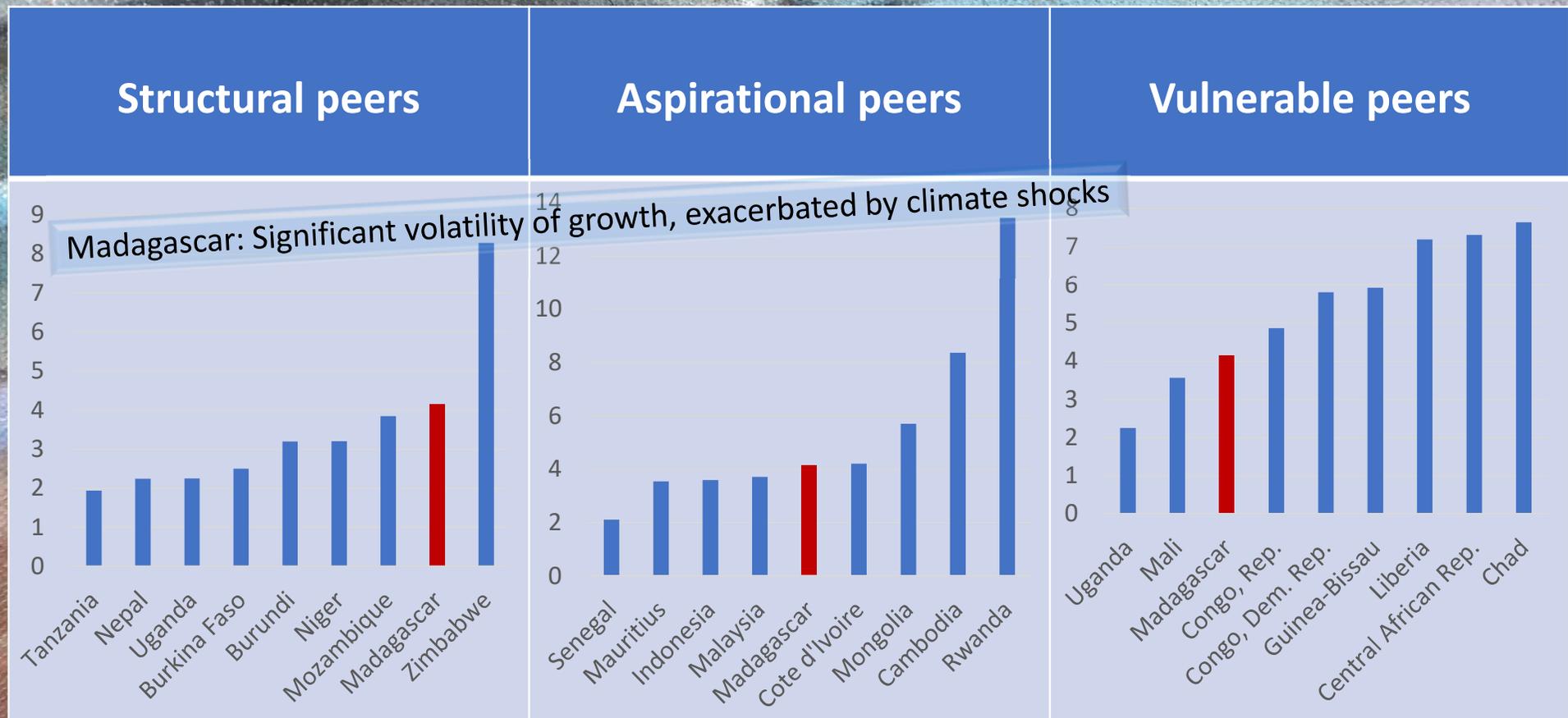
Source: World Bank, *World Development Indicators*.

Growth of real per capita GDP 1990-2022 (% per year)



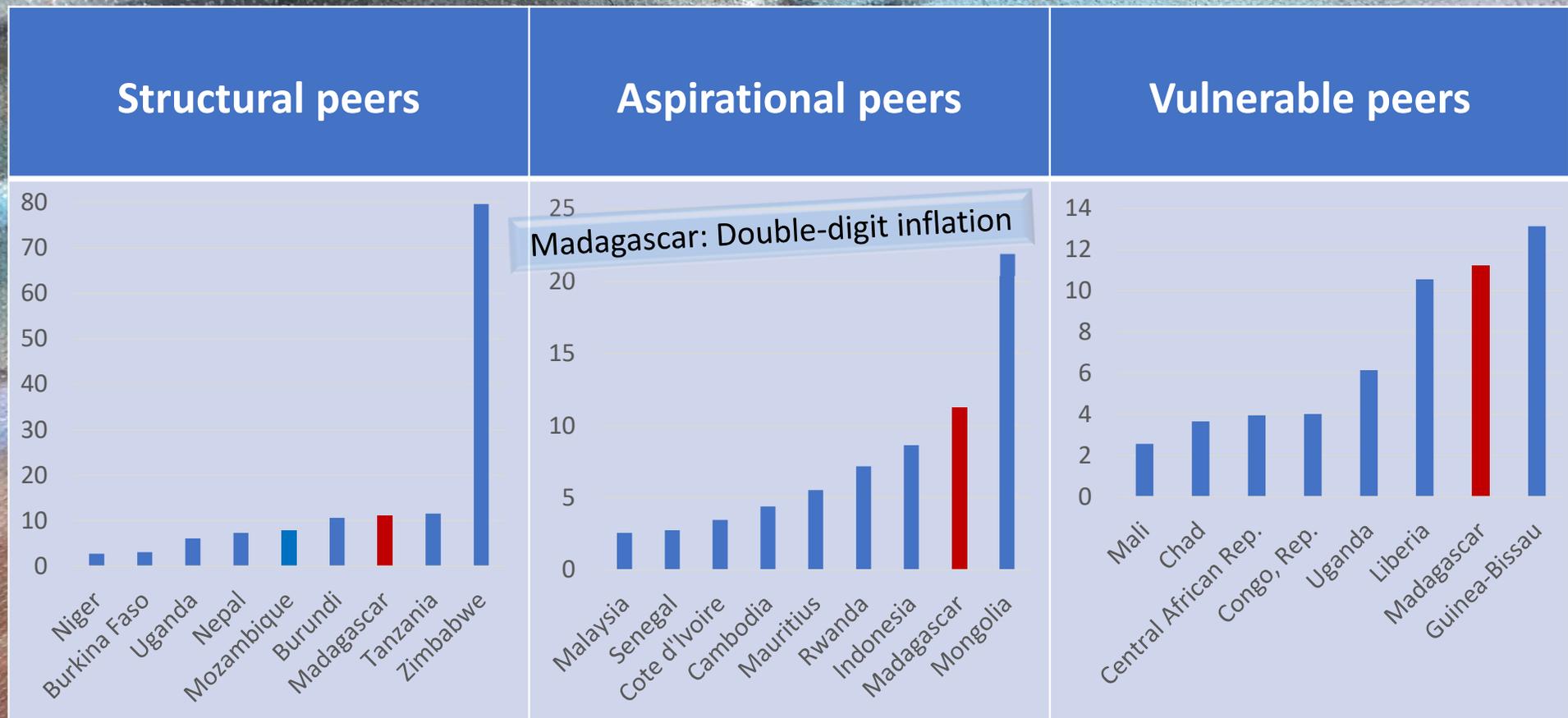
Source: World Bank, *World Development Indicators*.

Volatility (standard deviation) of per capita GDP growth 1990-2022



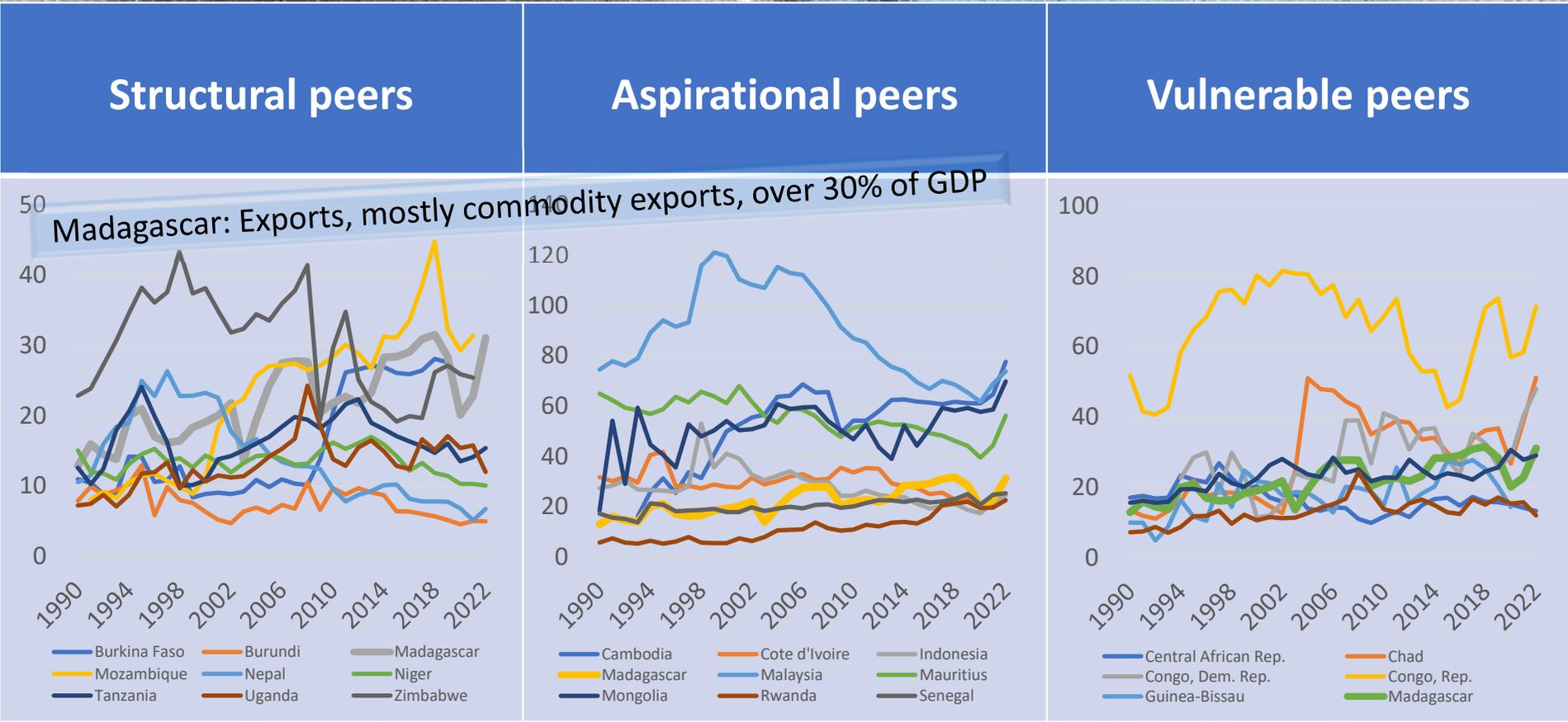
Source: World Bank, *World Development Indicators*.

Inflation 1990-2022 (consumer prices, % per year)



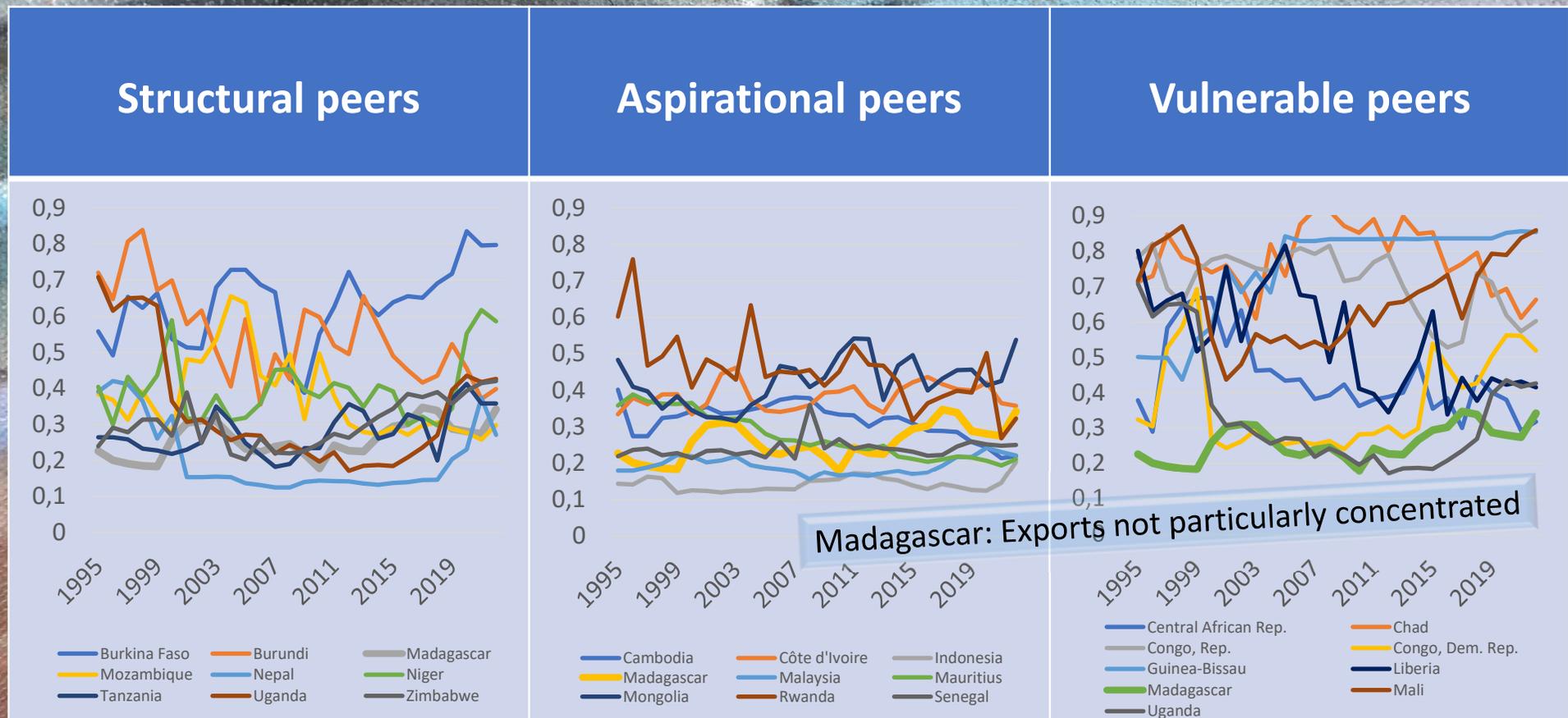
Source: World Bank, *World Development Indicators*.

Exports of goods and services 1990-2022 (% of GDP)



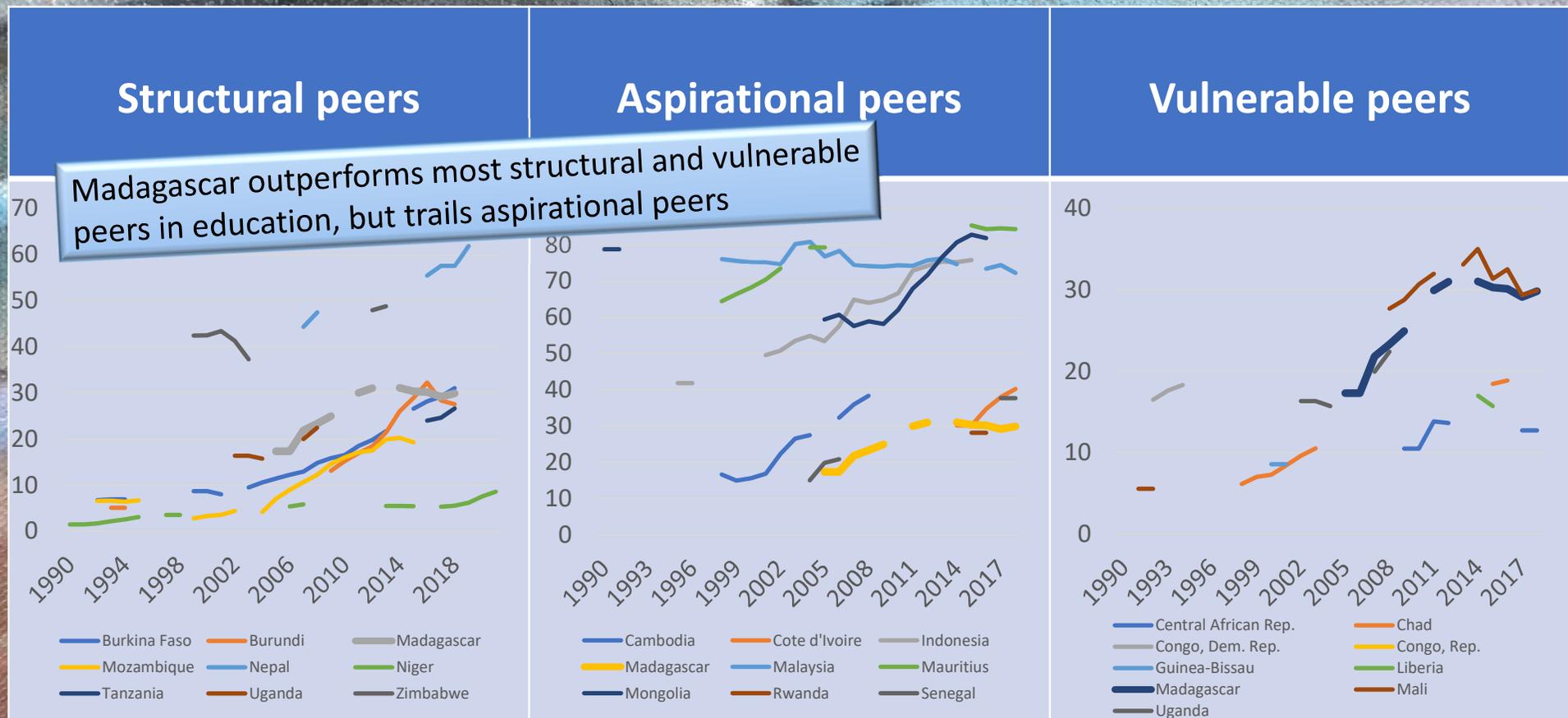
Source: World Bank, *World Development Indicators*.

Herfindahl-Hirschman index of export concentration 1995-2022



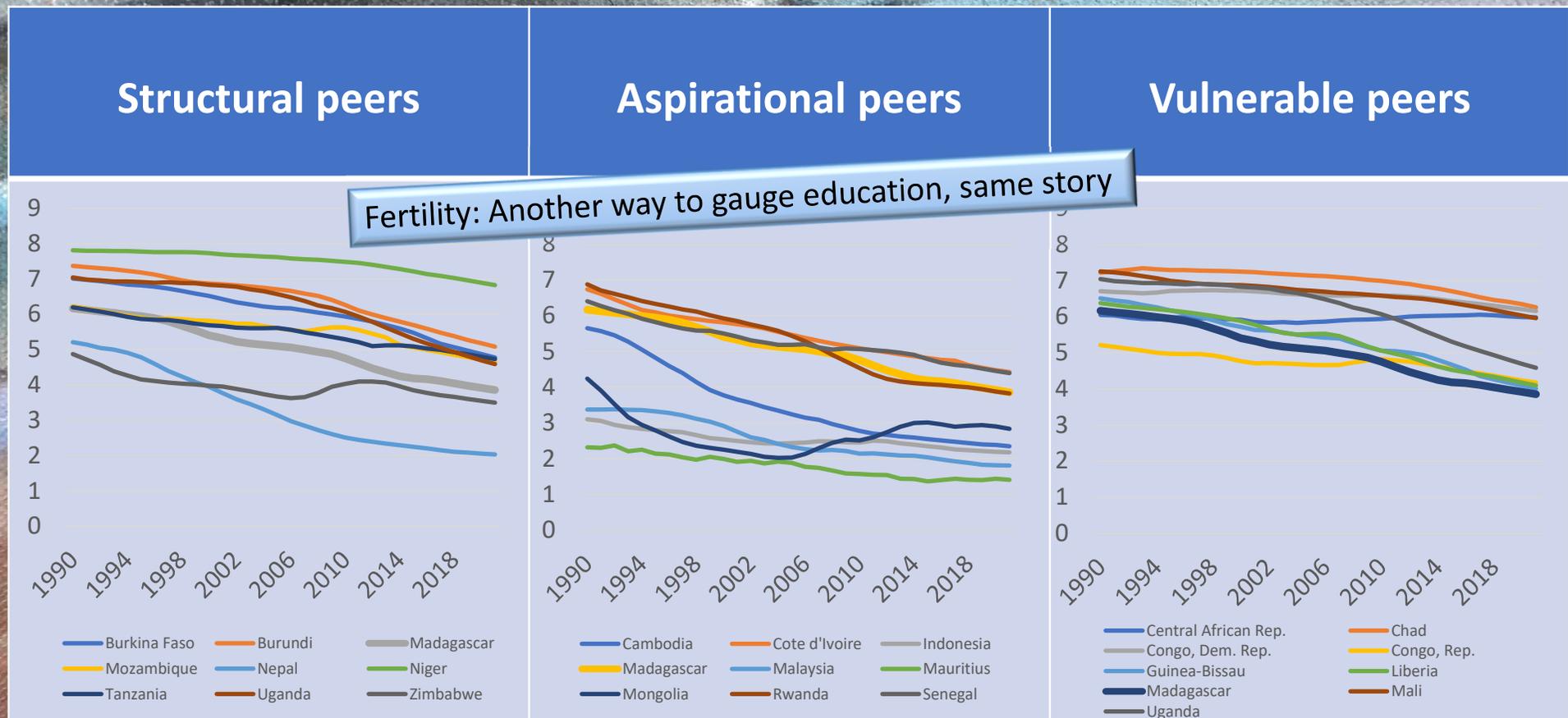
Source: UNCTAD.

Secondary school enrollment 1990-2021 (net, % of school-age cohort)



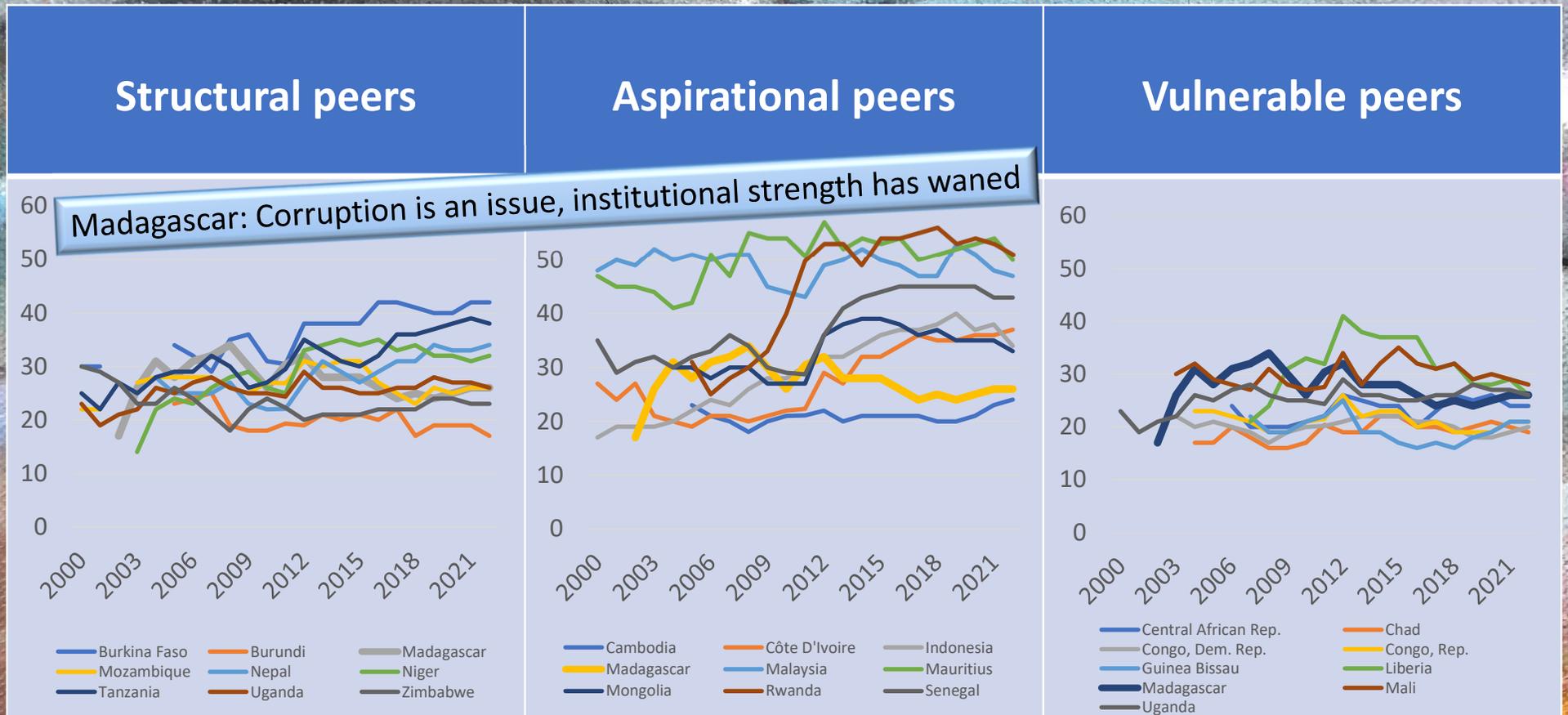
Source: World Bank, *World Development Indicators*.

Fertility rate 1990-2021 (births per woman)



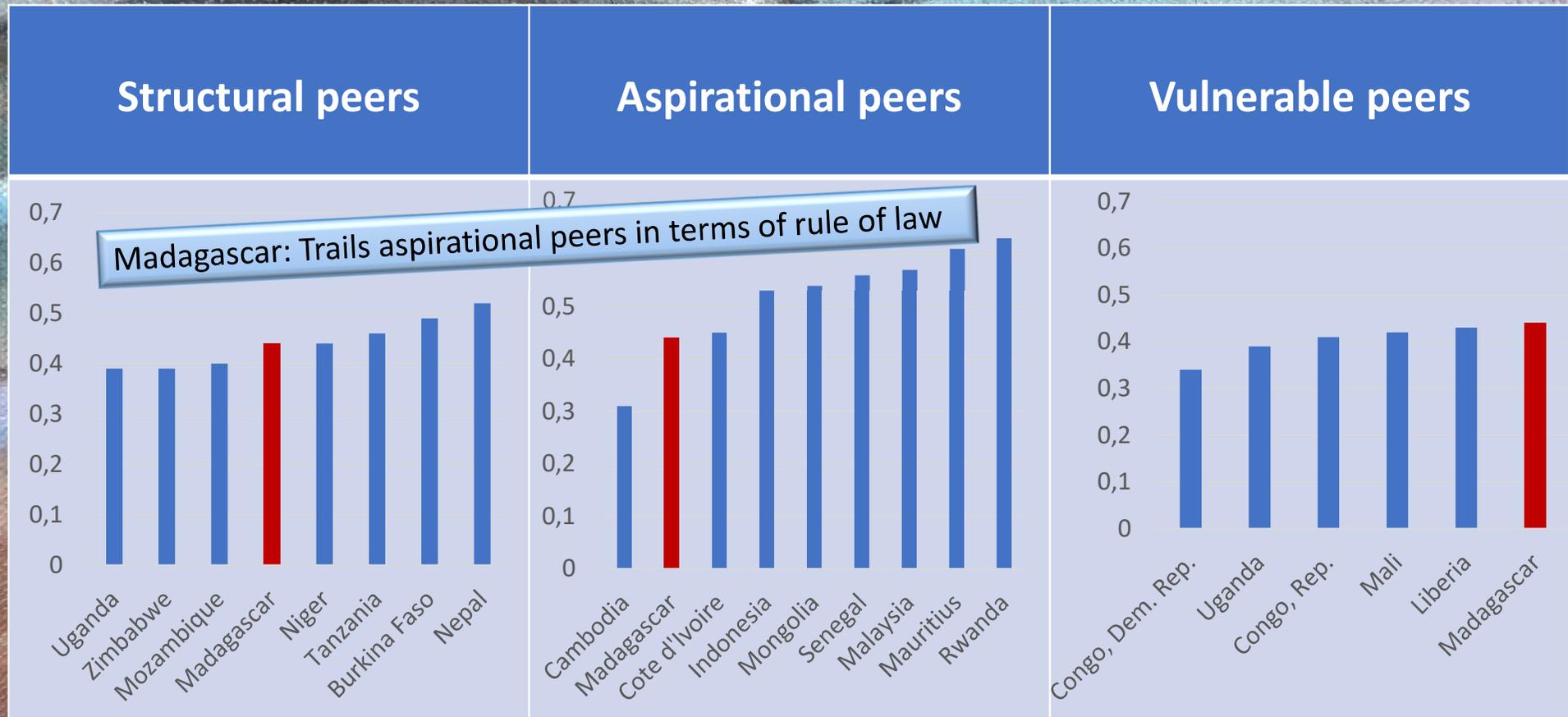
Source: World Bank, *World Development Indicators*.

Corruption perceptions index 2000-2022



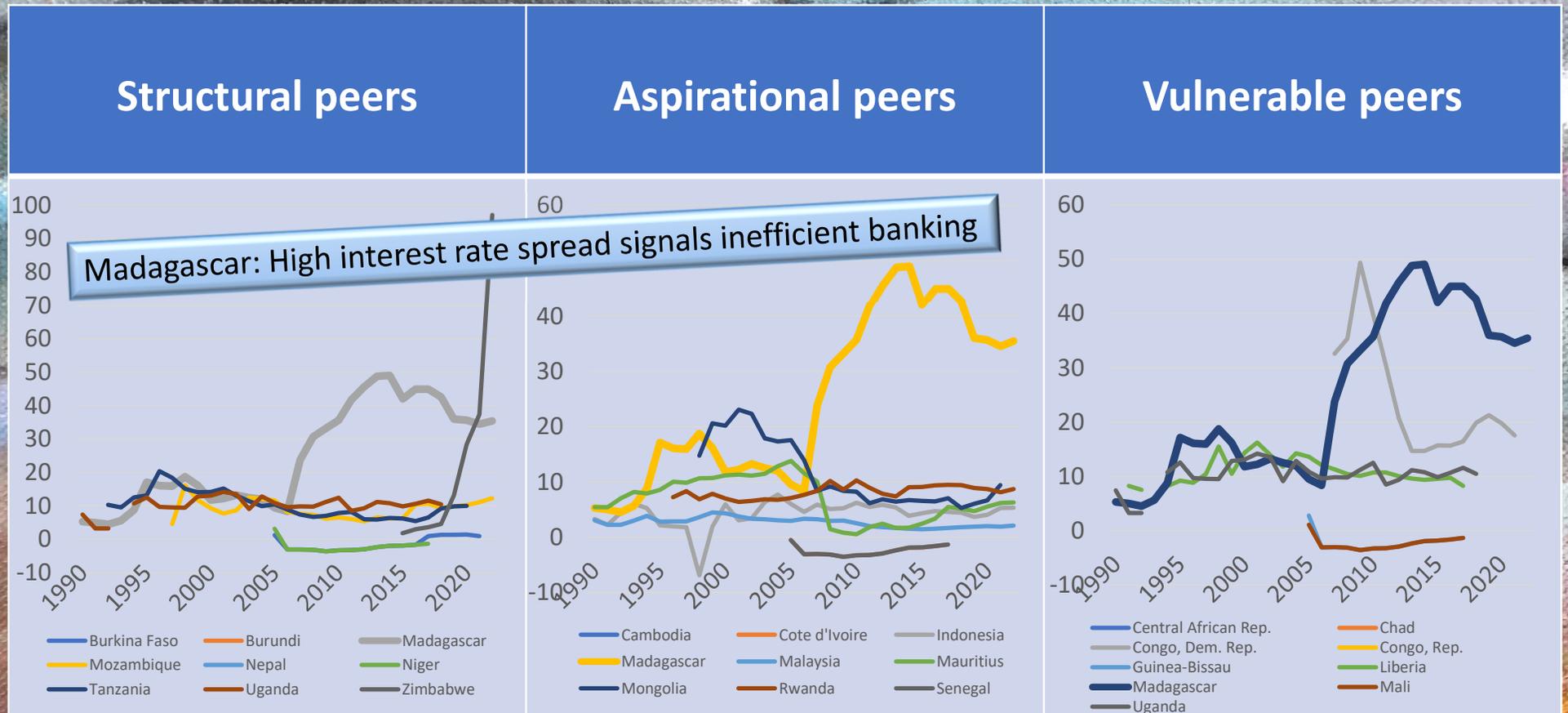
Source: World Bank, *World Development Indicators*.

Rule of law 2022 (index from 0 to 1)



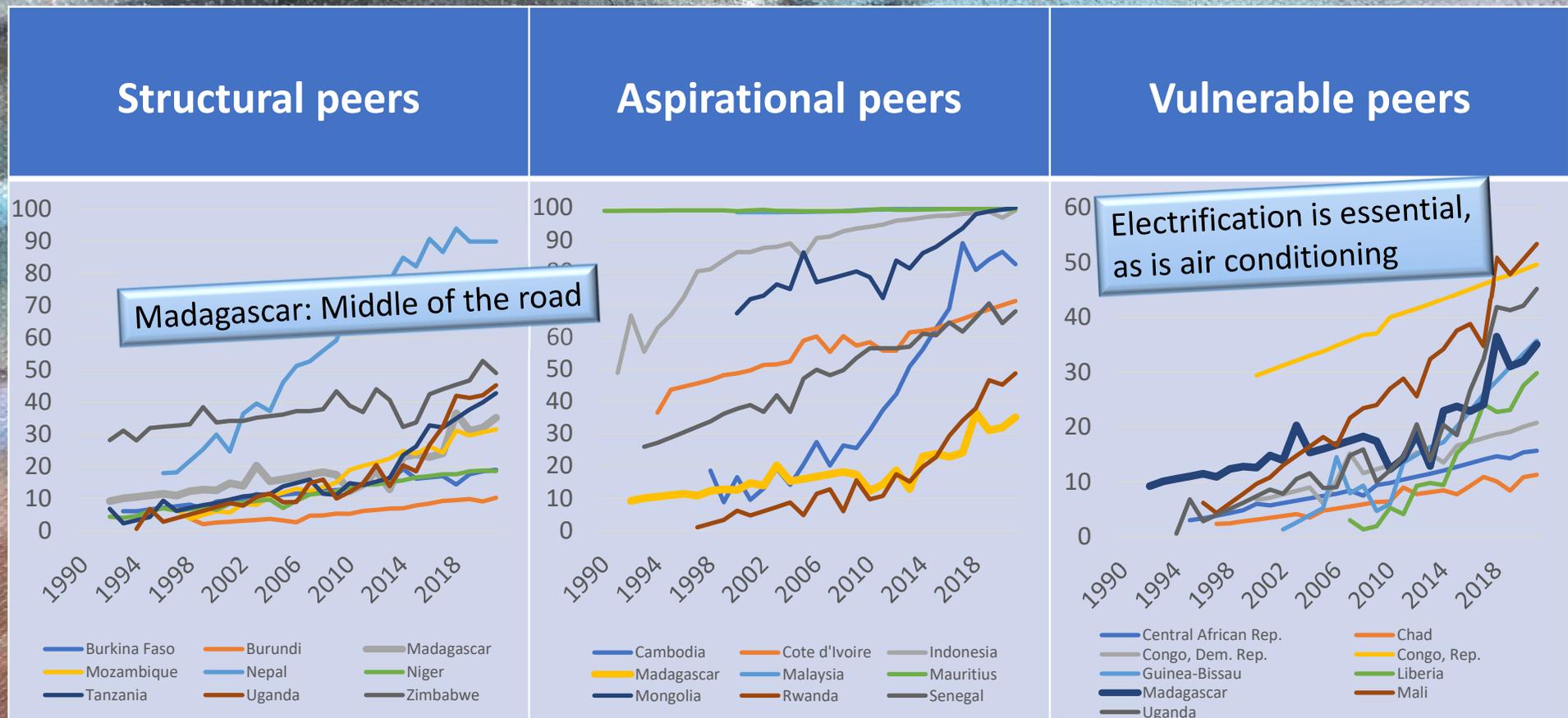
Source: World Bank, *World Development Indicators*.

Interest rate spread 1990-2022 (lending rate minus deposit rate, %)



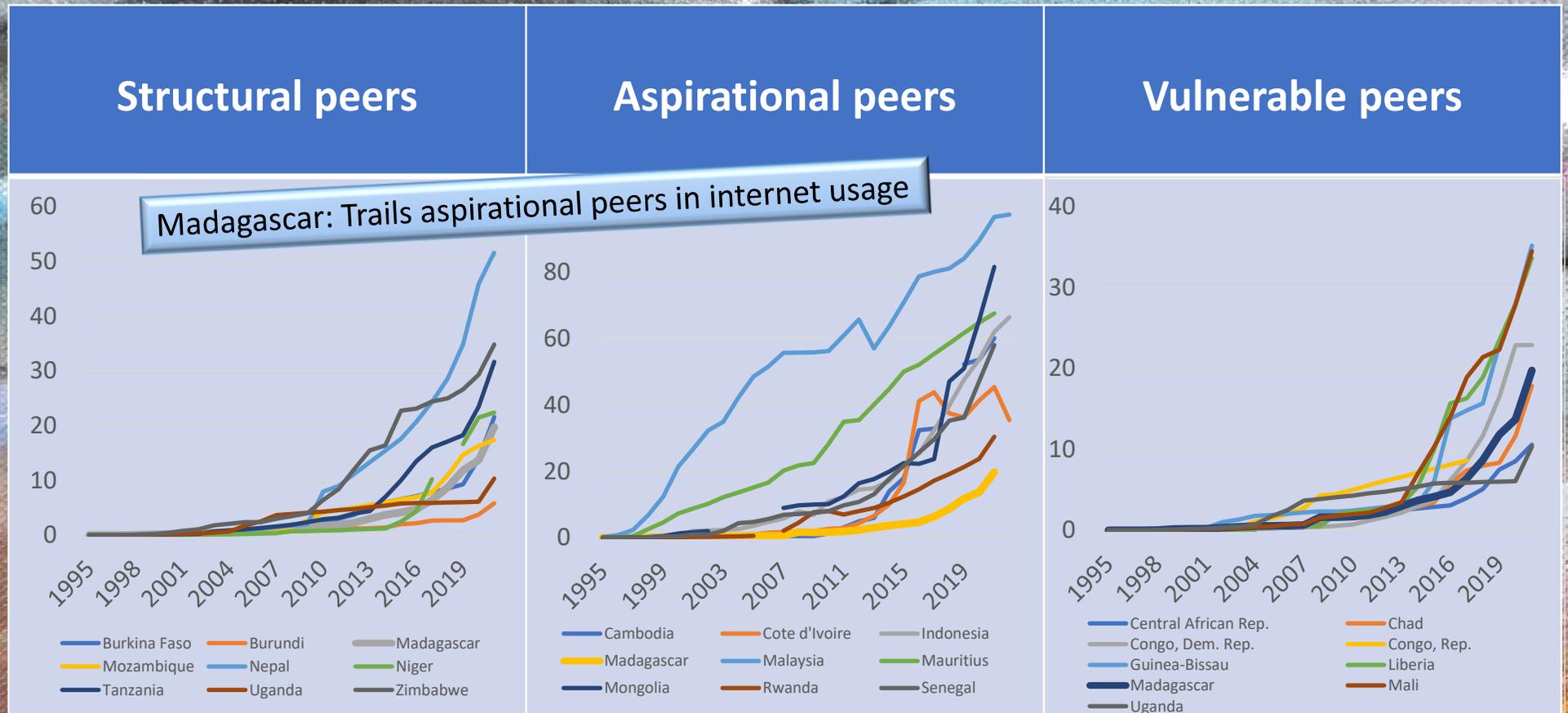
Source: World Bank, *World Development Indicators*.

Access to electricity 1995-2021 (% of population)



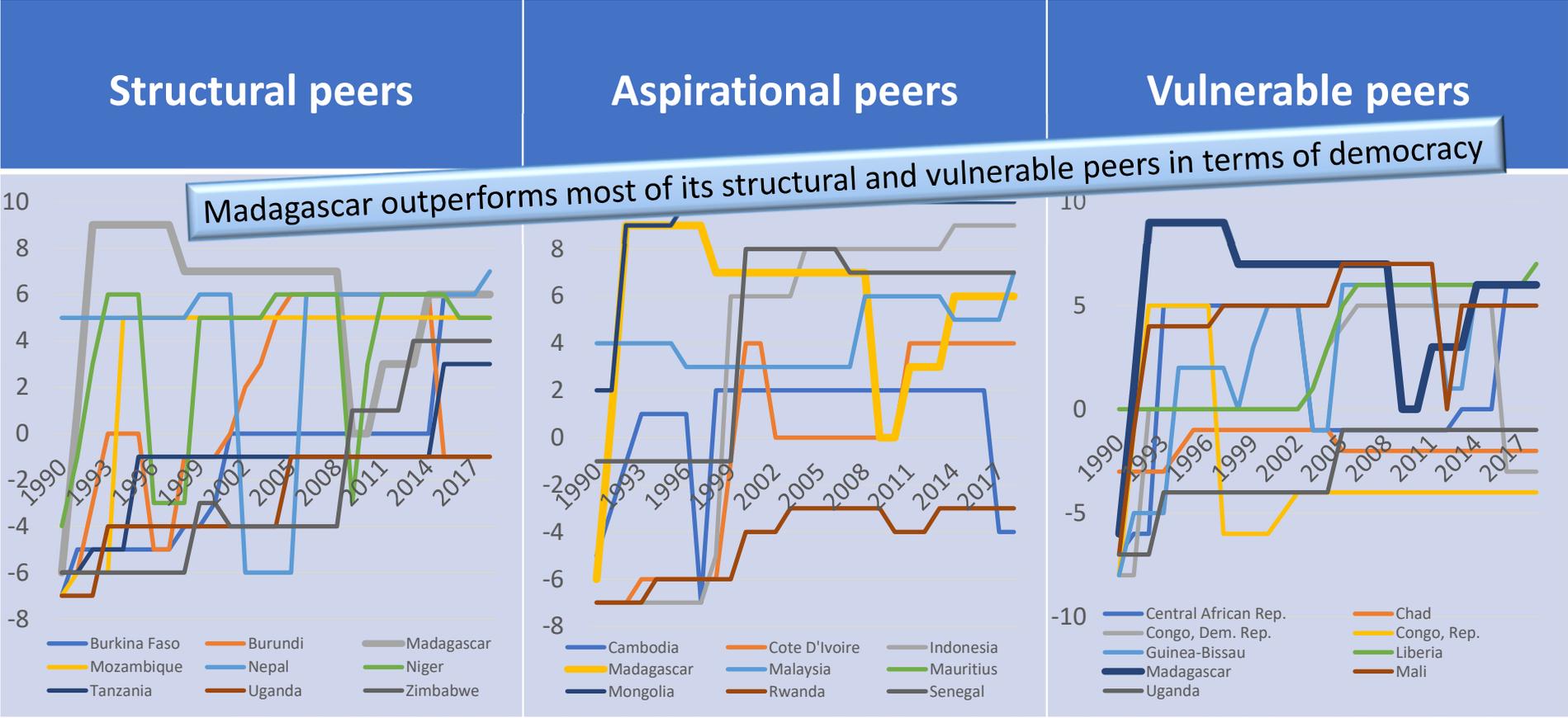
Source: World Bank, *World Development Indicators*.

Individuals using the Internet (% of population)



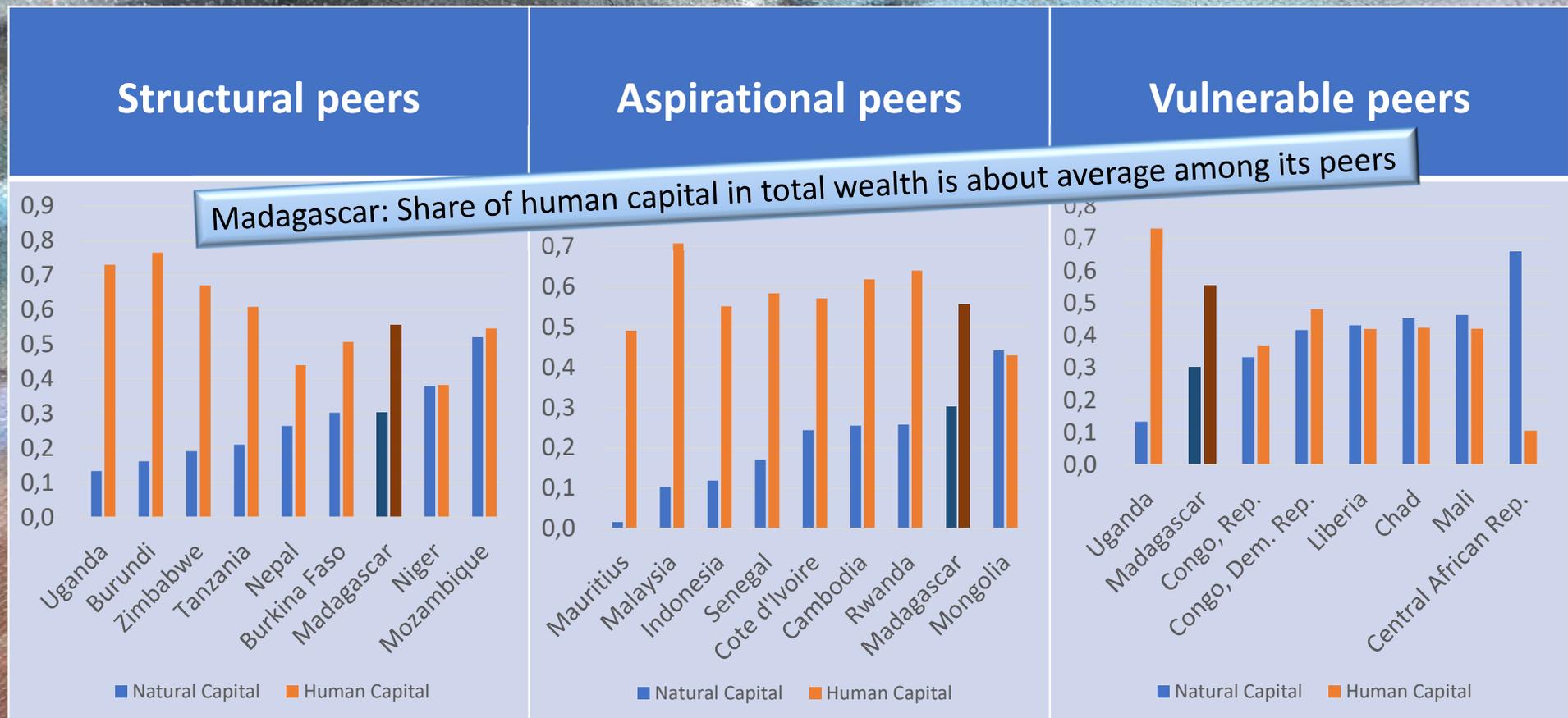
Source: World Bank, *World Development Indicators*.

Democracy 1990-2018 (index from -10 to +10)



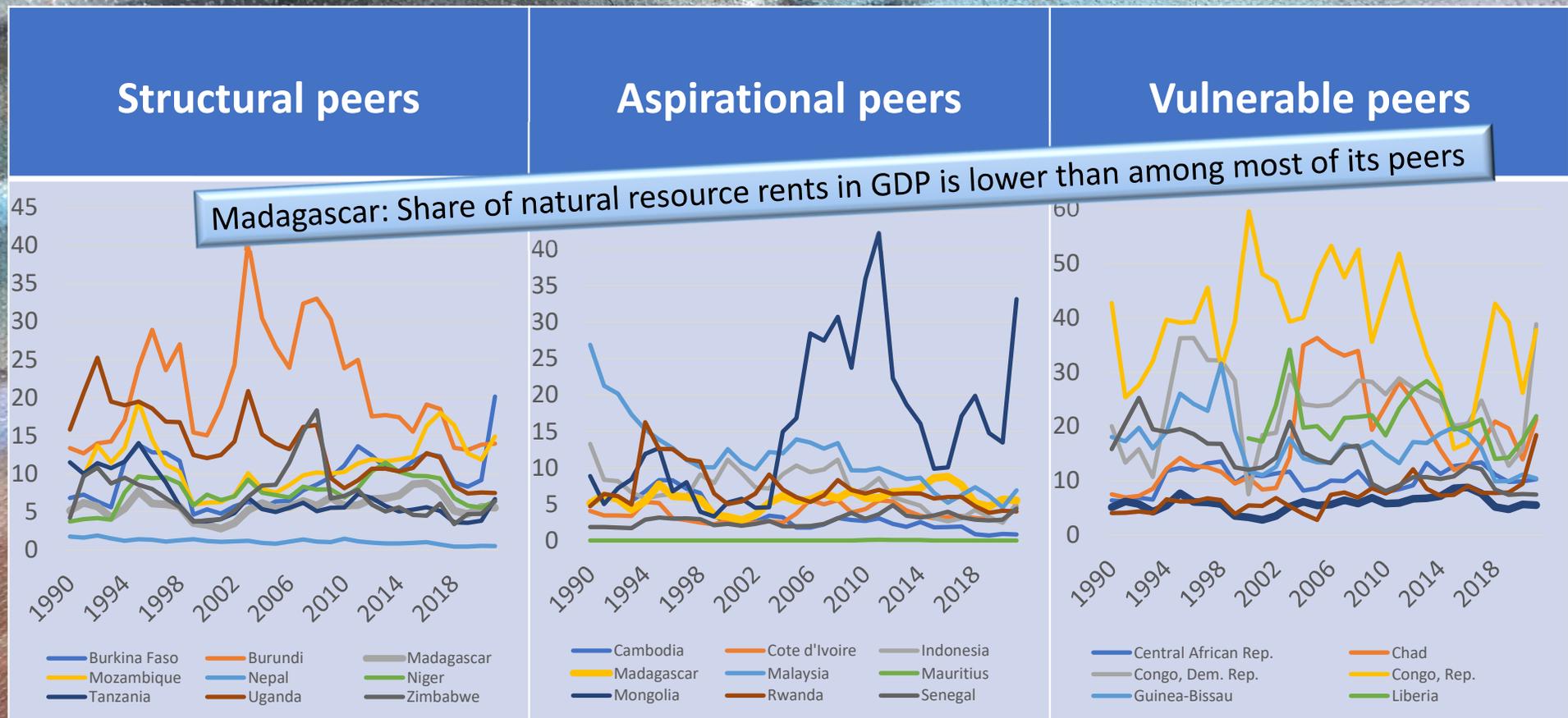
Source: World Bank, *World Development Indicators*.

Natural capital and human capital 2018 (% of total wealth)



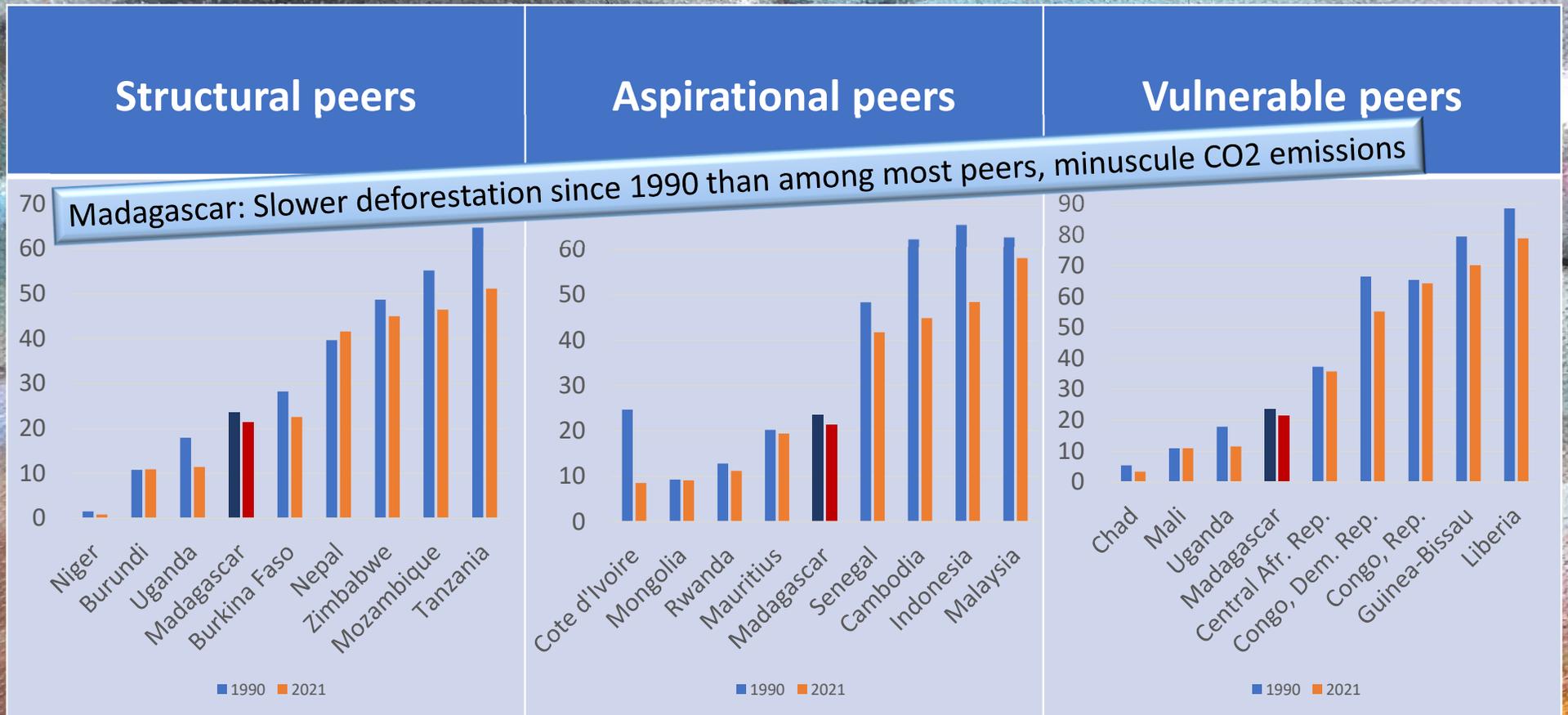
Source: World Bank, *World Development Indicators*.

Total natural resource rents 1990-2021 (% of GDP)



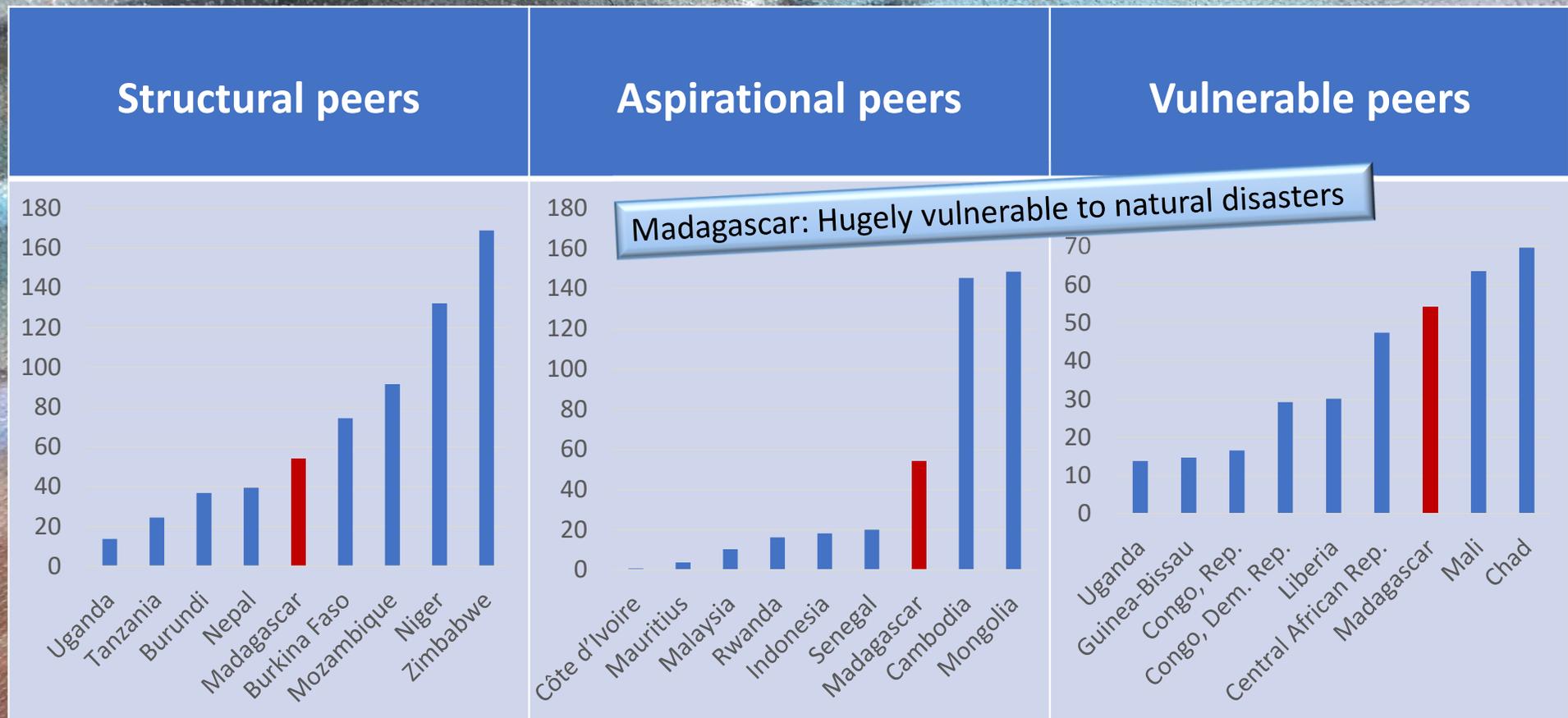
Source: World Bank, *World Development Indicators*.

Forest area (% of land area)



Source: World Bank, *World Development Indicators*.

Population affected by natural disasters 1990-2022 (% of 2022 population)



Source: World Bank, *World Development Indicators*.



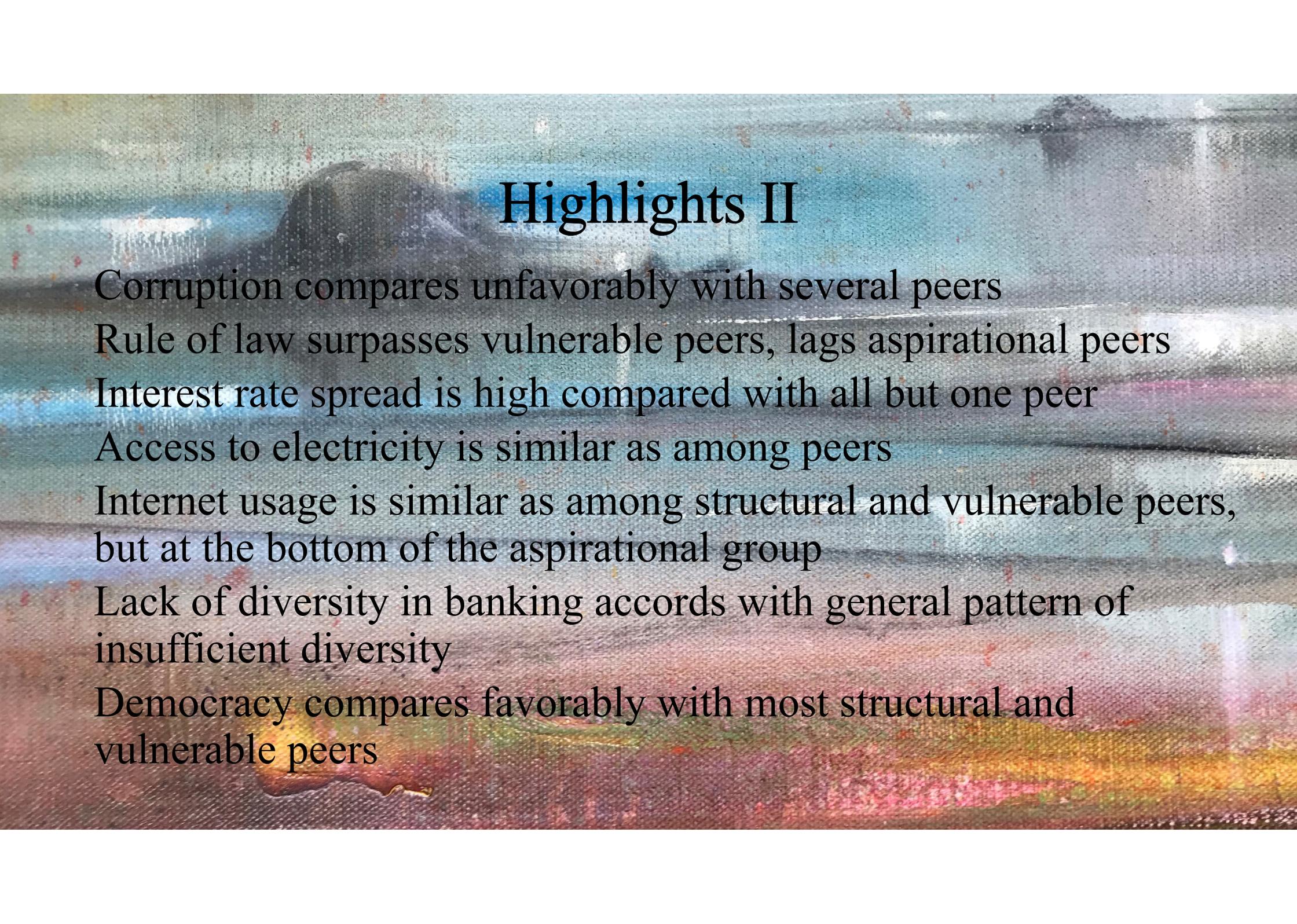
Highlights I

Human vs. natural capital

- Madagascar is endowed with natural capital equal to 30% of total wealth and human capital share on par with several of its peers
- Even so, further diversification is needed

Double diversification

- Economic diversification of export production away from excessive emphasis on a few commodities or a few export destinations
- Institutional diversification away from too much dependence on political elites
 - This calls for stronger societal institutions, including increased democracy



Highlights II

Corruption compares unfavorably with several peers

Rule of law surpasses vulnerable peers, lags aspirational peers

Interest rate spread is high compared with all but one peer

Access to electricity is similar as among peers

Internet usage is similar as among structural and vulnerable peers, but at the bottom of the aspirational group

Lack of diversity in banking accords with general pattern of insufficient diversity

Democracy compares favorably with most structural and vulnerable peers



Highlights III

Madagascar needs to move forward in ways that

- Encourage economic and social development through diversification
- Protect the natural environment against high exposure to cyclones, droughts, floods, and sea level rise
- Mitigate climate change and its local impacts by fiscal means including contingency funds and feebates

Green Growth Opportunities

- Wind, solar, and hydro to reduce need for burning fossil fuels
- Good institutions and policies to minimize country risk
- New technologies to reduce costs
- Reforestation to capture carbon

Highlights IV

Need to overcome resistance to change ...

- Economic bottlenecks
- Institutional, political, and social hurdles

... and to exploit ample opportunities

- Unique combination of natural resources
 - Agricultural land, forests, ample water resources
- Critical mineral endowment
- Renewable energy potential
- Abundant biodiversity and eco-tourism
- Over 5,000 km of coastline

The End