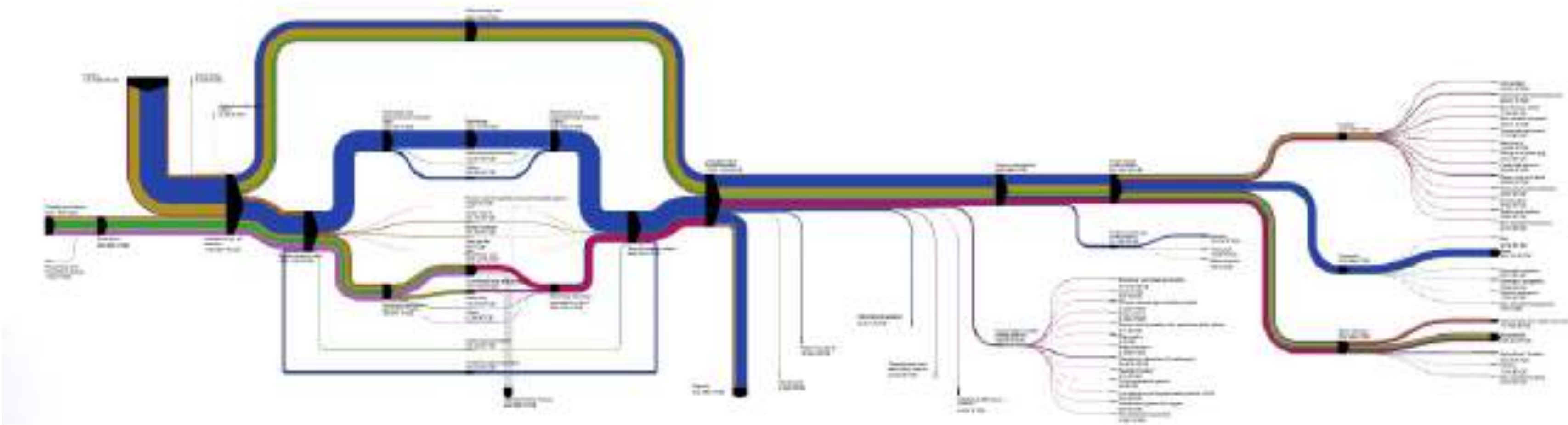

Universitat de les Illes Balears
Càtedra de la Insularitat UIB-GOIB
Webinar
«Sardinia: Monoculture vs. Diversification: Energy, Sustainability, and Economic Resilience»
Lecture by Dr. Stefano Matta (Università degli Studi di Cagliari)

EU27 Energy Flow Diagram



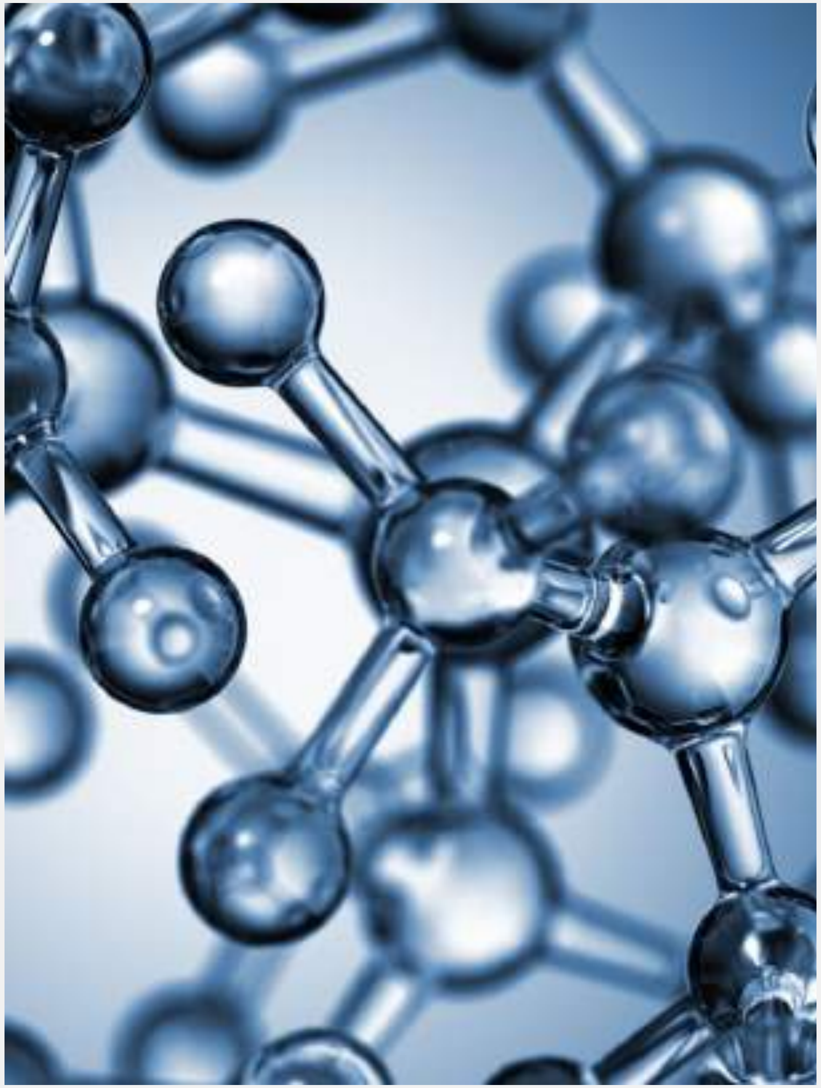
Energy Transition: A Future Without a Past?

Past energy shifts were emergent and cumulative, not replacements.

The current “energy transition” is the first historically planned and directed transformation.

No empirical observation in the past

Challenge: Adopted as a political and industrial narrative, it now frames global energy policy.

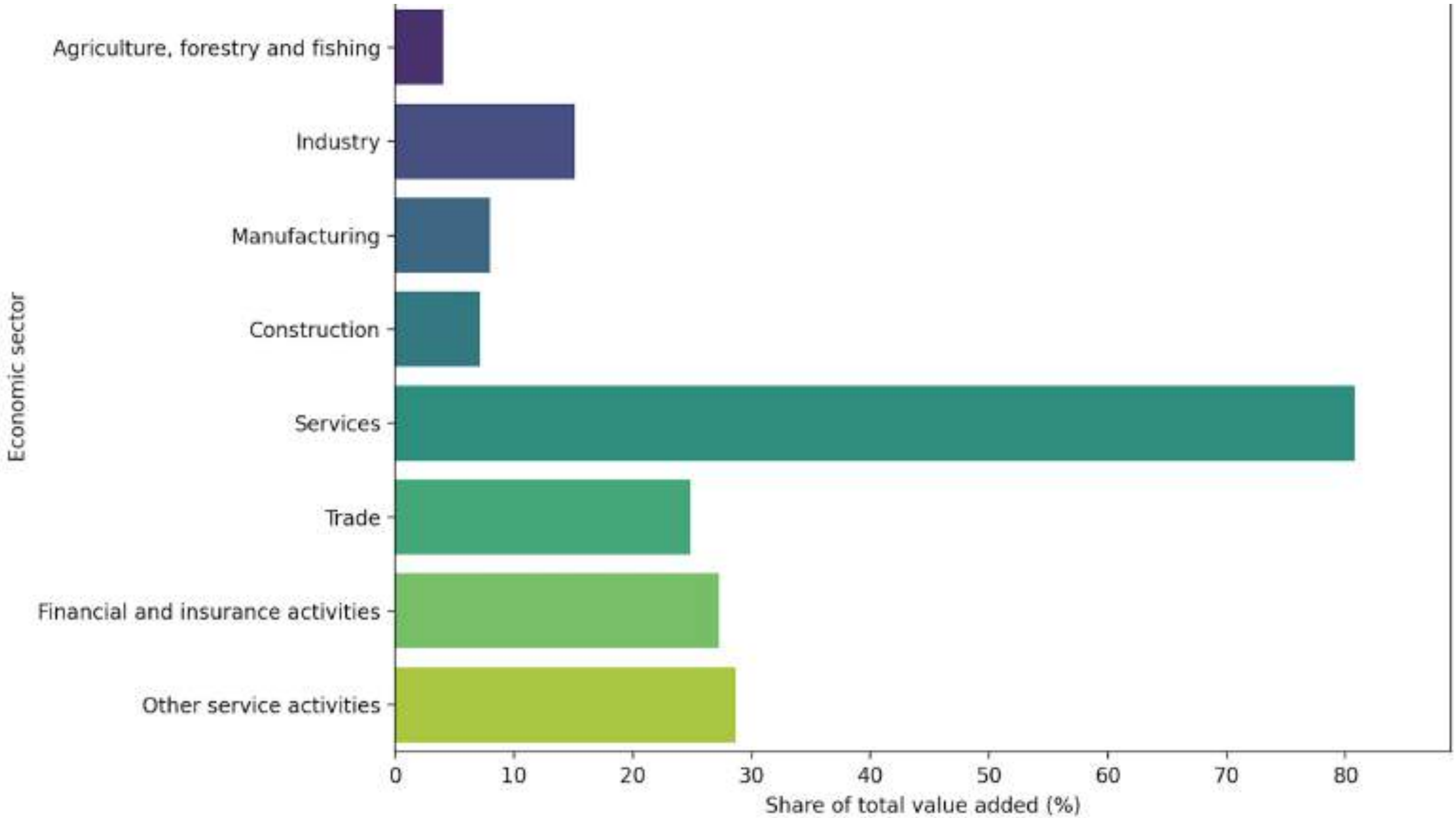


Sardinia in Transition: Key Challenges and Potentials

Structural vulnerabilities: depopulation, aging, insularity, low productivity, fragmented business sector, weak services.

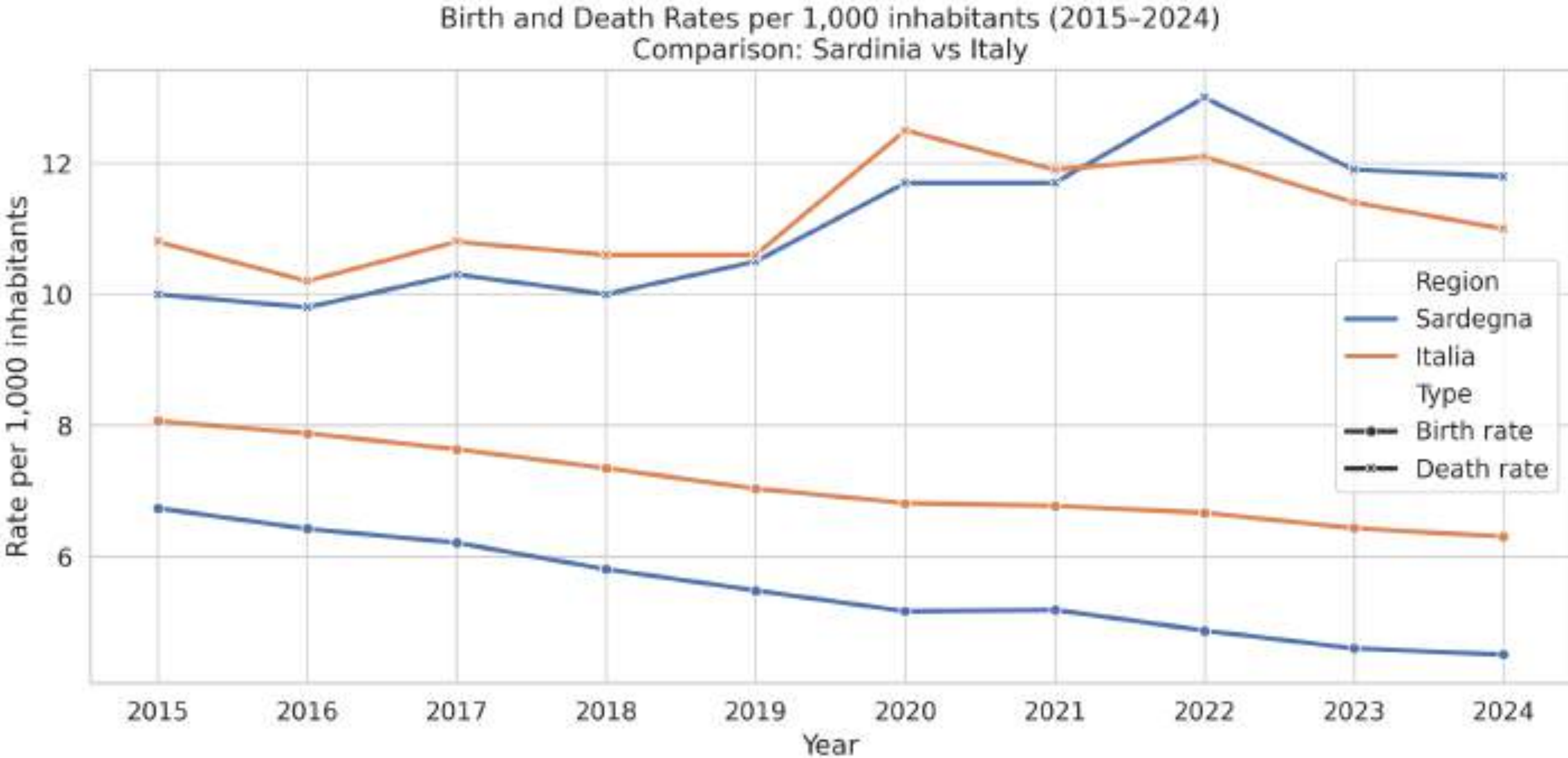
Strengths: environment, culture, renewables, Mediterranean location.

Context: Green Deal, EU cohesion policy 2021–2027, energy and digital transition.



- Small and undercapitalized firms
- Weak industrial base, low R&D and innovation
- Inadequate healthcare and education services
- Highest healthcare renunciation rate in Italy

Demographic Crisis and Internal Disparities



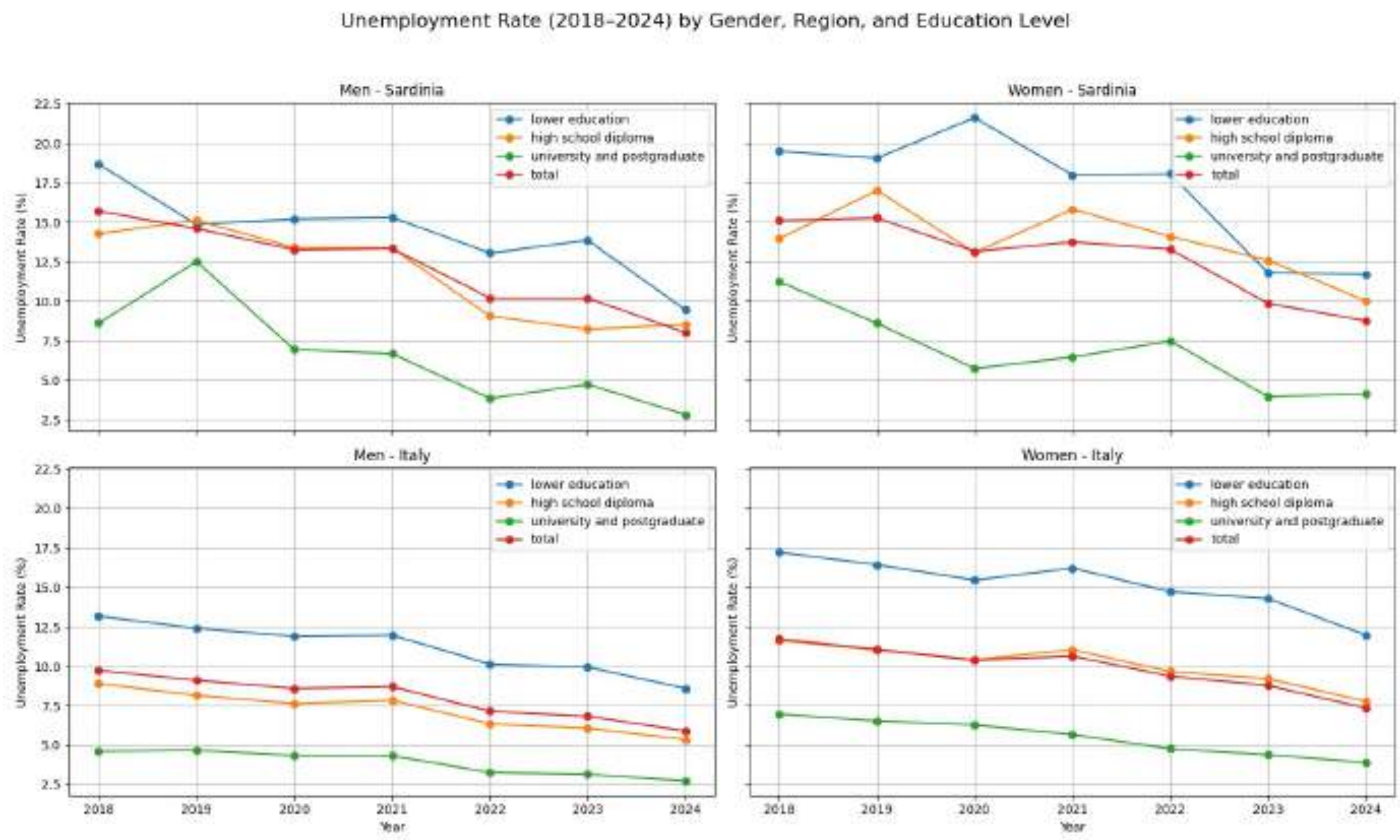
- Ongoing depopulation, especially inland
- Rapid aging, declining birth and fertility rates
- Regional disparities reinforce the demographic spiral

Human Capital and Social Cohesion

- University degree (25–34): 24.9%
- Brain drain: over 23,000 graduates left (2013–2022)
- NEET rate (15–24): 17.3%
- High qualification in public sector
- Positive international migration balance
- Immigrants have higher employment than natives (-6.7% gap)

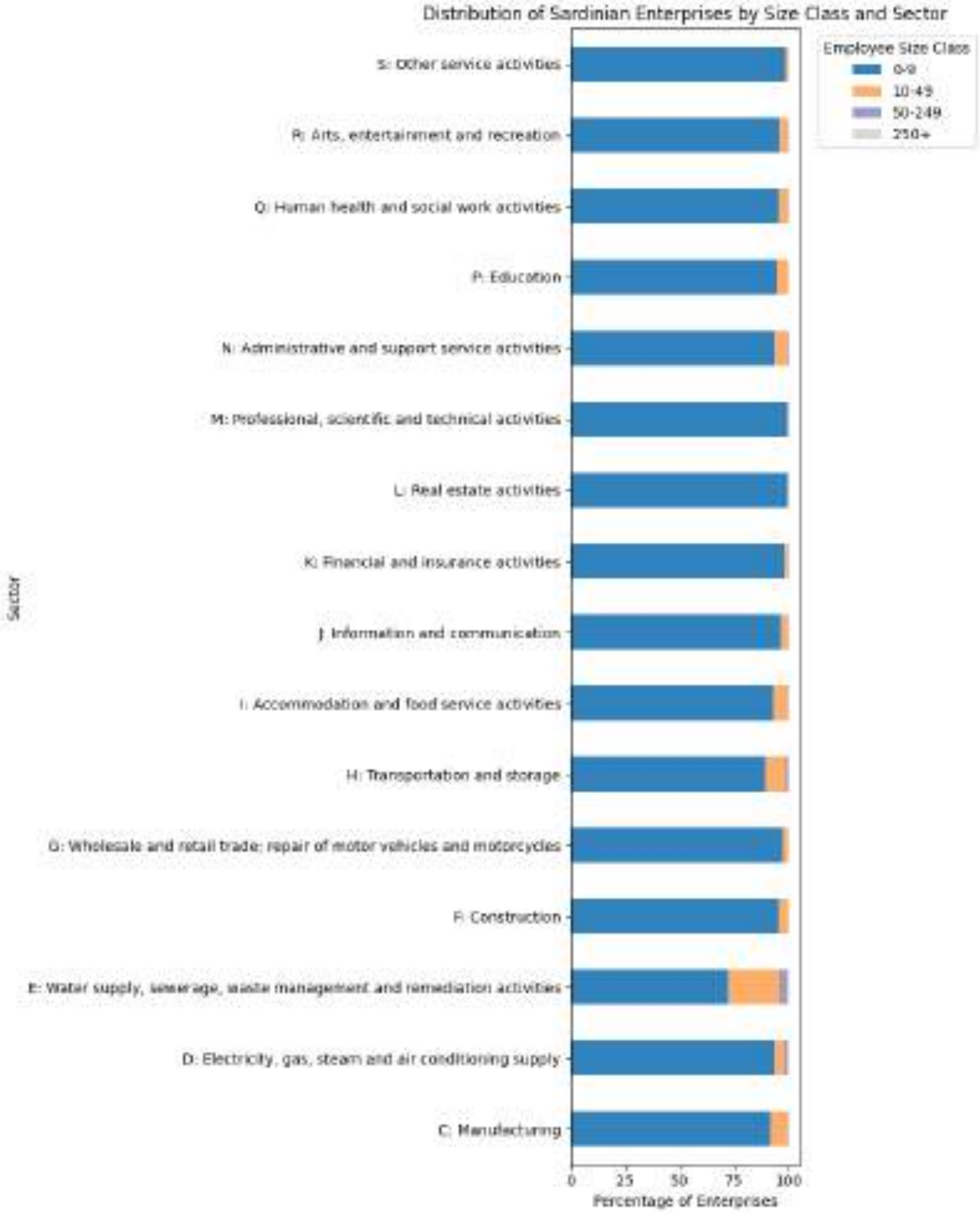
Economic Structure and Labor Market

- Value added/hour: €26 (vs. €33 Italy)
- Productivity grew faster than national average since 2007
- Workforce in low-productivity sectors
- 20% of employment in public sector
- Job creation in 2024: +14,000


Unemployment Rate (2018–2024) by Gender, Region, and Education Level
Men - Sardinia
Women - Sardinia
Men - Italy
Women - Italy
lower education
high school diploma
university and postgraduate
total
Unemployment Rate (%)
Year
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
2018
2019
2020
2021
2022
2023
2024

Business System and Innovation Gaps

- Highly fragmented enterprises
- R&D grew +19% (2018–2022), low private share (20%)
- Among lowest EU regions in private R&D
- Disconnect between innovation policy and outcomes
- S3 strategy: ICT, energy, aerospace, tourism, agro-industry



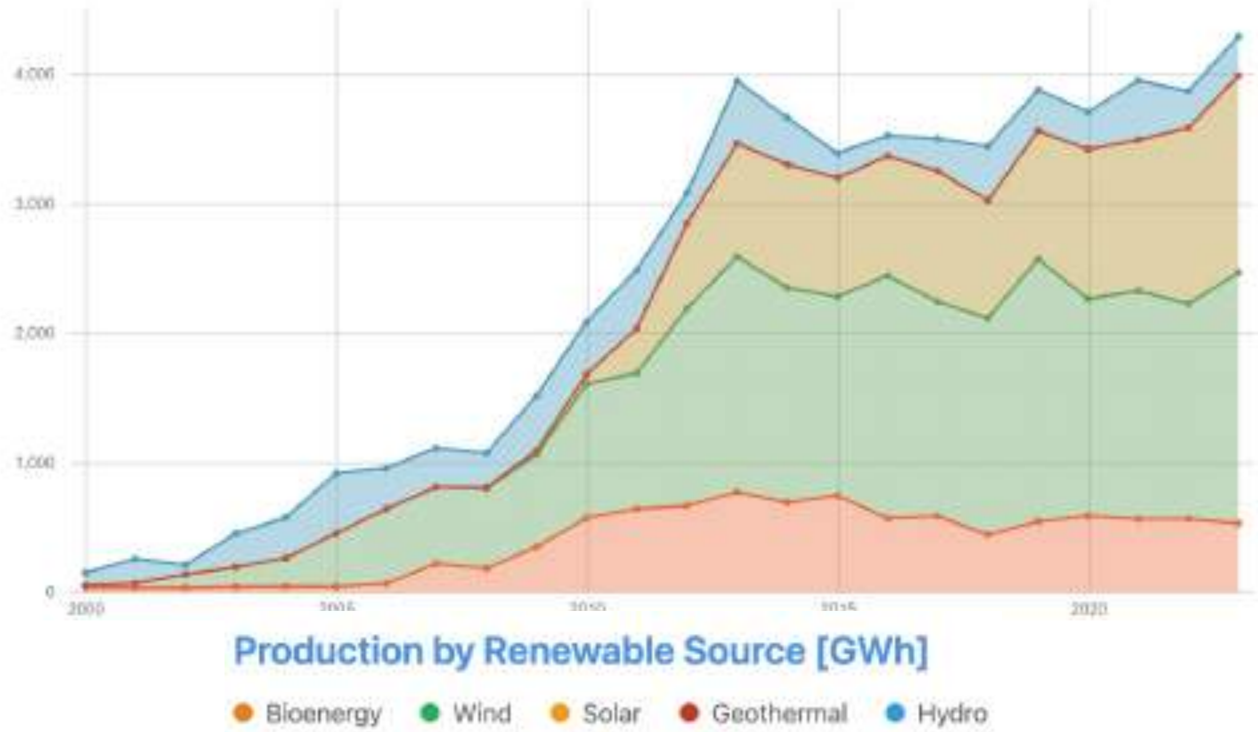
Digital Divide and Infrastructure Deficits

- Inadequate transport infrastructure limits competitiveness
- Digital infrastructure is a major bottleneck
- Internal areas suffer poor access to services and markets

Energy Transition: A Structural Opportunity

- 2023 production: 7.98 MWh per capita, 1/3 from renewables
- Still reliant on fossil fuels; lacks methane infrastructure
- High electricity costs: €914/year (vs. €770 national)
- Challenges: planning, storage, grid integration, environment

Governance of the Energy Transition



- Needs planning (interconnection,…)
- Exports one-third of net electricity
- Trade-offs: land use, tourism impact, local economic returns

Climate Risk and Environmental Resilience

Risks: desertification, wildfires, erosion, water loss

Strengths: reforestation, recycling, renewables

Weaknesses: low protection, high transport emissions

Critical Raw Materials: European Context

- EU targets (2030): 10% extraction, 40% processing, 25% recycling
- Max 65% dependence on one third-country
- Sardinia: leading Italian region for mining sites and volumes

Sardinian Resources and Strategic Potential

- Feldspar, fluorite, bauxite: proven reserves
- Vanadium, tungsten, rare earths potential
- 50% of municipalities under RIMIN permits

Mining Waste and Circular Economy

- Sardinia: 53% of Italy's mining waste (150 million m^3)
- 209 high-impact environmental sites
- Recovery: lead, zinc, gallium, germanium
- Dual benefit: remediation + strategic extraction

Battery Recycling and Industrial Strategy

- EU Critical Raw Materials Act: 47 strategic projects
- Largest in Italy (€400M): Sardinia battery recycling
- Potential hub for electrification and digitalization

Tourism

- 1,851 km coast, 28 marinas, 27,000+ berths
- Blue economy (EU turnover: €623.6B)
- Strengths: high tourist density, top 20% EU overnight stays
- Weaknesses: low employment in cultural jobs, strong seasonality, sustainability
- Overtourism: Temporal and Spatial Concentration

Diversification of Tourism

- Trends: nautical, U.S. growth (+35%), cultural, off-season
- Challenges: infrastructure, marketing, destination management

Export Overview and Trade Balance (2024)

Exports: €6.7B | Imports: €9.5B | Deficit: €2.8B

78.4% of exports: petroleum

Non-oil sectors growing: chemicals, metals, food, beverages

Trade with the U.S. (2024)

Total trade: €1.22B | Exports: €467M

64% oil-based; non-oil growing (11%)

Key exports: cheese (€119M), beverages, food

Export Risks and Policy Lessons

- 2017–18: 25% U.S. tariff on Pecorino → –40% exports
- New tariffs could impact profit margins
- Rising fertilizer and energy costs worsen impact

Governance, Funds, and Institutional Effectiveness

Governance fragmentation delays fund use

Weak local administrative capacity

SPECIAL ECONOMIC ZONE

Towards a More Resilient, Diversified Economy

- Strategic pillars:
- - Renewable energy and storage
- - Experiential tourism
- - Sustainable agro-food chains
- - Green economy
- - Digital services
- Path forward: coherence, cohesion, modernization