GLOBAL LABOUR RESILIENCE INDEX 2024

A CALL FOR CLIMATE-FRIENDLY LABOUR MARKETS

WHITESHIELD

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The analysis and drafting of the Global Labour Resilience Index Report 2024 (hereafter: "Report") was conducted by Whiteshield based on a methodology integrating statistics from international organisations and interviews with the Advisory Board members, with the support from its main partner CEMS, the Global Alliance in Management Education, comprising leading business schools, multinational companies and NGOs that together offer the CEMS Master's in International Management.

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FOREWORD

The green transformation of production structures and consumption patterns needed to achieve net zero emissions is set to accelerate in the coming decade and will continue to reshape labour markets and the allocation of workers across occupations, sectors, and regions. Jobs will be lost in declining "dirty" sectors while others will be created in new "green" industries. However, it is hardly any consolation to those whose jobs are at risk to be told that new, "green" jobs will be created in other activities or regions even in cases where the green transition ends up being a net job generator. Jobs and occupations/skills are both individual and location specific.

Some argue that "green skills" are simply traditional skills that can be applied to environmentally friendly sectors and activities. Even in this case, building the green economy requires acquiring "soft" skills that would allow changing production patterns to a more resource-efficient way, minimising carbon emissions and contributing to the sustainable use of resources. Others, however, suggest that green jobs require formal education and relatively higher levels of cognitive and interpersonal skills compared to non-green jobs. Put simply, the transition towards low-carbon, green and sustainable economies requires green skills across the board and these need to be incorporated in education and training programmes.

At the same time, cross country and regional socio-economic specificities need to be taken into account. Systemic shocks such as the -2008 9 financial crisis and most recently the COVID19 pandemic and the cost-of-living crisis have proven to have had discriminatory impacts across and within countries as they tend to exacerbate existing patterns of economic disadvantages. The green transition need not follow the same path. Policy can and should countervail these forces while at the same time address entrenched inequalities.

This year's index builds on a substantial number of indicators that can enable a targeted diagnosis of labour markets readiness to fully embrace the green transition. The report argues that public and private actors need to join forces to address all the channels through which the green transition affects labour markets both on the demand side as well as the supply side. They will need to create up-skilling and re-skilling paths and adopt active and flexible labour market programmes that facilitate a quick reintegration of job seekers into employment. Training programmes should aim at increasing productivity and be accessible for all with priority given to vulnerable households; they should also focus on portable skills throughout life to encourage occupational mobility.

The challenges ahead for policymaking are monumental and require a whole-of government effort to realise our collective ambition of a net zero carbon emission world. This report calls for strengthening labour market policies and institutions and adopting a citizen-centric approach that places citizens at the centre of decision-making processes rather than at the periphery thereby ensuring that policies and their implementation reflect and integrate citizens` interests and concerns.

By **Sir Christopher A. Pissarides,**

Regius Professor of Economics at the London School of Economics, Whiteshield Special Advisor and Director, Global Labour Resilience Index Advisor and recipient of the 2010 Nobel Prize in Economics

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The GLRI Advisory Board was formed to provide guidance on the methodology and research applied to the Global Labour Resilience Index, ensure consistency of the findings and support in the dissemination of results. The Advisory Board is a select group of leading international practitioners and experts with unique knowledge and skills in the areas of economic and labour policy and technological disruption. Its members, while coming from diverse geographical and institutional backgrounds (international organisations, the public sector, non-governmental organisations, business and academia), participate in their personal capacity. Whiteshield is grateful for the time and support provided by the Advisory Board members.

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The current edition builds on Whiteshield's proprietary Global Labour Resilience Index (GLRI) and Knowledge Mapping models and was authored by a number of Whiteshield senior executives comprising Fadi Farra, Managing Partner and Director; Raed Safadi, Chief Economist; Andrea Gurgone, Senior Economist; Elena Balter, Economic Modelling Lead.

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Climate change is a global megatrend impacting labour markets across the world and causing damage to infrastructure, human health, and productivity. Policy can and should mitigate these effects

Increases in climate-related natural phenomenon resulting from climate change such as hurricanes, wildfires, and floods cause damage to infrastructure, disrupt business activities, displace workers, and destroy jobs. These events, among others, affect workers' health, alter rainfall patterns and water availability, and lead to food scarcity. They also contribute to migration and exacerbate inequalities, particularly in vulnerable regions like Sub-Saharan Africa and South Asia.

Moreover, the ongoing transition to a low carbon economy will entail significant structural changes in labour markets including jobs displacements in declining "brown" sectors that are replaced by green activities, with knock on effects to other sectors following changes in relative prices, a skills mismatch with emerging green jobs, altered work geographies due to shifts in production, and higher costs for businesses as they adopt green technologies.

At the same time, the greening of our economies will create many opportunities to develop new industries that will benefit workers and safeguard the environment. IMF analysis has found the policy package required to achieve net zero emissions by 2050 would lead to about 2 percent of the global workforce changing the sector in which they work over the next 30 years [1].

The challenge facing all countries, at all levels of development, is to prepare the "local labour market" for the green transition

Estimates of the net job gains/losses induced by the green transition are mixed and vary widely across the plethora of studies that have tackled this issue. However, most studies find that the green transition has a strong "local angle" where some countries, regions, sectors, industries, and communities are better positioned to create more job opportunities than others.

For example, the transition to renewable energy sources will put pressure on employment in the coal, oil and gas sector. Workers in these chains face potential job losses. Re-employment can in principle be possible particularly for those workers with transferable skills that allow them to switch to green jobs. However, this assumes that fossil fuel extraction workers are located in regions where green employment will grow. In most cases this assumption may not hold forcing workers to move locations in search for job opportunities.

The potential of the green transition to be a net job creator depends crucially on the climate action and policy that governments will introduce. Acting in anticipation can improve outcomes and this is where the different metrics of the Global Labour Resilience Index (GLRI) offer help in monitoring performance,

benchmarking developments, and drawing lessons of experience on the existing policies and institutions within each of the 136 countries included in the study.

Climate action and policy should be a catalyst to "greening" the labour market

Absorbing and adapting to climate change calls for targeted labour market policies and effective institutions to manage the transition. While policy actions to address the labour market implications of climate change are more recent, we find that the most labour-resilient countries are those that have adopted and maintained flexible and active labour market policies including job retention and workers' reallocation support measures.

These active labour market policies have proven to be more effective in an environment characterised by macroeconomic stability, an open and transparent trade and investment regime, and an enabling business environment all of which operating within high quality institutions.

Overall, the most effective policies and institutions are primarily prevalent in higher-income countries. They have proven to be crucial elements in determining a nation`s ability not only to effectively mitigate the effects of climate change impact on its labour markets (as reflected in the GLRI`s absorptive capacity pillar) but also, significantly, in developing and implementing policies that facilitate the emergence of new green industries, activities, occupations, and employment opportunities (as indicated by the GLRI`s transformative capacity pillar).

The majority of lower income countries have yet to build strong labour market institutions and to deploy adequate efforts to fully seize on the emerging opportunities presented by the green transition

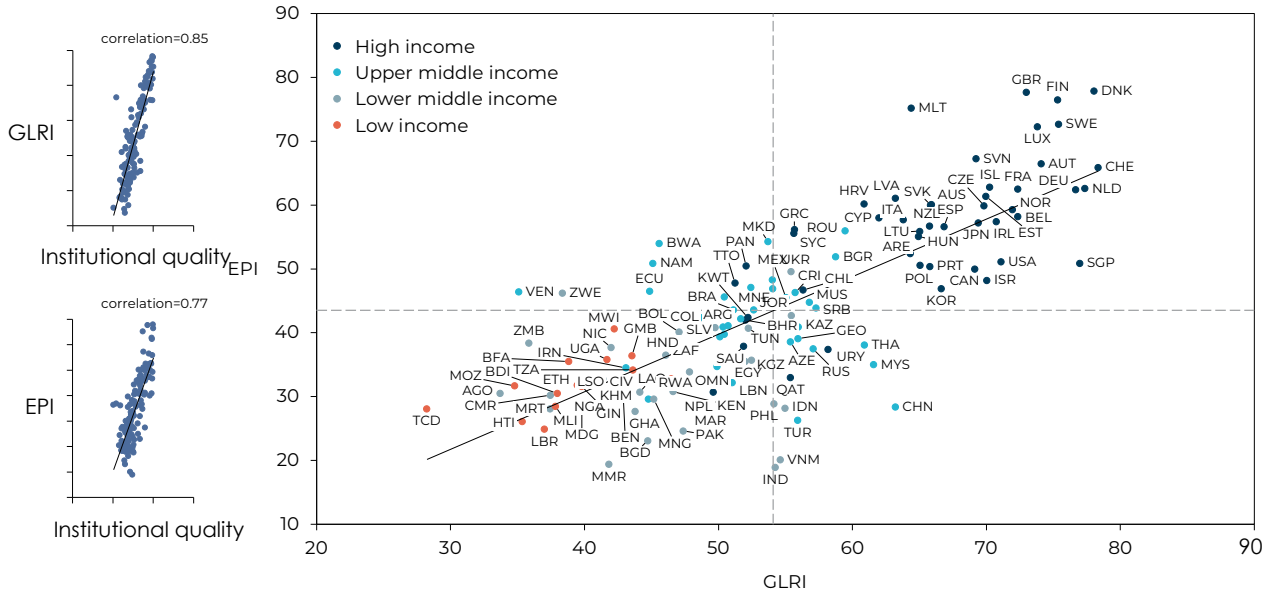
The GLRI scores reflect the important differences across countries' labour market institutions and endowments. They show that the challenges for some low- to middle-income countries posed by the transition to green growth are particularly difficult and the prospects for their labour markets more daunting, given the structural changes that will be needed.

Figure 1 shows that 50 out of the 136 countries included in this study obtain below-average scores in labour resilience and the latter are also highly correlated with their low scores on the Environmental Performance Index. Labour markets in these countries tend to be more susceptible to shocks and exhibit relatively slower recovery times. As a result, they are often ill-equipped to handle structural changes, including those brought about by climate change. Furthermore, their economies may miss out on opportunities to embrace green technologies and could encounter difficulties in nurturing green skills within their workforce.

Countries situated in the lower-left quadrant of Figure 1 are predominantly low and lower-middle-income nations with comparatively weaker institutional and policy frameworks. This weakness reduces

the ability of their labour markets to effectively absorb and recover from various shocks. Interestingly, four high-income countries, namely Bahrain, Oman, Kuwait, and Saudi Arabia, also find themselves in this quadrant. These high-income nations have yet to allocate resources that match their income levels towards transitioning to greener economies. Accelerating the adoption of green initiatives can play a pivotal role in diversifying their economies beyond oil and gas, promoting product innovation, and broadening the range of products they offer.

Figure 1: Countries with high labour resilience exhibit strong environmental performance



Note: Vertical and horizontal lines are the average of the y and x axes, while the trendline is a regression line. The two subplots on the left show the linear correlation between institutional quality, GLRI, and EPI. Institutional quality is measured by an aggregation of the World Bank's Worldwide Governance Indicators.

Source: Whiteshield, Global Labour Resilience Index 2024, and Yale's Environmental Performance Index (EPI) https://epi.yale.edu

Quality institutions foster better policy choices leading to higher labour market resilience and better environmental performance

By reducing uncertainties and promoting efficiency, quality institutions have been shown to promote economic growth and per capita incomes [2]. Moreover, there is a strong correlation between quality institutions, labour resilience and environmental performance. Most of the high-income countries included in our sample exhibit high institutional quality allowing them to make better policy choices that both benefit workers and protect the environment.

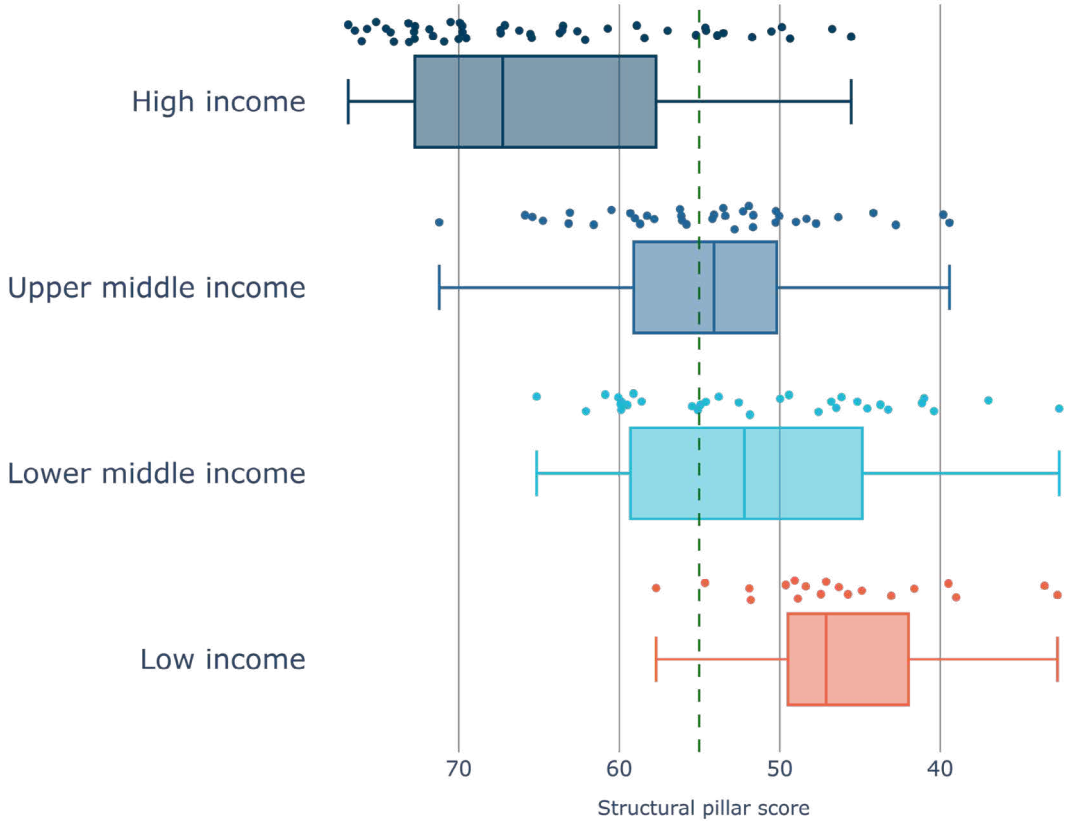
Figure 1 shows a strong and positive relationship between labour resilience and environmental performance, with both indices highly correlated with institutional quality. In short, high-income countries with quality institutions can make better policy choices that both benefit workers and protect the environment.

[1] The Environmental Performance Index (EPI) [11] measures how well countries are progressing towards meeting internationally established sustainability targets related to specific environmental concerns. Indicators in the EPI framework belong to three policy objectives: protect public health from environmental hazards, mitigate climate change, and enhance ecosystem vitality.

Strong economic fundamentals are crucial to enabling labour markets to embrace the green transition and capitalise on emerging opportunities

Achieving net zero carbon emission by 2050 implies a structural transformation of the economy towards less-polluting and more resource-efficient activities. Such a transformation will change the allocation of workers across occupations and sectors in ways that create new opportunities for workers, but also risks. Successfully managing this transition depends on the structural characteristics of an economy, addressing issues related to macroeconomic stability and the regulatory and business environment, and openness to trade and financial flows. These are some of the indicators that the GLRI incorporates in its structural pillar where our results point to major gaps across different income groups in the capacity of their labour markets to withstand and recover from shocks (Figure 2). Low to lower-middle income countries appear to struggle to fully capitalise on the green transition jobs promise as compared to high-income countries in North America, Europe, and East Asia & the Pacific. In the latter group of countries, macroeconomic stability, stronger institutions, and governance structures enable workers and firms to adapt more rapidly and efficiently to changes brought about by greening the economy.

Figure 2: The majority of low to lower middle-income countries exhibit a weak performance on the GLRI structural pillar



Note: The figure represents the distribution of scores on the structural pillar of GLRI, distributed by income group. The dark green dashed vertical line is the median across all income groups.

Source: Whiteshield, Global Labour Resilience Index 2024

The risks of widening inequalities in the context of the green transition cannot be overstated

The green transition need not be a new source of widening inequalities across and within countries. Figure 3 shows that countries that have yet to build strong adaptative capabilities in their labour market, such as India, also lag behind in their environmental performance. Moreover, labour markets that take a longer time to adapt to shocks leave the most vulnerable segments of the workforce at a heightened risk of experiencing greater disparities in their socio-economic conditions.

This is most apparent in lower-income countries that are disproportionately affected by the effects of climate change. This is where workers often occupy jobs that are more susceptible to climate events and lack access to quality healthcare. Moreover, as was found in the previous GLRI edition, the COVID-19 pandemic has exacerbated pre-existing inequalities in the labour market owing to limited opportunities and abilities to work remotely and high levels of informality.

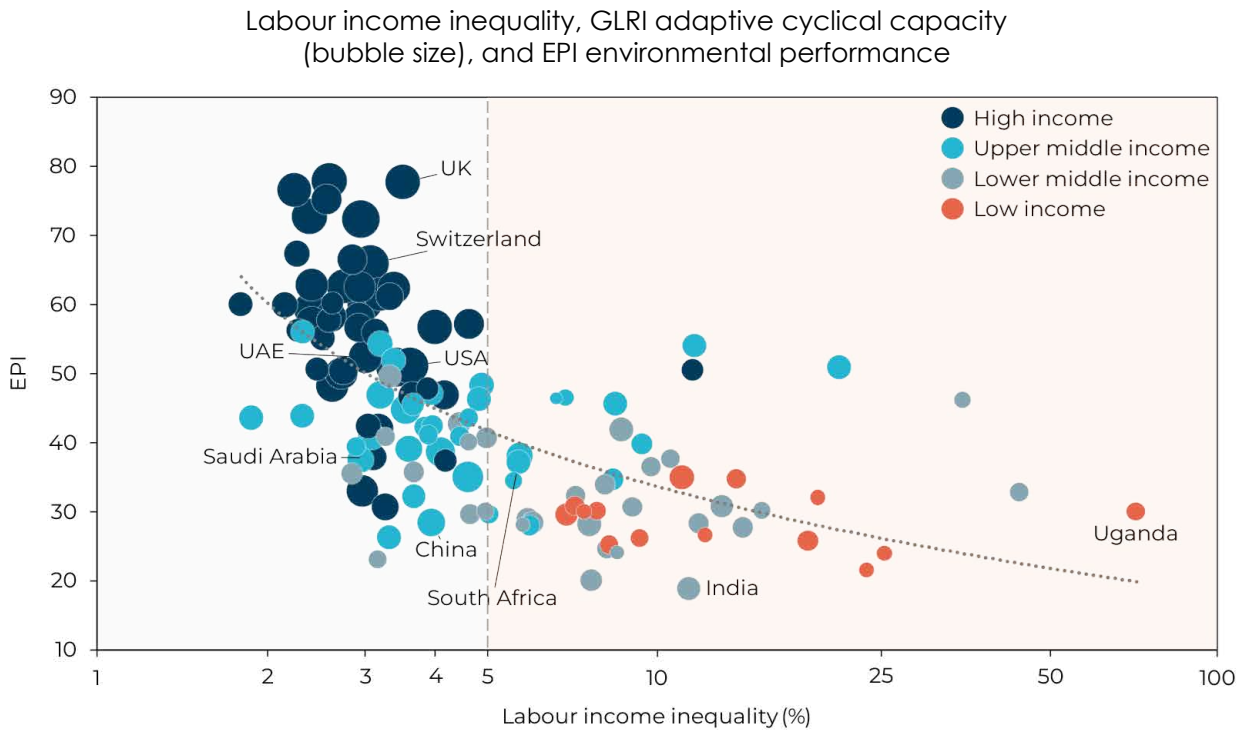
Climate policies aimed at achieving net-zero carbon emissions, such as carbon taxes and investment in renewable energy, may amplify social and economic disparities when labour markets are not resilient by increasing living costs and altering the employment landscape, for example in sectors like automotive and fossil fuel mining. Additionally, the green transition is likely to reconfigure the geography of work, reducing the attractiveness of certain locations.

Policies can mitigate against these risks by guiding the workforce through the structural changes precipitated by climate change while seizing opportunities within the green economy. Strengthening social protection transfers, including provisions for unemployment benefits, disability allowances, child support, and pensions is an essential component of bolstering vulnerable communities' resilience to shocks; they can also be deployed to prevent environmental degradation by introducing rural employment programmes that serve to restore degraded land and forests. Climate adaptation policies also include the adoption of climate-smart agricultural techniques that increase productivity and rural incomes. These efforts need to be complemented with policies designed to transform labour markets via strategic interventions in domains such as research and development, investment in education, innovation incentives, and the advancement of green technology and renewable energies sources.

Investments in education, training, and reskilling are key drivers of the green transition and in building a sustainable future

Public policy will need to address all the channels through which the green transition affects labour markets both on the demand side as well as the supply side. Regulatory interventions that will, for example, either restrict or price environmental externalities, will alter demand for skills in favour of green tasks and away from "brown" tasks with high environmental footprints. Green taxes that aim to reduce emissions would not

Figure 3: Climate change adaptation and mitigation efforts remain limited in countries where labour income inequalities are prevalent



Note: The size of bubbles represents adaptive capacities on the cyclical pillar. Horizontal axis is on a logarithmic scale. Labour income inequality is calculated as a ratio between the income share in the top and bottom five deciles of labour income distribution.

Source: Whiteshield, Global Labour Resilience Index 2024 and Yale's Environmental Performance Index (EPI) https://epi.yale.edu

only improve health and wellbeing of citizens but could also give government budget flexibility to cushion the potential harmful effects on the labour market. What is critical to consider is that different green policy interventions may have different impacts on the composition as well as the level of labour demand.

On the supply side, a green skilling agenda should aim at increasing labour productivity and efficiency through re-skilling and upskilling of workers in such areas as numeracy, literacy, analytical skills and problem-solving [3]. These are the areas where the literature has reached agreement in as far as the minimum requirements for "green skills".

Several studies stress that specific skills are needed to power the green economy such as knowledge of sustainable materials, carbon foot-printing skills, environmental assessment skills and others.

Considering that the green transition requires a workforce that is equipped with more than traditional skills presents policymakers with an opportunity to unleash the skills economy in tandem with the green transition. This requires public-private partnerships (PPP) to elaborate a green skills agenda focused on creating up-skilling and re-skilling paths so that workers are ready and able to fuel the green transition at scale. Training programmes should be

accessible for all with priority given to vulnerable households and should focus on portable skills throughout life to encourage occupational mobility.

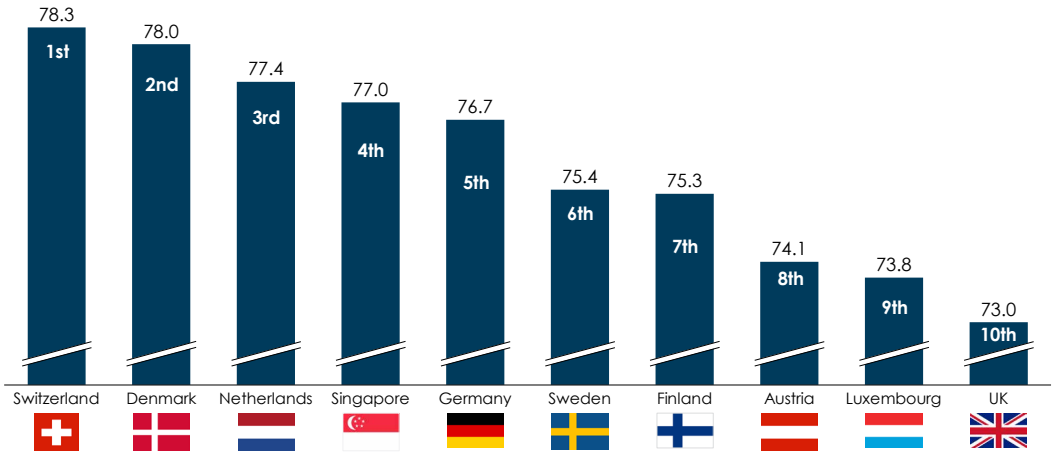
It is important to recognize that most developing countries, which are also most affected by the green transition, do not have sufficient levels of income to finance the policies and institutions required to make a successful green transition. Thus, specific measures will be needed to take these countries out of this resilience trap of lower income, a weaker policy and institutional framework, poorer environmental performance and lower labour resilience. For instance, as the green transition unfolds, export-oriented countries in the developing world are required to meet stricter environmental standards. To address this, policy measures should encompass PPPs that enable multinational corporations to assist in training and upskilling suppliers in developing countries. Additionally, international aid should be channelled into active labour market policies such as upskilling and reskilling the labour force to be climate ready. PPPs and aid are a key part of the solution to levelling the playing field.

The priority group that the green skills agenda needs to target is the young adults who are 24 years old and younger and today constitute 40% of the world population [4]. This group continues to face barriers to access employment, education, or training. And in the context of the green transition, the young lack clarity on career paths, training resources and support systems to develop a green career. And it is precisely this group that is tasked with leading the green transition and to work hand-in-hand with all the green investments underway. Being responsive to the youth plight is not just a social imperative, it is key to realising the net zero emission target.

Nine European countries and Singapore top 2024 GLRI rankings

European nations continue to dominate the top 10 of the 2024 GLRI rankings along with Singapore (Figure 4). Switzerland has advanced from second to first place in the ranking, followed closely by Denmark and the Netherlands. Singapore, in fourth position, is the only non-European country included in the top 10.

Figure 4: Top 10 Countries` Rankings and Scores in GLRI 2024



Source: Whiteshield, Global Labour Resilience Index 2024.

INTRODUCTION

A CALL FOR CLIMATE-FRIENDLY LABOUR MARKETS

Climate change and policy will lead to alterations in industrial production, consumption patterns and energy provision implying, among other things, fundamental changes to labour markets the world over. Well-functioning labour markets are critical to achieve a smooth transition, create new jobs, and reintegrate workers who lose their jobs. This is where the GLRI sheds light on the types of policies and institutions that are currently in place in each of the 136 countries that are included in the study. It reveals the most labour-resilient economies in the world, ranking their performance while highlighting their strengths and weaknesses.

This edition of the GLRI underscores the critical role resilient labour markets play in navigating the complexities of the green transition. It focuses on the adaptation of labour markets to the challenges and opportunities of the green economy. Countries are assessed based on their capacity to sustain and adapt labour markets amidst environmental and economic changes, emphasizing the importance of inclusive, sustainable, and adaptable labour practices.

Our analysis delves into how the pressing need for a green transition is reshaping labour markets, presenting both new challenges and opportunities. We provide a comprehensive overview of how various regions and countries are responding to the demands of environmental sustainability, transforming their labour markets in the process.

The findings offer insights to strengthen labour markets, preparing them to endure climate change challenges and leverage the prospects of a sustainable, green future. To balance environmental needs with labour market dynamics, policymakers must adopt a holistic strategy, integrating climate and labour policies for a smooth and equitable transition to a green economy. Key actions include strengthening labour markets to better absorb and adapt to the impacts of climate change and green policies; investing in education, training, and reskilling to equip the workforce for green jobs while addressing the potential broadening of inequalities. The effectiveness of these policies hinges on sound economic fundamentals and high-quality institutions. These are fundamental factors to enable the labour market to adjust to economic transformations. Their absence may result in lowered capacity to manage shocks, and the missing chance to seize green economy opportunities.

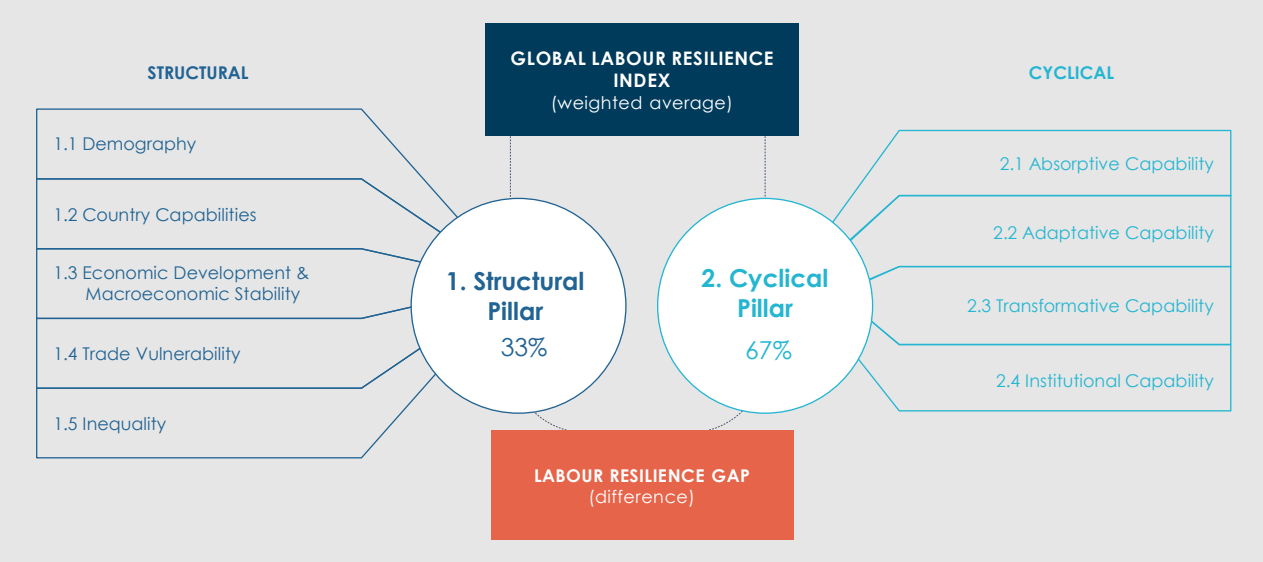
THE GLRI FRAMEWORK

The Global Labour Resilience Index (GLRI) Report is an annual publication that ranks countries on the resilience of their labour markets and provides policy guidance on how to enhance it.

The GLRI 2024 builds on its resilience capabilities framework (Figure 5). It emphasises the capabilities required for countries to better prepare for short-term shocks (e.g., COVID-19) as well as long-term transformations (e.g., technological disruptions, green transition).

A resilient labour market is defined as one that generates sustainable demand for a wide range of occupations and supplies quality work. Resilient labour markets are inclusive, sustainable, and able to withstand shocks because of their flexibility and adaptability. Full details about the methodology employed in the 2024 edition can be found in a separate document [5].

Figure 5: Framework for the Global Labour Resilience Index



Source: Whiteshield, Global Labour Resilience Index 2024 [5].

A capabilities-based approach to resilience

Resilience can be defined as the ability to face and recover from disruptions, regardless of their nature. The GLRI is focused on two aspects of resilience: structural and cyclical (Figure 6).

The structural pillar measures the risk exposure of a country

The structural pillar assesses a country's intrinsic vulnerabilities, or protective factors, which can interact with disruptions to further amplify or reduce their intensity. These factors tend to be harder to change in the short-term, and include e.g., demographics, the level of economic development and macroeconomic stability, country

capabilities, trade vulnerability, and inequality.

The cyclical capabilities pillar measures the strength of labour markets' response to disruptions

The cyclical pillar focuses more on how the policies in place can alter the level of disruption experienced by a given labour market. The pillar is divided into four sub-categories of capabilities.

The first three are:

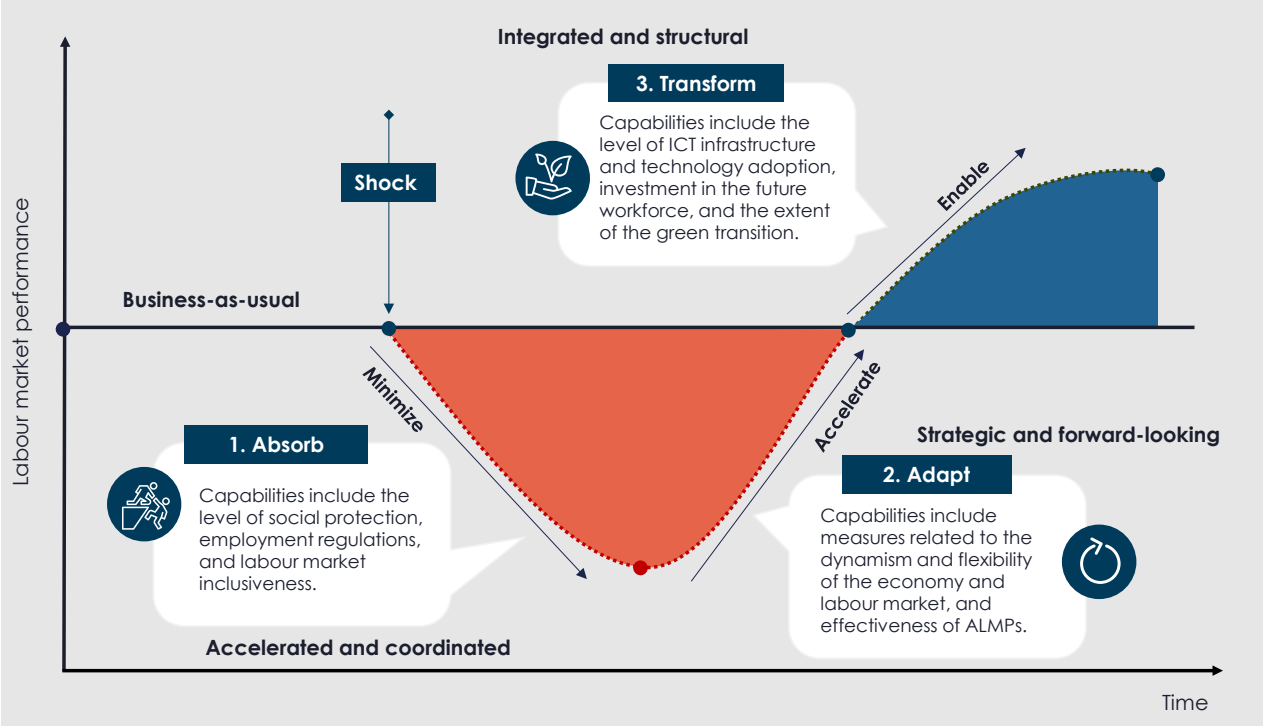
- **Absorptive capability** defined as the ability to contain the shock and minimise the damage on jobs and workers.
- **Adaptive capability** defined as the ability to recover quickly and rapidly create new jobs to replace the destroyed ones.
- **Transformative capability** defined as the ability to align with major future trends and turn long-term stresses into opportunities.

Each of the three sub-pillars will be more important during the different stages of the disruption cycle and depending on the type of disruption (Figure 6).

The fourth sub-pillar, **institutional capability**, acts as a cross-cutting enabler to a resilient response against all types of disruptions and throughout all phases of the crisis.

The composition of sub-pillars is provided in Tables 3 and 4 in the Appendix. Readers can find further details about indicators in the methodology accompanying document [5].

Figure 6: Framework for Cyclical Resilience



Note: Labour market performance (y-axis) includes level of employment, productivity, and wages. Active Labour Market Policies (ALMPs). Source: Whiteshield, Global Labour Resilience Index 2024.

MAIN FINDINGS

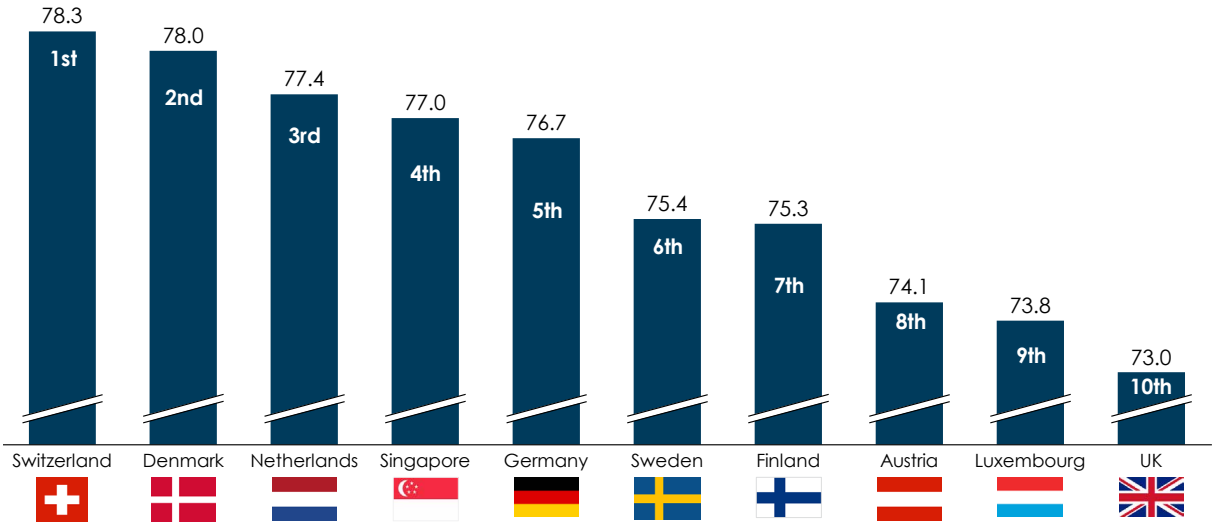
TOP COUNTRIES

OVERVIEW OF THE TOP 10 COUNTRIES

The GLRI 2024 shows a stable top 10, with the UK entering and Norway dropping out

Switzerland's labour market is the most resilient, followed by Denmark and the Netherlands. The top 10 list continues to be dominated by Western European countries, exhibiting remarkable stability over the last five years, with the UK as the new entrant to the top 10 and Norway exiting the group (Figure 7). Table 1 presents an overview of the top 10 countries in the GLRI 2024.

Figure 7: Top 10 Countries` Rankings and Scores in GLRI 2024



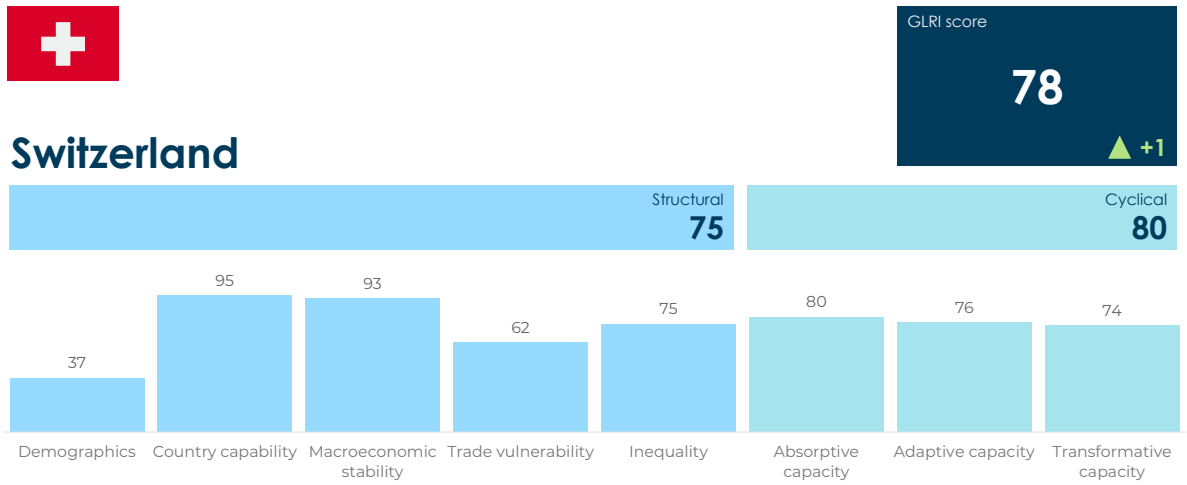
Source: Whiteshield, Global Labour Resilience Index 2024.

Table 1 : Top 10 Countries` Rankings and Scores by pillar in GLRI 2024

Country	Rank GLRI 2024	Score GLRI 2024	Rank Structural Pillar	Score Structural Pillar	Rank Cyclical Pillar	Score Cyclical Pillar	GLRI Rank Trend
Switzerland	1	78.3	6	74.5	1	80.2	1
Denmark	2	78.0	2	76.5	2	78.8	-1
Netherlands	3	77.4	3	76.0	5	78.0	1
Singapore	4	77.0	7	74.3	3	78.3	2
Germany	5	76.7	1	76.9	6	76.6	-2
Sweden	6	75.4	5	75.2	8	75.5	-1
Finland	7	75.3	22	69.8	4	78.1	1
Austria	8	74.1	4	75.7	12	73.3	1
Luxembourg	9	73.8	8	74.0	11	73.7	-2
UK	10	72.9	15	71.6	10	73.7	2

Source: Whiteshield, Global Labour Resilience Index 2024.

STRENGTHS AND WEAKNESSES, THE TOP 3 COUNTRIES



Switzerland tops the GLRI rankings with a robust performance across all the labour resilience metrics

This year Switzerland climbed to the top position in the GLRI. This is not surprising given the country`s consistent track record of excellence in labour resilience, attaining either the first or second place since the first edition of GLRI in 2019. The country exhibits a high and balanced performance across all the cyclical sub-pillars while being the sixth country globally for structural resilience.
Switzerland is also the 2nd best country in all the three cyclical metrics of the GLRI: absorptive, adaptive, and transformative capabilities. In the GLRI 2024, Switzerland`s structural pillar improved owing to increased economic diversity, and the broadening of the range of products the country is producing and exporting.
Switzerland moved from second to first place in cyclical resilience. The key drivers include a more inclusive approach to youth employment and a reduction in labour market polarization within the absorptive sub-pillar. Improvements in infrastructure quality, reflected in the increased logistics performance index, contributed to Switzerland`s success in the adaptive sub-pillar. Moreover, the resilience of the ICT infrastructure has improved, as evidenced by its higher ranking in the global cybersecurity index within the transformative sub-pillar.
The high performance in labour resilience is enabled by a strong institutional capacity, where Switzerland ranks fourth globally. High levels of decentralization, active citizen engagement through direct democracy, and a cohesive society collectively act to accelerate policy-making processes and enhance their effectiveness.

Switzerland`s success is rooted in a specialized workforce and innovation…

As one of the world`s most innovative economies and a net exporter of

[2] Harvard Growth Lab. (2023). The Atlas of Economic Complexity - Glossary. Retrieved from https://atlas.cid.harvard.edu/glossary.

intellectual property, Switzerland thrives on a highly skilled workforce, earning the top position in skills and adaptability. Investments in education enhance labour resilience by equipping workers with adequate skills to navigate technological changes and drive innovation. This is complemented by the country`s commitment to investments in innovation and research, ranking first in Gross Domestic Expenditure on Research and Development (GERD) at 3.2% of GDP.

While Switzerland maintains a strong manufacturing base, services generate close to 72% of its GDP and provide jobs for more than 50% of the active population [7]. This, together with high levels of investments in research and development, financial sector depth, and dynamic entrepreneurship provide a clear path towards greening the economy and bolstering job creation and labour resilience.

… but lagging productivity growth and a shortfall in labour market inclusiveness could undermine Switzerland's high living standards

Over the last two decades, productivity growth in Switzerland has lagged behind its peers owing to the dual structure of the economy where a highly competitive and innovative export industry coexists with a domestic industry that is sheltered from competition. Lowering barriers to trade and competition can generate investments that will foster productivity improvements as well as support the country's green transition.

Another critical area for improvement is increasing the labour market participation rates by removing disincentives for older workers to remain in the job market and for mothers to work longer hours. Policy measures to incentivize women to enter the labour force (currently ranking 35th), include for example expanding affordable childcare provision and job search support for older people.

While committing to renewable energy goals will accelerate the green transition, Switzerland must ensure a sufficient workforce for green jobs

Despite the high focus on clean energy in Switzerland's policy agenda, Switzerland can still consider reducing further its reliance on non-renewable energy sources. Currently, Switzerland ranks 66th globally in renewable energy consumption, giving it the lowest ranking across all the structural pillar metrics. The new climate law (Box 1), approved in 2023, is a commitment to reducing greenhouse emissions and achieving climate neutrality by 2050. Among its provisions, it mandates the replacement of energy consumption from fossil fuels with green alternatives and allocates financial resources for this purpose.

As Switzerland advances in its green transition, ensuring an adequate workforce for the emerging green economy is crucial. Although it has highly skilled workforce and high quality educational institutions, Switzerland may face a significant challenge in ensuring an adequate supply of workers with the necessary skills for the green transition [8]. This issue is compounded by an ageing population, which is contributing to a

shrinking workforce. A substantial portion of green jobs will demand technical skills or education in STEM (science, technology, engineering, and mathematics) fields. A potential shortage in these areas might lead some industries to relocate their production to countries with laxer environmental regulations. Furthermore, the rising demand for technical skills, fuelled by the digital transformation, intensifies the competition for such talent, exacerbating the potential skill gap.

Box 1: Switzerland has committed to a net-zero emission roadmap

SWITZERLAND

COMMITTING TO NET-ZERO BY 2050

In June 2023, Switzerland ratified the "Climate and Innovation Act," legally committing to reach net-zero emissions by 2050

OBJECTIVES

The Climate and Innovation Act sets out actions to achieve net-zero by 2050:

1. It outlines a roadmap, including intermediate targets for reducing greenhouse gas emissions
2. It offers financial incentives for homeowners to switch to eco-friendly heating systems and encourages businesses to invest in green technologies.
3. It mandates local and federal governments to safeguard people and their properties from the negative impacts of climate change.

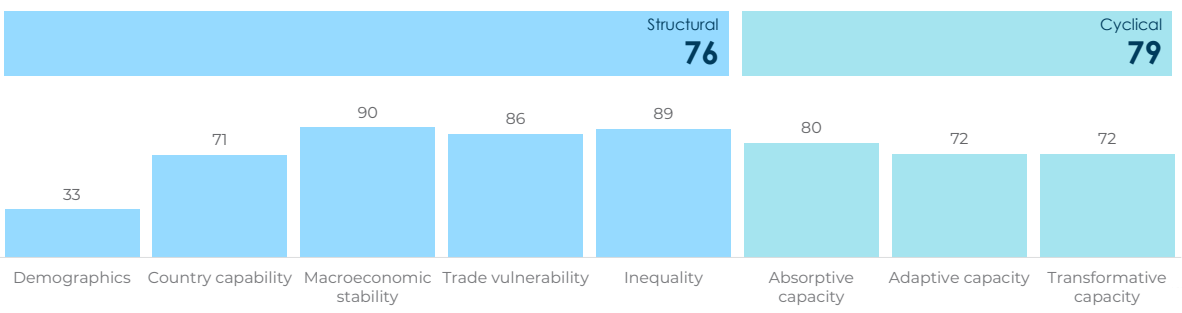
KEY INSIGHTS

- The Climate and Innovation Act amends the "Glacier Initiative," which was criticized for its radical measures such as banning fossil fuels by 2050 and implementing new taxes.
- The amendment passed with 59.1% of Swiss voter approval and a 42.54% turnout.
- The first two support programs allocate 200 million Swiss francs (US $223 million) yearly to companies adopting climate-friendly technologies and homeowners upgrading heating systems or insulation, over six and ten years, respectively.

Source: Library of Congress. (2023). Switzerland: Voters approve law codifying net zero target by 2050. Retrieved from https://www.loc.gov/item/global-legal-monitor/06-07-2023/switzerland-voters-approve-law-codifying-net-zero-target-by2050-/.

Denmark

GLRI score **78** ▼ -1



Despite sliding to the second place, Denmark retains its reputation as a global leader in labour market resilience

Denmark continues to demonstrate a robust and balanced labour resilience score supported by a dynamic and inclusive labour market and a business-friendly environment. The government has taken a number of steps to adapt labour market policies to the future of work. These include a new unemployment insurance system for self-employed and non-standard workers that is more aligned with the unemployment insurance for standard workers, and a tripartite agreement between the social partners and the government that makes adult education, training and upskilling more flexible and accessible.

In terms of structural capabilities, Denmark's labour resilience is strongly supported by macroeconomic stability, ranking sixth globally, and trade vulnerability, where it leads the world rankings. On the cyclical front, Denmark exhibits strengths across various sub-pillars. Labour resilience benefits from a relatively high level of support and protection of workers, especially for workers' rights, unemployment coverage, and pension scheme. The regulatory environment is conducive for starting a business.

Denmark has fostered an innovation friendly environment and dedicates close to 3% of its GDP to funding research and development. The country is home to renowned universities and research institutions and has a substantial number of researchers and technicians dedicated to R&D. Finally, Denmark is ranked third by institutional capacity reflecting the effectiveness of governance as a cross-cutting enabler of policymaking.

Denmark is a pioneer in renewable energy, leading the global shift towards sustainability…

Denmark is the largest oil producer that has committed to ending its oil and gas extraction and has successfully decoupled its GDP growth from greenhouse gas emissions in the 1990s. The country has set ambitious targets, as outlined in the 2019 Climate Act and tools (Box 2), to reduce its greenhouse gas emissions by 70% below 1990 levels by 2030. The Danish parliament agreed to achieve 100% green electricity by the same year. In 2021, Danish companies filed the highest number of green patents per million inhabitants in Europe and the United States, with over 50% of these patents related to wind energy [9]. Denmark also ranks at the top of the Climate Change Performance Index (CCPI) [10] and Yale`s Environmental Performance Index [11], solidifying its position as a global leader in moving away from non-renewable sources of energy.

Denmark can mobilise its existing strengths in green innovation to further strengthen labour resilience

Denmark continues to invest in green technologies, thereby enhancing its productive capabilities, where it currently ranks 26th globally. Pushing ahead economic complexity will create new learning opportunities for workers, mitigating the potential disruptions brought about by technological changes. New and green jobs may attract skilled workers from abroad who would help in filling gaps left by retired workers and contribute to the country`s welfare system. Also, green innovation can build resilience in sectors most affected by climate change, such as

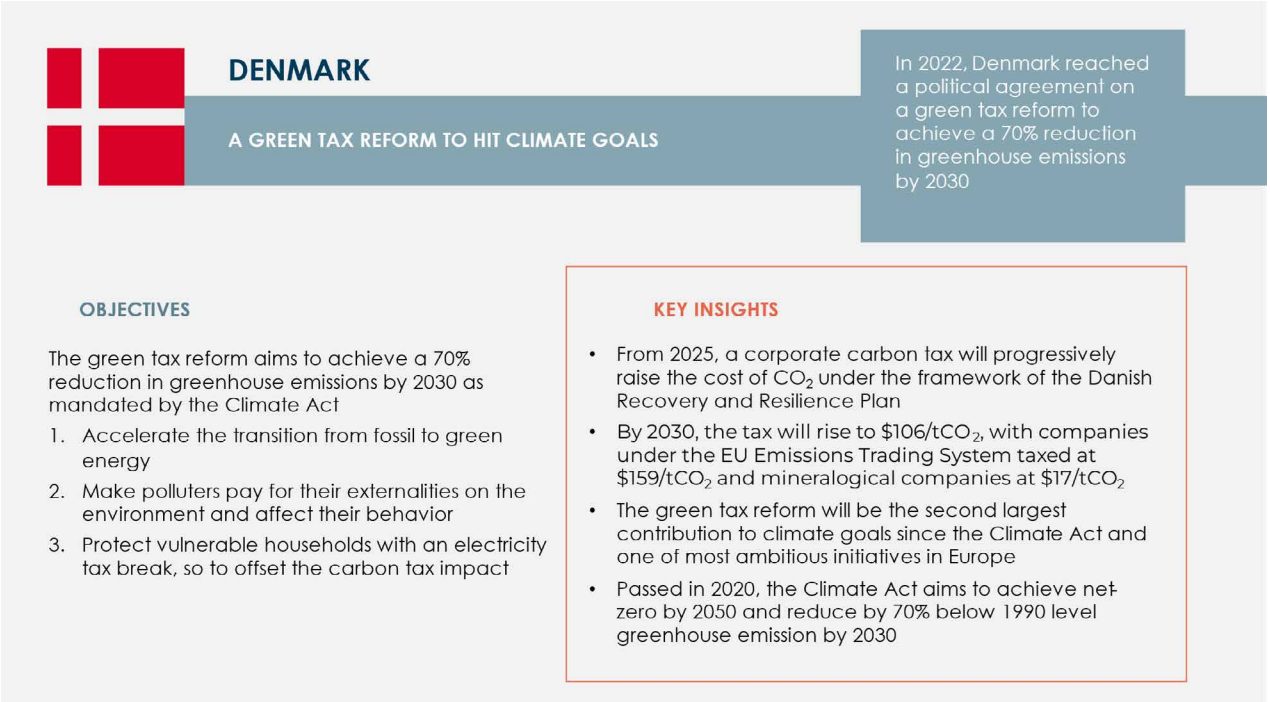
agriculture, transport, and insurance, thus safeguarding the jobs of those employed in these industries. Denmark`s excellent educational infrastructure, along with its focus on scientific, technical, and ICT activities, uniquely positions the nation to navigate and shape the evolving structure of its workforce in the face of structural and economic transitions.

Denmark's model of combining labour market flexibility with security (flexicurity) is a key component in the country's green transition

The Danish flexicurity model, having weathered the 2008-2009 financial crisis and the COVID-19 pandemic [12], will continue to play a critical role in ensuring labour resilience during the energy transition. The country's ambitious emissions targets will reshape the way of producing and consuming, potentially rendering some jobs obsolete and displacing vulnerable, less adaptable workers. However, Denmark is well-prepared to face this challenge due to its flexicurity policies that make it easy to hire and fire workers while safeguarding their financial security by providing a robust system of social and employment support.

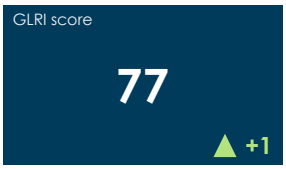
Active labour market policies along with lifetime learning and education policies ensure that individuals have the skills they need to transition to new employment including green jobs. However, while Denmark's flexicurity model reduces the riskiness and exposure of workers to the green transition, the associated costs could prove challenging especially when considering Denmark's ageing population that is expected to constitute about 25% of the population by 2040. Enhancing labour force participation, especially among the youth and the immigrants are key elements in ensuring a smooth and inclusive green transition.

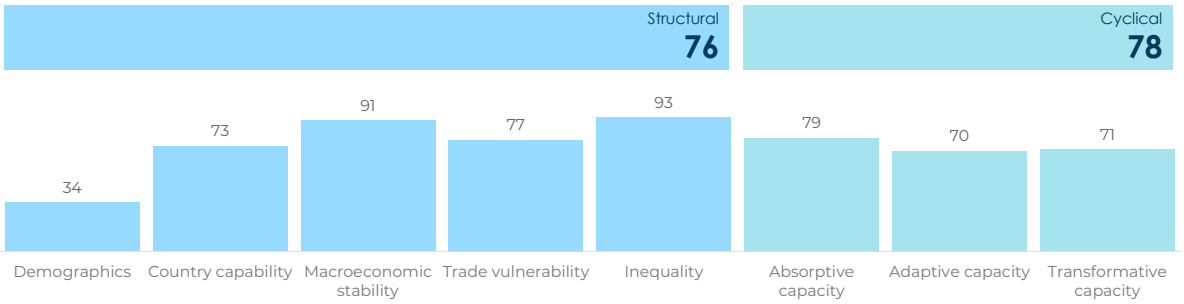
Box 2: Denmark plans a carbon tax reform to achieve its green targets



Source: Lenain, P. (2022). Denmark's Green Tax Reform: G20 Countries Should Take Notice. Council of Economic Policies (CEP). Retrieved from https://www.cepweb.org/denmarks-green-tax-reform-g-20countries-should-take-notice/.

The Netherlands





The Netherlands has regained the third place in labour resilience following a swift return to pre-pandemic levels of economic activity and strong labour market performance

The Netherlands climbed back to the third place in this year's ranking driven by a combination of factors including a four-position improvement in the structural pillar where it ranks third globally on account of a stable economic outlook (ranked 1st by sovereign credit rating) and a low-income inequality (5th). The Dutch economy swiftly returned to its pre-pandemic GDP levels supported by macroeconomic stability, a business-friendly environment, strong institutions, a high degree of digitalisation and effective support policies.
The Netherlands ranks 5th globally in cyclical resilience capabilities owing to the country's quality infrastructure, skilled and adaptable workers, efficient ICT regulations and an innovation-friendly environment. However, cyclical indicators display some variability with the adaptive sub-pillar displaying the weakest performance. Key indicators to be addressed by policy include the effect of taxation on the incentive to work (61st), time dealing with regulation (54th), enforcing contracts (67th), cost to start a business (55th), ease of getting credit (97th), new corporate registration (43rd), and access to loans (42nd).

Like other advanced economies, the Netherlands is facing an ageing population

Despite the good performance in the structural pillar, like other advanced countries, the Netherlands faces challenges in structural resilience due to its high share of older population (ranked 120th globally). This exacerbates the skill-gap and increases the age-related fiscal expenditure. Policy interventions could focus on inducing higher investment in human capital, both through training of employees, and especially by increasing labour productivity. Increasing the number of graduates in Science, Technology, Engineering, or Mathematics (STEM) is essential. STEM graduates possess the technical skills necessary for driving green and technological transformations, but currently

[3] Denmark ranks 47th by youth unemployment in GLRI 2024.

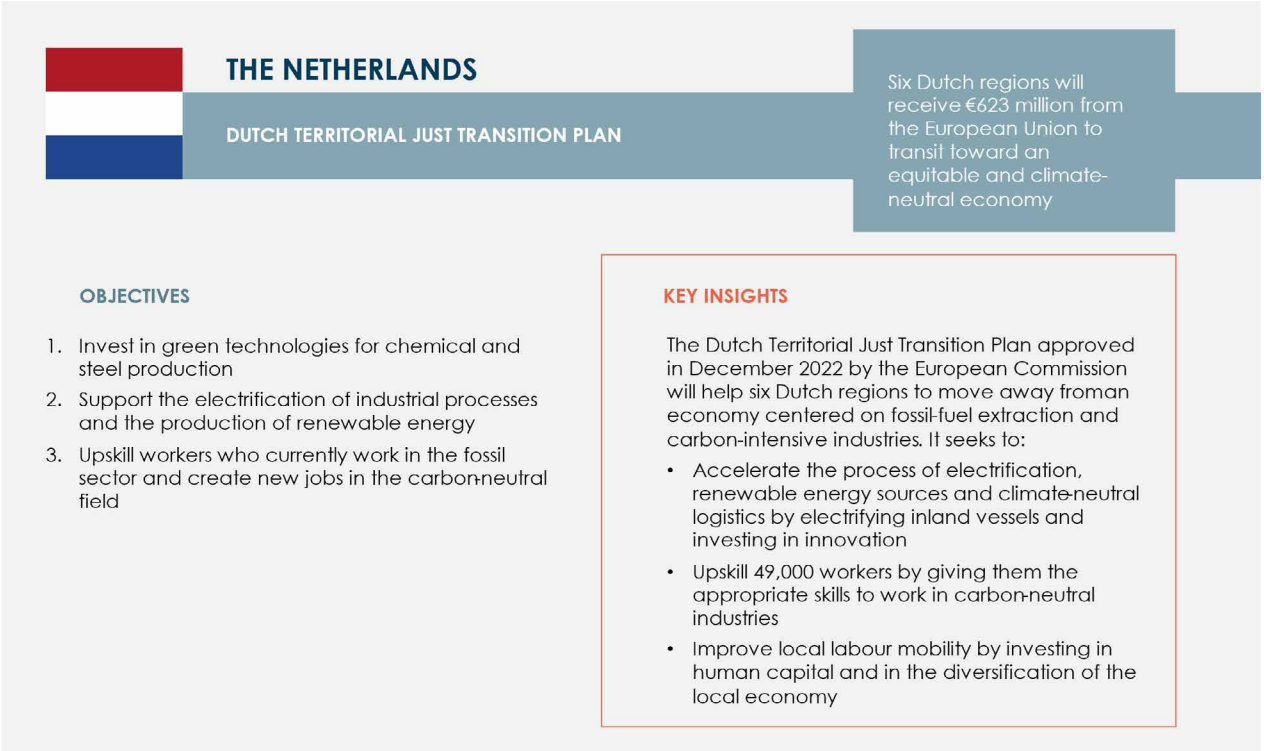
the Dutch percentage of STEM graduates ranks 80th globally. Policy could also target raising the labour force participation rates. Indicators such as women in the labour force (33rd globally) and youth unemployment (36th) suggest that there is potential for targeted interventions. Reducing the gender pay gap where the Netherlands ranks 34th globally and enhancing access to childcare are also important interventions to consider in raising labour market participation rates.

The Netherlands' heavy reliance on fossil fuels may put a strain on the green transition

Concerns regarding progress toward the green energy transition have arisen due to the country's substantial reliance on fossil fuels, which account for 86% of its energy supply [13]. This heavy dependence may undermine the country`s transformative capabilities. While the share of renewable energy mix in the Netherlands has more than doubled between 2011 and 2020, the country is still ranked 108th in renewable energy consumption globally, highlighting the need for a strategic shift. More efforts are needed to increase the share of renewables in the energy supply.

The Territorial Just Transformation Plan, approved by the European Commission (Box 3) in 2022, represents a positive step in this direction. The plan supports Dutch regions in phasing out fossil fuel extraction and carbon-intensive industries, facilitating a transition towards a more sustainable economy. Consequently, can potentially release resources that are currently allocated to subsidizing the carbon sector, redirecting them for the acceleration of the green transition.

Box 3: A regional plan is helping Dutch regions transition toward a more sustainable economy



Source: European Commission, 2002. EU Cohesion Policy: 623€ million for a just transition to climate neutrality in the Netherlands. https://ec.europa.eu/regional_policy

REGIONAL RESULTS

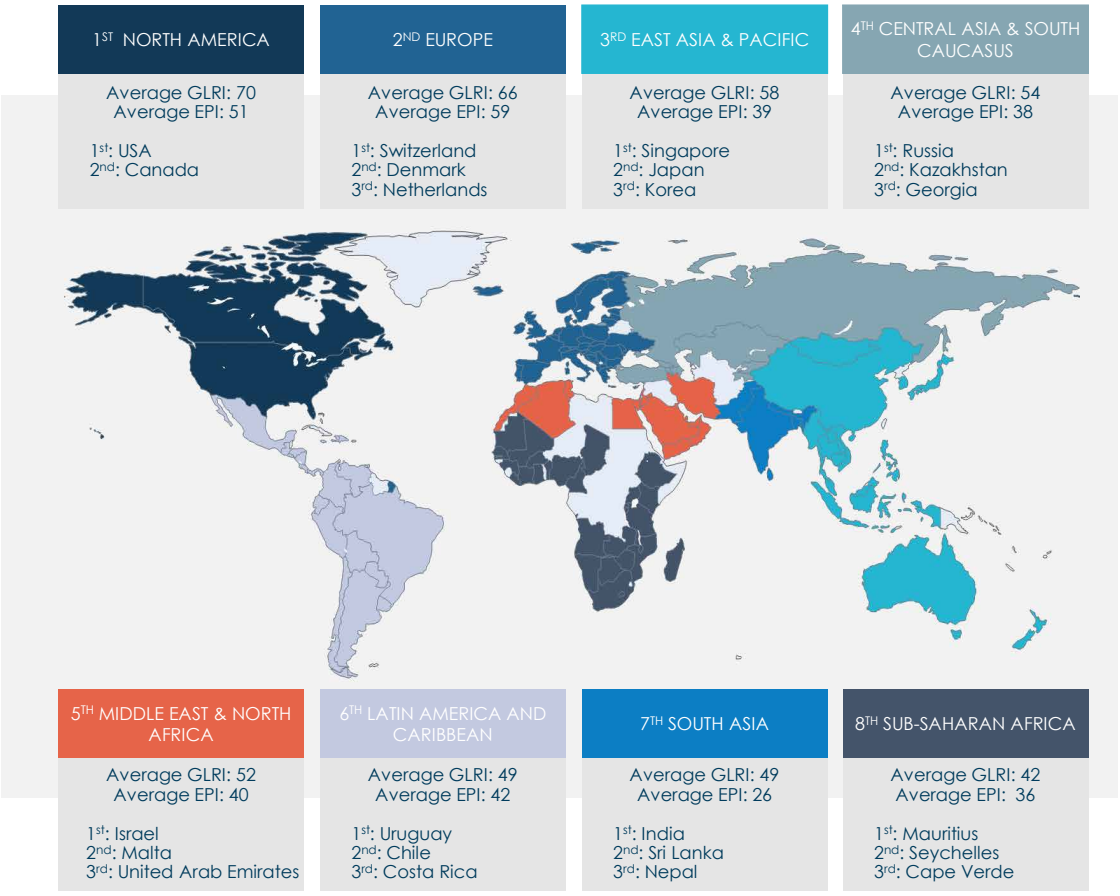
Regional labour resilience ranking holds steady over time, except that South Asia has fallen to seventh place

The regional ranking in Figure 8 has remained largely consistent with previous editions of GLRI, with North America leading, followed by Europe, and East Asia & Pacific. However, this year, a decline in the structural performance in South Asia led to one-position drop in the regional ranking, moving it to the 7th place. Conversely, Latin America & Caribbean advanced to the 6th place. North America, encompassing Canada and the United States, demonstrates higher average labour resilience than any other region of the world. This is due to the balanced strong performance of both countries across the pillars of the GLRI. In contrast, Europe secures the second position, even though 9 out of the 10 most resilient countries are European. This result follows from its performance being offset by lower labour resilience in Eastern and Southern Europe.

80% of the top 50 most resilient countries are located in the first three regions

Not surprisingly, North America, Europe, and East Asia & Pacific boast a high concentration of resilient countries. These geographies encompass the majority of the world's most developed countries, which possess resilient labour ecosystems. Bolstered by good policies and effective institutions, they achieve an excellent performance on all pillars.

Figure 8: Regional GLRI 2024 Ranking and Scores with EPI Environmental Performances



Source: Whiteshield, Global Labour Resilience Index 2024 and Yale's Environmental Performance Index (EPI) https://epi.yale.edu.

NORTH AMERICA

North America dominates the regional ranking, showing a well-rounded performance in all pillars and sub-pillars, spearheaded by the USA…

North America, which includes just the USA and Canada, has dominated the rankings since the very first edition of the GLRI. The region grabs the number one spot in all pillars and sub-pillars and outshines other regions in about 70% of all measured indicators. This performance spans various areas, most noticeably economic stability, business environment, employment quality, and financial access and regulation. Digging a bit deeper, the USA takes the lead within the region, scoring beyond the 80% percentile in 62% of indicators and going above 90% in 32% of them. Specifically, the US shows remarkable performance in several key aspects like hourly wages, ease of getting credit, skilled labour supply, higher education achievements, loan access, and having a solid financial system. North America, and especially the USA, has been setting a successful model in the GLRI rankings by blending a lively economy with a supportive business environment that others might learn from.

… however, to join the top ten group, enhancements in worker support and protection, green energy usage, and income inequality reduction are necessary

Despite being the highest ranked region, North America's constituent countries, the USA and Canada, sit at 14th and 22nd, respectively, in GLRI. In comparison with the top 10 countries, they fall short in absorptive and transformative capabilities. To ascend in the rankings, and potentially for the USA to enter the top 10, improvements are suggested in the following areas. For the absorptive sub-pillar: amplify the protection level of labour standards, emphasizing workers` rights, and broaden the scope of unemployment benefits. On the transformative front: embrace advanced technology to cut down on the CO2 intensity of GDP and diminish energy intensity. In addition, addressing the USA's 91st place in income inequality will further boost their performance in the structural pillar.

To successfully navigate the green transition, the USA must overcome labour challenges, including the skills gap and worker protection

The USA is at the forefront of the Western world for green transition investments, signalling a deep transformation in the energy profile and a shift of the labour market towards green jobs. For example, with significant funding such as the $369 billion from the Inflation Reduction Act, the USA is on a path to create over nine million new green jobs in the next decade [14]. However, potential roadblocks loom. The current workforce may not be equipped with the skills these new roles require, potentially leading to a green skills gap. Moreover, transitioning from traditional to green jobs might not be a smooth sail, especially for older workers. The current regulations may not protect them adequately and could even enhance inequalities. To address this, the USA needs more than just educating the younger generation. Solutions like training programmes, tax breaks, and financial support, are all viable tools to ensure the workforce can adapt effectively to the green shift and that the transition is equitable for all.

EUROPE

A "two-speed" regional labour resilience in Europe prevents it from snatching the top-region title from North America

Despite Europe including 9 out of 10 of the most resilient countries, its ranks second globally. Countries in Northern and Western Europe show on average higher labour resilience than North America, but the performance of countries in Eastern and Southern Europe lowers the mean.

About half of the Eastern and Southern countries does not perform well in the structural pillar (ranked above 50th) and cannot quickly improve its position through policies due to a negative resilience gap. For them, working on their structural capacities is imperative to achieve gains in resilience.

Addressing population ageing presents an overarching challenge across European countries

With the largest share of an older population across all regions, Europe encounters labour resilience challenges due to shrinking labour force and potential productivity declines stemming from ageing. The growing retiree cohort strains social security and healthcare, while businesses confront knowledge retention issues as experienced employees retire. Therefore, European nations must strategically navigate these challenges through various means, including facilitating immigration, investing in lifelong learning and upskilling, incentivizing labour market participation, and strengthening healthcare to maintain the ageing workforce's capacity.

The aspiration to become the first "climate-neutral-bloc" by 2050 necessitates levelling up skills, education, and social protection in the region

The European Green Deal aims to transform Europe into the first climate neutral continent by: (i) achieving net-zero greenhouse gas emissions; (ii) decoupling economic growth from natural resources consumption; (iii) ensuring no people or places are left behind. The green structural transformation of the economy needs a citizen-centric transition: labour policies must facilitate the green transition by acting on workers' skills and education while ensuring at the same time no one is left behind, perhaps, by reinforcing social safety nets and revising active labour market policies.

These aspects are encapsulated by the adaptive and transformative sub-pillars of GLRI, where Europe shows a good performance. Nonetheless, inter-regional disparities persist between Northern and Western countries and their Southern Eastern counterparts. Therefore, the ongoing European integration process should level up transformative and adaptive resilience capabilities of the less robust nations.

EAST ASIA & PACIFIC

The East Asia & Pacific region is at the forefront of health and wellbeing, digital economy, and shows remarkable growth prospects

East Asia & Pacific holds steady at third place in labour resilience, achieving a balanced performance across all pillars. Notably, the region leads in two areas: health and wellbeing of the population (falling under the absorptive pillar) and the technology & digital economy (under the transformative pillar). The region is diverse, comprising 15 countries, with China, Indonesia, and Japan projected to be among the top ten global economies in 2050 [15].

Within this mix, five countries, including Japan and Singapore, are high-income economies. Three are upper-middle-income nations, including China and Malaysia. The remaining seven are lower-middle-income countries, including high-growth economies like Indonesia and the Philippines. All Eastern Asian countries exhibit their distinct labour resilience challenges. To delve deeper into the green ones, we can analyse the two largest economies in the region by total GDP: Japan and China.

Japan's demographics and energy plans put a strain on the green transition of the labour market

Japan excels in several indicators, such as economic complexity and longevity. However, it faces significant challenges that could impede its green transition and affect its labour resilience. Approximately 30% of Japan`s population is over 65, making it the oldest country in the world. This ageing demographic not only raises concerns about public debt sustainability but also hinders green transition. Older workers are less inclined to shift to green jobs [16], necessitating re-skilling, and those unable to adapt may require government financial support, elevating social protection expenses.

Furthermore, Japan ranks 122nd in renewable energy consumption, indicating a heavy reliance on fossil fuels in the energy mix, a trend echoed by nations like Australia, Singapore, Korea, and Mongolia. Japan`s green transition plan "GX" displays forecasted reliance on nuclear power and persistent fossil fuel use by 2050. This approach jeopardizes future labour resilience. It curtails the cultivation of green skills in future workers, reducing the transformative potential of labour. Additionally, this diminishes Japan`s adaptive capabilities, as workers might have to reorient their skills in response to a shock, such as a shift away from nuclear energy.

China must ensure a sufficient supply of green skills to meet the demand for green jobs and protect workers during the transition

China`s green transition plan aims for a peak in carbon emissions by 2030 and net-zero by 2060. Achieving this can shift China's development trajectory, bolstering labour resilience. While China`s export-led model has spurred economic diversity (ranked 1st) and product innovation (1st in share of creative goods), it also relied on cheap labour, leading to a bias towards low-skilled jobs compared to more resilient nations.

China`s swift economic ascent came with environmental costs. With high CO2 intensity (ranked 140th), limited renewable energy consumption (100th), and low energy efficiency (121st in energy intensity), it contributes about a third of global greenhouse emissions [17]. The green shift offers China a chance to redefine its economic model as underpinned by innovation, domestic consumption, and market orientation. Embracing this challenge, China can become a leader in low-carbon technology and green finance, bringing benefits like increased green sector productivity, high-skilled job creation, better employment quality, and reduced labour market disparities. However, challenges persist. Firstly, the pace of job creation in the renewable sector demands a concurrent uptick in skill development. Secondly, there is the need to cushion the socio-economic impacts, especially for workers in pollution-intensive industries.

CENTRAL ASIA & SOUTH CAUCASUS

Central Asia and South Caucasus show limited transformative capabilities of their labour markets and unstable macroeconomic conditions

The Central Asia and South Caucasus region consistently holds the 4th place. Comprising eight countries, seven of which are recognized as upper middle income, with only Tajikistan categorized as a low-income country. The larger economies within the region are Russia and Turkey, while Russia and Kazakhstan show the higher labour resilience, being 45th and 48th. The region scores above average in absorptive and adaptive capabilities. It excels in aspects like pension coverage, regulations for starting a business, and notably stands out in income inequality and the gender pay gap, ranking second best in both.

However, there is room for growth in transformative capabilities, where the region is placed 5th, due to factors like limited R&D expenditure, a challenging innovation environment, and hurdles in the green transition and product innovation. Additionally, there is a pressing need for advancements in the structural pillar, with the region currently ranking 6th out of 8.

The lagging green transition can result in the failure to modernize the labour market and supply green jobs

As other regions invest in their green transition, Central Asia and South Caucasus risk being left behind, for instance missing the access to green technology, not developing green high-skilled jobs, and leaving behind those vulnerable to environmental risks and technological disruption.

Central Asia and South Caucasus countries are lagging, as shown by the green indicators in the GLRI`s transformative pillar, such as renewable energy consumption and CO2 intensity of GDP. Central Asian nations, dependent on natural resource exports, need significant investments in renewables and

to modernize their energy infrastructures to meet their carbon reduction targets. Russia`s situation is complicated by its conflict with Ukraine and resulting sanctions, inhibiting green advancements and critical investments [18]. Turkey has pledged net-zero by 2053 and is crafting a green strategy, but it faces early decarbonization challenges and seeks foreign investment [19].

MIDDLE EAST & NORTH AFRICA

Despite its strong economy, the Middle East & North Africa region ranks 5th out of 8, indicating potential for increased investment in labour policies

The GLRI score tends to be highly correlated with GDP per capita, however, some countries in the Middle East & North Africa (MENA) region deviate, underperforming in labour resilience relative to their per capita income. Despite the substantial differences between GCC and non-GCC MENA countries, this indicates that the region as a whole is not performing up to its potential. While the resilience of the labour market in the United Arab Emirates aligns with its per capita GDP level, other high-income MENA countries should wisely allocate resources to policies that bolster labour resilience, including those that promote innovation, worker protection, and a green transition.

Advancing on the green transition and economic integration are vital for enhancing economic diversification, innovation, and trade

About half of the countries in the MENA region exhibit a high GDP per capita, often correlated with dependency on natural resources. A green transition is crucial to diversify economies beyond oil and gas, especially as all MENA countries demonstrate low economic diversity, limiting their product range. Reducing reliance on natural resources can thus spur product innovation and foster a green economy. Furthermore, enhancing economic integration can enable countries to leverage trade and other spillover benefits, such as worker mobility. While initiatives like the GCC custom union are moving in the right direction, geopolitical tension continues to hinder more comprehensive integration.

While some MENA countries have established favourable business conditions, constrained innovation, and the scarce utilization of high-skilled labour are hampering the labour market performance

In many MENA countries the structure of the economy lacks a satisfactory share of high-skilled occupations, averaging 36% compared to 73% in North America, and innovation indicators are mirroring this deficiency. Since high-skilled roles often entail creative processes, policymaking should continue to steer the region towards a knowledge economy, where such occupations can thrive. To facilitate this transition, it is paramount to enhance higher education and research, while also attracting and incentivizing firms that employ skilled workers.

[4] See for example Figure 6 in [29].

LATIN AMERICA & THE CARIBBEAN

Latin America and the Caribbean rose to the sixth place in spite of worsening macroeconomic conditions, benefiting from South Asia's decline

The region has progressed, climbing from seventh to sixth place in the 2024 regional GLRI rankings. However, its performance is not significantly better than that of South Asia, which is now ranked seventh, with a GLRI score that is just slightly lower (less than 0.1 percentage points). In fact, the region`s structural performance has declined, evident in the deterioration of country capabilities, increased trade vulnerability, and weakened macroeconomic stability. This downturn can likely be attributed to a confluence of macroeconomic factors, such as high inflation, persistent interest rates, and a slowing growth rate, coupled with a shift in the region`s political landscape. Uruguay, Chile, and Costa Rica are the region`s top-performing countries, ranking 43rd, 47th, and 51st respectively on the GLRI. Chile stands out with the highest cyclical score of the trio, having recently enacted a labour reform bill that initiates a reduction of the workweek from 45 to 40 hours. Despite these positive aspects, the three countries show an unbalanced performance, with structural rankings lagging behind cyclical ones. This highlights the need for further progress, especially in mitigating trade vulnerabilities, which is a critical area for improvement.

Despite being global leaders in green energy, Latin America and the Caribbean still see their job markets significantly exposed to climate risks

The region is on the right path toward green transition, yet faster action is required to prevent disruptions in labour markets. The region has the lowest share of CO2 emissions compared to others [20] and generates roughly 70% of its electricity from renewable sources. However, it is vulnerable to extreme climate events such as floods, tropical storms, and droughts. These can, for example, displace workers and disrupt business operations, thereby potentially worsening the already challenging situation in the region marked by widespread inequality and poverty. To address these challenges, some countries have taken proactive steps. For example, Chile appointed a climatologist as its environmental minister in 2022, underscoring the country`s commitment to enforcing robust environmental policies.

SOUTH ASIA

South Asia`s economy is growing faster than other emerging countries, yet its labour market performance is hindered by macroeconomic and trade vulnerabilities

The Asian Development Bank reports an average 4.8% GDP increase in 2023, with similar projections for 2024, despite the pace being below the pre-pandemic level [21]. However, South Asia's position in the

GLRI has dropped to seventh place, primarily due to a decline in its structural ranking, with trade vulnerability being the main contributor. In South Asia, every country has experienced a decline in their performance within the structural pillar, highlighting the need for comprehensive improvements in both the structural and cyclical pillars to enhance labour resilience.

Focused efforts are necessary to mitigate trade vulnerabilities and reinforce macroeconomic stability within the structural pillar. Similarly, enhancing absorptive, adaptive, and transformative capabilities is crucial within the cyclical pillar. The green transition is a valuable opportunity to improve cyclical labour resilience. Policymakers in Asia should work on updating labour regulations to accommodate green jobs, broaden inclusivity and equality, and facilitate access to green technology. Such measures will not only support the region`s ongoing growth but also solidify its position in the GLRI.

India's large scale green transition will have a substantial impact on labour but requires developing a policy framework for green jobs and ensuring a just transition

India`s energy transition is a large-scale undertaking. With a population exceeding 1.4 billion and its status as the world`s third-largest energy importer, India`s shift towards renewable energy has significant implications both domestically and globally for climate change mitigation. The green transition offers considerable benefits for the labour market. This shift is poised to generate millions of new green jobs in the energy sector and beyond, requiring a more skilled workforce and fostering technological innovation. Additionally, transitioning to a green economy is expected to reduce pollution levels, thereby decreasing mortality rates and enhancing worker health. Overall, this transition is a pathway for India to modernize, elevate living standards, and boost productivity.

India has made quick progress in its green transition recently, surpassing its commitment made at the COP21 Paris Summit by achieving 40% of its power capacity from non-fossil fuels nearly nine years ahead of schedule [22]. The role of solar and wind energy in India`s energy mix has grown significantly. Despite these advancements in renewable energy, there are concerns, highlighted in an ILO policy brief [23], that progress in creating green jobs and protecting workers is not keeping pace.

In India`s policy landscape, the concepts of green jobs and green skills are still in their nascent stages, and their integration into the policy framework is not well-established. Additionally, there is a lack of a clear strategy for a just transition that addresses the needs of workers most impacted by the green shift. Therefore, India`s extensive green transition necessitates the establishment of appropriate legislative and policy frameworks. These should focus on ensuring a just transition that encompasses the creation of quality green jobs, the protection of vulnerable workers, the enhancement of working standards, and the promotion of gender equality.

[5] Authors' calculations based on [13].
[6] https://www.gob.cl/en/ministries/ministry-of-the-environment/

SUB-SAHARAN AFRICA

Sub-Saharan Africa has yet to capitalize on its large and growing young population

Sub-Saharan Africa continues to be the lowest-ranked region in the GLRI, with the 2024 edition being no exception. One-third of its labour resilience indicators rank lower than any other region, with countries ranging from 90th to 136th place, excluding Mauritius and the Seychelles which are ranked 46th and 53rd respectively.

However, the region has the unique advantage of having a growing and younger demographic compared to the rest of the world, which can significantly contribute to economic growth. A younger population can bolster the workforce, bring innovation and new ideas, support the older population through the pension system, and enhance human capital with the right skills.

Yet, the necessary structural economic conditions and policy framework to fully harness this potential are lacking. To capitalize on this demographic dividend, African governments should prioritize policies that focus on universal education and healthcare. These are essential steps to empower young people and enable them to significantly contribute to the region`s development and prosperity.

Sustainable development from energy transition has the potential to improve employment and earning prospects for the youths

In Sub-Saharan Africa, 50% of the population lacks access to electricity, a vital resource for providing decent education, healthcare, and economic opportunities in a region already struggling with widespread inequality and poverty [24]. The absence of these essential services significantly hinders the development of labour resilience. However, a green transition presents a unique opportunity to improve electricity access by leveraging green technologies. For instance, the scalability of solar panel plants can decentralize power generation, allowing electricity to reach remote communities currently disconnected from the main grid.

The primary recipients of green growth will be the youth, who constitute the largest share of the working age population in the region. Despite being often more educated than their parents, they face a shortage of good job opportunities [25]. A green shift towards renewable energy can potentially create the quality job they need and provide better educational opportunities, particularly for those living in rural areas, helping to move from informal to more sustainable employment.

To fully capitalize on the enormous potential of renewable resources like solar, wind, and hydropower, international cooperation should support and finance the development of national energy strategies to foster sustainable development in Sub-Saharan Africa.

ROAD TO RESILIENCE

RESILIENCE POTENTIAL

The Labour Resilience Gap measures the ranking difference between the cyclical and structural pillars. Countries with a positive labour market resilience gap – indicating a superior rank in the cyclical compared to the structural pillar – have the potential to enhance their labour market resilience in the shorter term via targeted policy interventions. Table 2 displays the top 10 countries based on their labour resilience gap.

Table 2 : The top 10 countries by Labour Resilience Gap that can maximize labour resilience via short-term policies

Country	Rank	Labour Resilience Gap (Cyclical rank – Structural rank)
Lebanon	1	69
Myanmar	2	62
Pakistan	3	57
Egypt	4	49
India	5	48
Tunisia	6	43
B&H	7	43
Nepal	8	39
Guatemala	9	37
Jordan	10	36

Source: Whiteshield, Global Labour Resilience Index 2024.

Four countries in the MENA region display a great potential to grow resilience

For Lebanon and Egypt, reforms to enhance labour-resilience are not only desirable; they are imperative to fix the economy and safeguard against future shocks. While improvement areas should be prioritized based on national needs, they are common among the four countries listed in Table 2 (Lebanon, Egypt, Tunisia, Jordan).

These include increasing labour productivity, elevating labour force participation—particularly among women—, enhancing the effectiveness of active labour market policies and training, attracting businesses, investing in science and R&D, promoting innovation, initiating a green transition, and advancing governance.

South Asia should seize the opportunity to boost resilience in the short term

A positive labour resilience gap provides South Asian countries with an opportunity to climb the rankings and elevate the entire region. Three countries (Pakistan, India, Nepal) demonstrate significant potential to enhance cyclical resilience. While the remaining South Asian countries (Bangladesh and Sri Lanka) are not listed in Table 2, they each exhibit a positive margin in the labour resilience gap, 32 and 6 respectively. Countries should aim to augment the productive capabilities of their economies while concurrently growing labour productivity, bolstering their ICT infrastructures, and strengthening science and R&D.

PATHWAYS TO RESILIENCE

Enhancing labour market resilience presents a formidable challenge. A cohesive, systematic approach to policymaking, addressing multifaceted, interconnected policy domains and balancing trade-offs, is requisite. Nonetheless, numerous countries have successfully fortified their labour market resilience over the past decade by developing their structural and/or cyclical capabilities, or both (Figure 10).
There are three routes to bolstering labour market resilience: the structural, cyclical, and balanced paths. Nations seeking to augment their labour market resilience ought to determine their optimal path, chosen with their structural traits and strategic priorities in consideration.

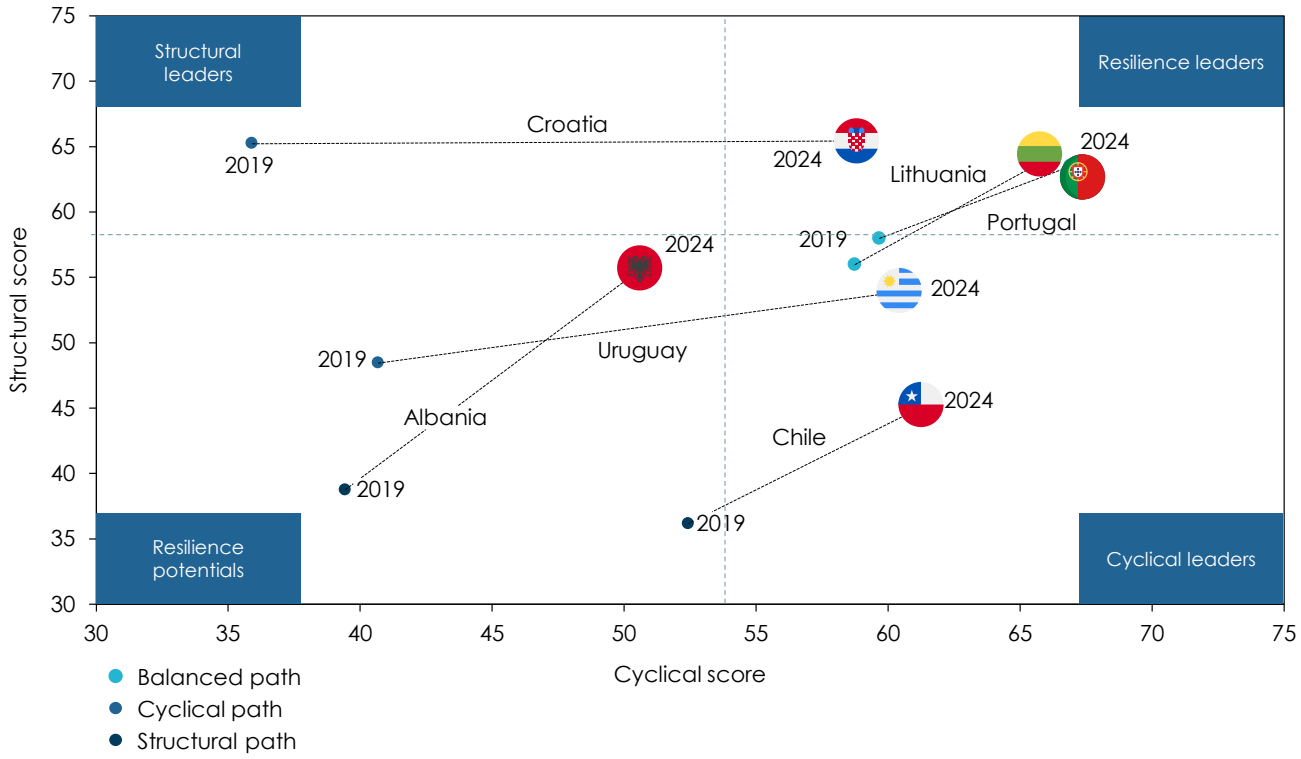
The structural path: Countries following the structural path focus on reducing their inherent vulnerabilities by reinforcing economic foundations. This is achieved by developing greater economic diversity and complexity, growing the economy, and enhancing macroeconomic stability, reducing trade vulnerability, and mitigating inequality. Albania and Chile proved to be the most successful among those countries (+44% and +26% in cyclical resilience, respectively), following the structural path over the last five years. Chile moved from the bottom-left to the bottom-right part of the diagram in Figure 10. It became a cyclical leader, i.e. it reached an above average score in cyclical resilience.

The cyclical path: Most of the countries that have achieved significant progress in labour resilience do it along the cyclical path of development. Specifically, Uruguay and Croatia have made substantial improvements over the last five years (+48% and +63% in cyclical resilience,

respectively) by implementing shorter-term policies for cyclical resilience before building longer-term structural resilience. Remarkably, Croatia raised its cyclical score by 63% between 2019 and 2024.

The equilibrium or balanced path: Balancing between advancing structural and cyclical resilience is the best strategy for some countries to shift faster towards greater overall labour resilience. The pathway was followed successfully by Portugal (+12% cyclical, +10% structural) and Lithuania (+12% cyclical, + 14% structural), which transitioned from cyclical to resilience leaders, i.e., reached above average scores in structural and cyclical resilience.

Figure 10: Three viable pathways exist for countries to growing resilience (2019-2024)



Note: The dashed horizontal and vertical lines represent, respectively the average structural and cyclical scores from GLRI 2024.
Source: Whiteshield, Global Labour Resilience Index 2024.

CONCLUSION

CONCLUSION

Climate change affects more than just the environment; it significantly impacts jobs and the labour market. The consequences extend beyond the tangible job losses due to environmental degradation, to include the negative externalities of climate policies. With labour markets facing challenges from both environmental harm and policy responses, labour resilience is critical for navigating countries through the green transition.

This year's Global Labour Resilience Index explores the interplay between climate change and labour resilience, asserting that labour resilience is paramount in the face of environmental and climate-policy-induced disruptions. This edition highlights how resilient labour markets are not only about shock absorption but are crucial for enabling the green economy. In other words, labour markets should evolve to embody the principles of a sustainable economy, making labour resilience a catalyst for a successful green transition.

Education is vital in equipping citizens with the knowledge to engage with and drive the green economy forward. However, the divide is apparent: while high-income countries remain at the forefront of labour resilience, due to their high-quality institutions and effective governance, a significant portion of the world faces climate-related vulnerabilities due to less resilient labour markets. This disparity threatens to exacerbate global inequalities, underscoring the necessity for policies that enhance labour resilience. The effectiveness of these policies depends on solid economic fundamentals and high-quality institutions, which are key to enable the adjustment of labour markets to economic transformations.

The 2024 Global Labour Resilience Index serves as a call to action for policymakers. It provides a guide for adjusting the labour market towards a sustainable and equitable future where economic growth and environmental safeguarding can go hand in hand.

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APPENDIX

Composition of Structural and Cyclical Pillars

Table 3: Composition of the structural pillar

1. Structural pillar	
1.1 Demographics • Share of older population **1.2 Country capabilities** • Economic complexity **1.3 Economic Development of Macroeconomic stability** • GDP per capita • Share of services in GDP • Dependence on natural resources • Sovereign Debt Rating	**1.4 Trade Vulnerability** • Concentration of exports • Economics diversity • Current account balance **1.5 Inequality** • Income inequality

Source: Whiteshield, 2024. Global Labour Resilience Index 2024: Methodology.

2. Cyclical Pillar			
	INPUT	**OUTPUT**	
2.1 Absorptive capacity	**Support and protection of workers** • Workers' rights • Pension coverage • Unemployment coverage • Coverage of basic health services	**Quality of employment** • Hourly wages • Share of informal employment **Labour market polarisation and inequality** • Low-skilled labour • Growth of medium-skilled jobs • Labour income share • Labour income inequality	**Youth inclusiveness** • Youth unemployment • NEET **Gender inclusiveness** • Women in labour force • Gender pay gap **Health and well-being of population** • Longevity • Physical health • Mental health
2.2 Adaptive capacity	**Flexibility of labour policy** • Hiring and firing practices • Ease of hiring foreign labour • Effect of taxation on incentive to work **Business regulation** • Time dealing with government regulation • Domestic market competition • Trade openness • Applied tariffs • Paying taxes • Enforcing contracts • Property rights • Resolving Insolvency **Starting a business regulation** • Time to start a business • Cost to start a business **Access to finance regulation** • Ease of getting credit **Quality of infrastructure** • Logistics Performance Index	**Reallocation and flexibility mechanisms** • Active labour market policies effectiveness **Skills and adaptability** • Formal and informal education and training • Extent of staff training • High-skilled labour • Skilled labour supply • Tertiary education attainment • Skillset of graduates	**Entrepreneurship activity** • New corporate density **Access to finance** • Venture capital investments • Access to loans • Microfinance loan portfolio • Depth of financial system

2. Cyclical Pillar			
	INPUT	OUTPUT	
2.3 Transformative capacity	**Regulation of ICT** • Future orientation of government • Cybersecurity **Expenditures on R&D** • Gross R&D expenditure • Intellectual property legislation **Intellectual property rights** • Innovation incentives • Government-funded business R&D **Investment in the future workforce** • Government expenditures on education • Tertiary education expenditure • Pupil teacher ratio • ICT infrastructure per school	**ICT infrastructure penetration** • ICT access **ICT business penetration** • ICT usage by households **Innovation environment** • Scientific and technical journal articles • Researchers in R&D • Technicians in R&D • Research institutions prominence • Industry-university collaboration **Innovation trade** • Shares of creative goods exports **Technology and digital economy** • ICT services exports • ICT goods exports • Medium and high-tech manufacturing value added • Medium and high-tech exports	**Green transition** • Environmental goods exports and imports • Renewable energy consumption • CO2 intensity of GDP • Energy intensity • Domestic material consumption **Innovation products** • Trademark applications • International co-inventions • Patent applications **Education and skills of the future workforce** • Quality of vocational education • PISA scores • Critical thinking • Digital skills • STEM graduates
2.4 Institutional capacity	• Governance • Social capital • Statistical capacity • GLRI statistical fullness		

Source: Whiteshield, (2024). Global Labour Resilience Index 2024: Methodology.

Global Ranking

Table 5: GLRI 2024 by country

Country	GLRI Rank	GLRI Score (100-0)	Structural Rank	Structural Score (100-0)	Cyclical Rank	Cyclical Score (100-0)	Trend 2019 2024-
Switzerland	1	78	6	75	1	80	1
Denmark	2	78	2	76	2	79	2
Netherlands	3	77	3	76	5	78	6
Singapore	4	77	7	74	3	78	-3
Germany	5	77	1	77	6	77	10
Sweden	6	75	5	75	8	76	0
Finland	7	75	22	70	4	78	-2
Austria	8	74	4	76	12	73	10
Luxembourg	9	74	8	74	11	74	-1
UK	10	73	15	72	10	74	3
France	11	72	13	73	13	72	8
Belgium	12	72	12	73	14	72	0
Norway	13	72	35	64	7	76	-3
USA	14	71	21	70	16	72	-11
Ireland	15	71	14	72	20	70	6
Iceland	16	70	40	62	9	74	-9
Israel	17	70	20	70	21	70	0
Estonia	18	70	25	67	18	71	6
Czechia	19	70	10	73	23	68	6
Japan	20	69	23	70	22	69	11
Slovenia	21	69	11	73	24	67	8
Canada	22	69	29	66	19	71	-2
Spain	23	67	24	67	26	67	16
Korea	24	67	9	73	33	63	-8
Australia	25	66	73	55	17	72	-2
Slovakia	26	66	18	71	32	64	4

Country	GLRI Rank	GLRI Score (100-0)	Structural Rank	Structural Score (100-0)	Cyclical Rank	Cyclical Score (100-0)	Trend 2019 2024-
Portugal	27	66	36	64	25	67	5
New Zealand	28	66	79	54	15	72	-14
Poland	29	65	17	71	34	62	4
Lithuania	30	65	34	64	27	66	4
Hungary	31	65	27	66	30	64	9
Malta	32	64	39	63	28	65	3
UAE	33	64	19	70	37	61	-11
Italy	34	64	26	67	35	62	7
Latvia	35	63	44	61	29	64	3
China	36	63	16	71	40	59	-8
Cyprus	37	62	54	59	31	64	0
Malaysia	38	62	33	65	39	60	-12
Thailand	39	61	28	66	44	58	3
Croatia	40	61	30	65	43	59	24
Romania	41	59	38	63	47	58	5
Bulgaria	42	59	55	59	42	59	29
Uruguay	43	58	76	54	38	60	26
Serbia	44	57	53	59	52	56	11
Russia	45	57	80	53	41	59	0
Mauritius	46	57	63	56	48	57	4
Chile	47	56	116	46	36	62	0
Kazakhstan	48	56	75	54	49	57	10
Georgia	49	56	74	54	50	57	4
Turkey	50	56	37	63	63	52	-6
Costa Rica	51	56	89	52	46	58	6
Greece	52	56	71	55	53	56	14
Seychelles	53	56	61	57	55	55	N/A
Moldova	54	55	56	59	56	54	-2
Ukraine	55	55	50	60	57	53	-1

Country	GLRI Rank	GLRI Score (100-0)	Structural Rank	Structural Score (100-0)	Cyclical Rank	Cyclical Score (100-0)	Trend 2019 2024-
Qatar	56	55	91	51	45	58	-29
Azerbaijan	57	55	81	53	51	57	42
Mexico	58	55	42	62	66	52	-9
Indonesia	59	55	48	60	61	53	-8
Vietnam	60	55	47	60	65	52	5
India	61	54	32	65	80	49	-18
Philippines	62	54	46	60	67	51	6
Montenegro	63	54	84	52	54	55	0
Armenia	64	54	59	58	64	52	3
North Macedonia	65	54	62	56	62	52	-6
Jordan	66	53	45	60	81	49	-18
Kyrgyzstan	67	52	52	59	77	49	6
Albania	68	52	65	56	71	51	16
Tunisia	69	52	43	61	86	48	10
Kuwait	70	52	57	58	79	49	6
Panama	71	52	96	50	59	53	-15
Bahrain	72	52	99	49	58	53	-36
Egypt	73	52	41	62	90	47	10
Saudi Arabia	74	52	67	55	74	50	-2
Dominican Republic	75	52	58	58	82	48	18
Trinidad &Tobago	76	51	88	52	69	51	2
Brazil	77	51	104	48	60	53	12
Lebanon	78	51	31	65	100	44	-16
Argentina	79	51	92	50	70	51	19
Jamaica	80	50	94	50	72	51	-3
Peru	81	50	93	50	73	51	14
Paraguay	82	50	90	52	75	50	22
B&H	83	50	51	59	94	46	18

Country	GLRI Rank	GLRI Score (100-0)	Structural Rank	Structural Score (100-0)	Cyclical Rank	Cyclical Score (100-0)	Trend 2019 2024-
Sri Lanka	84	50	78	54	84	48	-2
El Salvador	85	50	69	55	88	47	6
Oman	86	50	110	47	68	51	-26
Morocco	87	49	72	55	92	47	-13
Colombia	88	49	105	48	78	49	0
Nepal	89	49	60	58	99	44	3
Cape Verde	90	48	114	46	76	50	N/A
Senegal	91	48	82	53	95	45	-11
Guatemala	92	48	64	56	101	44	-6
South Africa	93	48	112	46	83	48	-18
Pakistan	94	47	49	60	106	41	-4
Bolivia	95	47	106	48	91	47	17
Tajikistan	96	47	70	55	102	43	0
Kenya	97	47	68	55	103	42	-36
Rwanda	98	46	108	47	93	46	-28
Honduras	99	46	95	50	98	44	1
Botswana	100	46	124	43	89	47	11
Mongolia	101	45	127	41	87	47	-4
Namibia	102	45	131	39	85	48	-15
Ecuador	103	45	120	44	96	45	2
Algeria	104	45	83	52	107	41	11
Bangladesh	105	45	77	54	109	40	-2
Laos	106	44	86	52	108	40	N/A
Ghana	107	44	126	41	97	45	N/A
Tanzania	108	44	103	48	105	41	N/A
Gambia	109	44	87	52	114	39	N/A
Iran	110	43	101	49	110	40	-25
Benin	111	43	85	52	117	38	-3

Country	GLRI Rank	GLRI Score (100-0)	Structural Rank	Structural Score (100-0)	Cyclical Rank	Cyclical Score (100-0)	Trend 2019 2024-
Cambodia	112	42	121	44	104	42	-6
Malawi	113	42	107	47	112	40	0
Nicaragua	114	42	109	47	113	40	N/A
Myanmar	115	42	66	55	128	35	N/A
Uganda	116	42	115	46	111	40	-22
Côte d'Ivoire	117	41	98	49	120	37	-1
Lesotho	118	40	117	45	118	38	N/A
Nigeria	119	40	122	43	115	39	-2
Madagascar	120	40	113	46	121	37	-2
Guinea	121	40	97	50	129	35	-19
Ethiopia	122	39	102	49	130	35	-15
Burkina Faso	123	39	130	39	116	38	-1
Zimbabwe	124	38	119	45	127	35	-15
Burundi	125	38	123	43	126	35	-4
Mali	126	38	125	42	124	36	-6
Cameroon	127	37	128	40	123	36	-13
Mauritania	128	37	111	46	131	33	N/A
Liberia	129	37	132	39	122	36	N/A
Zambia	130	36	136	33	119	37	-11
Haiti	131	35	100	49	134	29	N/A
Venezuela	132	35	129	40	132	33	N/A
Mozambique	133	35	134	34	125	35	-23
Angola	134	34	133	37	133	32	N/A
Yemen	135	31	118	45	136	24	-12
Chad	136	28	135	33	135	26	N/A

Source: Whiteshield, Global Labour Resilience Index 2024.

Table 6: Structural pillar by country and sub-pillar

Country	Structural Rank	Structural Score (0 to 100)	1.1 Demographics Rank	1.1 Demographics Score	1.2 Country capabilities Rank	1.2 Country Capabilities Score	1.3 Economic development Rank	1.3 Economic development Score	1.4 Trade vulnerability Rank	1.4 Trade vulnerability Score	1.5 Inequality Rank	1.5 Inequality Score
Germany	1	77	131	26	3	92	7	89	2	84	32	79
Denmark	2	76	121	33	26	71	6	90	1	86	12	89
Netherlands	3	76	120	34	23	73	4	91	6	77	5	93
Austria	4	76	116	36	9	85	9	88	7	75	26	83
Sweden	5	75	118	34	10	84	8	88	11	72	18	86
Switzerland	6	75	114	37	2	95	3	93	24	62	46	75
Singapore	7	74	93	52	5	89	2	95	18	64	N/A	N/A
Luxembourg	8	74	92	52	21	74	1	97	14	67	47	74
Korea	9	73	105	44	4	91	16	84	31	58	30	79
Czechia	10	73	124	33	6	87	23	82	28	60	9	92
Slovenia	11	73	126	32	8	86	28	78	30	58	2	98
Belgium	12	73	115	36	20	76	13	86	21	62	5	93
France	13	73	127	29	15	79	10	87	8	75	27	81
Ireland	14	72	94	52	11	82	21	83	49	51	20	85
UK	15	72	113	38	7	87	14	85	23	62	39	76
China	16	71	88	57	19	76	37	74	3	83	78	62
Poland	17	71	108	40	27	71	31	76	9	72	17	86
Slovakia	18	71	103	46	16	78	27	78	66	43	1	100
UAE	19	70	4	99	55	53	48	68	58	46	5	93
Israel	20	70	83	63	14	79	17	84	26	60	81	61
USA	21	70	104	45	12	81	5	91	16	66	87	59
Finland	22	70	134	23	13	81	11	86	40	55	11	90
Japan	23	70	136	0	1	100	18	84	13	68	44	76
Spain	24	67	119	34	34	65	26	78	4	79	56	71
Estonia	25	67	123	33	25	71	24	80	22	62	27	81
Italy	26	67	135	21	18	77	35	76	5	79	61	70
Hungary	27	66	117	35	17	78	40	72	44	53	25	84
Thailand	28	66	95	52	28	71	47	70	20	63	59	70
Canada	29	66	111	38	38	63	15	85	33	57	38	77
Croatia	30	65	129	27	32	67	38	73	17	65	22	84
Lebanon	31	65	78	71	53	54	20	83	69	43	34	78
India	32	65	58	81	45	59	68	59	19	63	63	69
Malaysia	33	65	62	79	24	73	50	67	42	54	97	55
Lithuania	34	64	125	32	29	70	25	79	27	60	65	68

Country	Structural Rank	Structural Score (0 to 100)	1.1 Demographics Rank	1.1 Demographics Score	1.2 Country capabilities Rank	1.2 Country Capabilities Score	1.3 Economic development Rank	1.3 Economic development Score	1.4 Trade vulnerability Rank	1.4 Trade vulnerability Score	1.5 Inequality Rank	1.5 Inequality Score
Norway	35	64	107	40	43	62	32	76	64	44	14	89
Portugal	36	64	133	25	41	63	33	76	10	72	55	71
Turkey	37	63	72	75	44	61	58	62	12	68	98	53
Romania	38	63	109	40	22	74	44	71	47	53	54	71
Malta	39	63	112	38	31	69	19	83	89	36	30	79
Iceland	40	62	96	51	54	54	22	83	115	27	8	93
Egypt	41	62	43	88	70	47	87	52	46	53	35	78
Mexico	42	62	69	76	30	70	49	68	39	55	109	44
Tunisia	43	61	75	74	51	55	84	53	50	51	42	76
Latvia	44	61	128	28	36	64	29	77	35	57	63	69
Jordan	45	60	34	92	61	49	63	60	85	37	50	74
Philippines	46	60	48	86	35	65	51	65	91	35	91	56
Vietnam	47	60	76	73	59	50	72	58	34	57	69	66
Indonesia	48	60	57	81	74	45	64	60	36	57	76	63
Pakistan	49	60	38	90	91	37	99	47	51	50	23	84
Ukraine	50	60	110	39	49	56	107	43	29	59	3	94
B&H	51	59	106	41	42	62	70	59	41	54	45	75
Kyrgyzstan	52	59	40	89	77	44	112	41	59	45	19	85
Serbia	53	59	122	33	37	64	55	64	37	56	57	70
Cyprus	54	59	90	53	46	57	34	76	113	28	32	79
Bulgaria	55	59	130	27	40	63	42	72	15	66	89	57
Moldova	56	59	85	60	71	47	69	59	93	35	4	94
Kuwait	57	58	46	88	66	47	78	56	38	55	N/A	N/A
Dominican Republic	58	58	60	79	64	48	57	62	55	47	79	62
Armenia	59	58	87	59	83	41	76	57	62	45	16	88
Nepal	60	58	53	84	81	42	73	58	86	37	42	76
Seychelles	61	57	67	77	69	47	30	77	132	13	36	78
North Macedonia	62	56	91	53	58	51	53	65	83	37	48	74
Mauritius	63	56	84	60	68	47	41	72	88	36	69	66
Guatemala	64	56	45	88	79	43	60	61	25	61	116	37
Albania	65	56	101	47	80	42	66	59	63	44	21	84
Myanmar	66	55	56	81	109	29	100	47	56	46	27	81
Saudi Arabia	67	55	17	95	33	66	92	49	79	38	N/A	N/A
Kenya	68	55	18	95	90	38	88	51	53	47	92	56

Country	Structural Rank	Structural Score (0 to 100)	1.1 Demographics Rank	1.1 Demographics Score	1.2 Country capabilities Rank	1.2 Country Capabilities Score	1.3 Economic development Rank	1.3 Economic development Score	1.4 Trade vulnerability Rank	1.4 Trade vulnerability Score	1.5 Inequality Rank	1.5 Inequality Score
El Salvador	69	55	68	76	63	48	86	53	65	44	85	60
Tajikistan	70	55	30	93	114	27	119	38	45	53	51	73
Greece	71	55	132	25	48	56	45	70	73	40	49	74
Morocco	72	55	64	78	93	36	59	62	60	45	86	59
Australia	73	55	102	46	92	37	36	75	72	40	53	72
Georgia	74	54	89	54	72	45	52	65	96	34	52	72
Kazakhstan	75	54	66	77	89	38	110	43	105	31	15	88
Uruguay	76	54	97	51	57	52	43	71	77	39	92	56
Bangladesh	77	54	52	84	106	31	79	56	106	30	37	77
Sri Lanka	78	54	81	65	85	39	90	51	48	52	74	64
New Zealand	79	54	99	48	56	53	12	86	75	40	N/A	N/A
Russia	80	53	98	50	52	54	121	36	32	58	65	68
Azerbaijan	81	53	59	80	102	32	126	33	90	36	10	91
Senegal	82	53	22	94	96	36	95	48	94	34	77	63
Algeria	83	52	55	83	104	31	123	34	101	33	13	89
Montenegro	84	52	100	47	47	57	56	63	119	25	69	66
Benin	85	52	20	95	100	33	91	50	102	32	75	63
Laos	86	52	39	90	98	34	109	43	67	43	83	61
Gambia	87	52	8	97	108	30	98	47	84	37	83	61
Trinidad & Tobago	88	52	80	65	67	47	65	59	57	46	N/A	N/A
Costa Rica	89	52	79	67	50	55	54	64	71	41	117	36
Paraguay	90	52	54	83	87	38	61	61	98	34	103	51
Qatar	91	51	1	100	86	39	82	55	87	37	N/A	N/A
Argentina	92	50	82	63	84	41	89	51	54	47	99	53
Peru	93	50	70	76	101	32	83	54	74	40	88	57
Jamaica	94	50	61	79	78	43	71	58	97	34	110	44
Honduras	95	50	37	90	94	36	80	56	68	43	115	37
Panama	96	50	73	74	76	44	39	72	92	35	119	30
Guinea	97	50	28	94	136	0	103	45	78	39	23	84
Côte d'Ivoire	98	49	7	97	130	17	85	53	109	29	72	65
Bahrain	99	49	33	92	39	63	93	49	114	28	N/A	N/A
Haiti	100	49	41	89	113	28	74	57	111	28	96	55
Iran	101	49	63	79	82	42	125	33	61	45	94	56
Ethiopia	102	49	23	94	122	25	122	36	103	32	57	70
Tanzania	103	48	21	94	118	26	118	39	76	39	89	57

Country	Structural Rank	Structural Score (0 to 100)	1.1 Demographics Rank	1.1 Demographics Score	1.2 Country capabilities Rank	1.2 Country Capabilities Score	1.3 Economic development Rank	1.3 Economic development Score	1.4 Trade vulnerability Rank	1.4 Trade vulnerability Score	1.5 Inequality Rank	1.5 Inequality Score
Brazil	104	48	77	71	65	47	77	56	52	49	122	25
Colombia	105	48	74	74	60	49	62	61	99	34	121	29
Bolivia	106	48	44	88	123	25	106	44	82	37	94	56
Malawi	107	47	13	96	97	34	108	43	129	17	79	62
Rwanda	108	47	24	94	99	34	105	44	110	29	105	48
Nicaragua	109	47	47	87	117	26	96	48	70	42	112	42
Oman	110	47	16	96	73	45	117	39	95	34	N/A	N/A
Mauritania	111	46	25	94	131	16	111	41	128	18	39	76
South Africa	112	46	51	85	62	48	75	57	43	53	127	0
Madagascar	113	46	29	94	125	23	104	45	100	33	101	51
Cape Verde	114	46	49	86	75	45	120	38	124	23	100	52
Uganda	115	46	2	99	105	31	115	39	122	24	102	51
Chile	116	46	86	59	88	38	67	59	107	30	107	45
Lesotho	117	45	36	91	107	31	102	46	116	27	107	45
Yemen	118	45	14	96	128	20	124	33	121	24	68	66
Zimbabwe	119	45	27	94	120	26	97	48	80	38	118	32
Ecuador	120	44	65	78	119	26	101	46	81	38	111	43
Cambodia	121	44	50	85	95	36	94	48	104	31	N/A	N/A
Nigeria	122	43	19	95	134	7	113	40	127	19	59	70
Burundi	123	43	9	97	103	32	130	26	131	16	81	61
Botswana	124	43	32	92	121	26	46	70	130	16	123	24
Mali	125	42	6	97	116	27	133	22	134	11	67	68
Ghana	126	41	31	93	126	22	127	30	117	27	104	49
Mongolia	127	41	42	89	127	22	129	26	135	6	41	76
Cameroon	128	40	15	96	132	14	116	39	112	28	113	41
Venezuela	129	40	71	75	115	27	114	40	125	22	106	46
Burkina Faso	130	39	10	96	112	28	128	30	126	20	114	39
Namibia	131	39	35	91	110	29	81	55	118	27	126	10
Liberia	132	39	26	94	133	14	134	21	133	13	62	70
Angola	133	37	12	96	124	25	132	22	108	30	120	29
Mozambique	134	34	11	96	129	20	131	24	123	23	124	23
Chad	135	33	5	98	135	1	135	19	136	0	73	64
Zambia	136	33	3	99	111	28	136	15	120	25	125	15

Source: Whiteshield, Global Labour Resilience Index 2024.

Table 7: Cyclical pillar by country and sub-pillar

Country	Cyclical Rank	Cyclical Score (0 to 100)	2.1 Absorptive Capability Rank	2.1 Absorptive Capability Score	2.2 Adaptive Capability Rank	2.2 Adaptive Capability Score	2.3 Transformative Capability Rank	2.3 Transformative Capability Score	2.4 Institutional Capability Rank	2.4 Institutional Capability Score
Switzerland	1	80	2	75	2	80	2	76	4	74
Denmark	2	79	5	89	5	80	4	72	3	72
Netherlands	5	78	7	93	10	79	6	70	2	71
Singapore	3	78	11	N/A	1	77	5	80	7	72
Germany	6	77	1	79	17	83	3	66	20	73
Sweden	8	76	18	86	7	74	1	71	11	74
Finland	4	78	6	90	11	79	13	69	1	68
Austria	12	73	3	83	29	80	8	60	25	70
Luxembourg	11	74	21	74	3	73	16	75	10	63
UK	10	74	17	76	6	75	11	71	26	69
France	13	72	13	81	21	76	10	63	27	69
Belgium	14	72	9	93	22	78	14	62	29	68
Norway	7	76	8	89	12	79	9	68	5	69
USA	16	72	27	59	4	71	12	74	34	69
Ireland	20	70	15	85	23	75	24	62	16	58
Iceland	9	74	4	93	16	80	17	66	6	62
Israel	21	70	24	61	15	72	15	67	36	67
Estonia	18	71	22	81	13	73	20	68	12	61
Czechia	23	68	19	92	46	74	19	53	21	62
Japan	22	69	10	76	27	77	18	61	40	62
Slovenia	24	67	23	98	45	72	22	53	13	59
Canada	19	71	16	77	18	75	21	65	19	60
Spain	26	67	28	71	33	70	28	58	24	57
Korea	33	63	12	79	32	77	7	59	125	71
Australia	17	72	14	72	8	75	30	71	14	55
Slovakia	32	64	31	100	56	69	33	49	23	53
Portugal	25	67	33	71	34	69	25	58	17	58
New Zealand	15	72	20	N/A	9	73	23	70	8	58
Poland	34	62	40	86	67	67	29	48	31	55
Lithuania	27	66	35	68	37	68	36	56	9	52
Hungary	30	64	30	84	48	69	26	51	30	58
Malta	28	65	29	79	26	70	35	61	32	52

Country	Cyclical Rank	Cyclical Score (0 to 100)	2.1 Absorptive Capability Rank	2.1 Absorptive Capability Score	2.2 Adaptive Capability Rank	2.2 Adaptive Capability Score	2.3 Transformative Capability Rank	2.3 Transformative Capability Score	2.4 Institutional Capability Rank	2.4 Institutional Capability Score
UAE	37	61	58	93	14	59	32	67	48	54
Italy	35	62	38	70	62	68	27	48	39	57
Latvia	29	64	34	69	38	68	37	55	18	51
China	40	59	39	62	35	67	34	57	81	53
Cyprus	31	64	41	79	20	67	40	63	35	48
Malaysia	39	60	69	55	24	56	31	62	43	54
Thailand	44	58	43	70	44	66	63	53	45	41
Croatia	43	59	36	84	83	68	47	44	44	46
Romania	47	58	50	71	70	61	42	47	38	48
Bulgaria	42	59	42	57	63	67	50	48	42	44
Uruguay	38	60	47	56	74	63	39	47	22	49
Serbia	52	56	49	70	55	61	48	49	50	46
Russia	41	59	25	68	43	71	46	53	78	46
Mauritius	48	57	78	66	28	52	56	61	33	43
Chile	36	62	45	45	31	64	66	59	15	40
Kazakhstan	49	57	26	88	42	71	89	54	72	35
Georgia	50	57	53	72	40	60	72	55	41	39
Turkey	63	52	75	53	53	54	45	50	74	46
Costa Rica	46	58	61	36	60	57	41	49	28	48
Greece	53	56	52	74	69	60	43	47	53	48
Seychelles	55	55	N/A	78	66	N/A	51	48	102	44
Moldova	56	54	59	94	72	58	68	47	49	40
Ukraine	57	53	46	94	75	64	70	47	77	39
Qatar	45	58	51	N/A	19	61	54	64	68	43
Azerbaijan	51	57	37	91	30	68	61	60	97	41
Mexico	66	52	70	44	79	55	58	46	67	42
Indonesia	61	53	92	63	54	49	60	50	37	41
Vietnam	65	52	64	66	80	57	73	45	60	39
India	80	49	111	69	68	42	49	48	56	44
Philippines	67	51	77	56	71	52	65	47	59	41
Montenegro	54	55	56	66	36	59	75	56	61	38
Armenia	64	52	76	88	49	53	82	51	46	37
North Macedonia	62	52	68	74	47	56	62	51	73	41

Country	Cyclical Rank	Cyclical Score (0 to 100)	2.1 Absorptive Capability Rank	2.1 Absorptive Capability Score	2.2 Adaptive Capability Rank	2.2 Adaptive Capability Score	2.3 Transformative Capability Rank	2.3 Transformative Capability Score	2.4 Institutional Capability Rank	2.4 Institutional Capability Score
Jordan	81	49	103	74	52	46	84	50	58	36
Kyrgyzstan	77	49	44	85	92	65	112	42	94	28
Albania	71	51	82	84	76	51	78	46	51	38
Tunisia	86	48	91	76	86	49	53	43	83	44
Kuwait	79	49	65	N/A	50	57	83	51	103	37
Panama	59	53	54	30	82	60	59	45	65	41
Bahrain	58	53	66	N/A	25	56	76	61	80	38
Egypt	90	47	93	78	91	49	74	42	79	39
Saudi Arabia	74	50	88	N/A	41	50	38	54	108	50
Dominican Republic	82	48	85	62	89	50	44	43	92	47
Trinidad & Tobago	69	51	32	N/A	78	69	100	46	109	32
Brazil	60	53	57	25	114	59	52	38	55	44
Lebanon	100	44	90	78	61	50	67	49	128	40
Argentina	70	51	60	53	106	58	71	39	64	39
Jamaica	72	51	62	44	58	57	69	49	91	40
Peru	73	51	63	57	87	57	85	43	66	36
Paraguay	75	50	48	51	104	63	91	40	87	35
B&H	94	46	72	75	107	54	99	39	98	32
Sri Lanka	84	48	100	64	85	47	81	44	57	37
El Salvador	88	47	67	60	110	56	115	38	71	28
Oman	68	51	73	N/A	39	54	64	55	93	41
Morocco	92	47	95	59	81	48	55	45	101	43
Colombia	78	49	84	29	90	51	88	43	54	35
Nepal	99	44	98	76	93	48	123	42	76	26
Cape Verde	76	50	83	52	65	51	80	48	70	37
Senegal	95	45	101	63	100	46	93	40	69	34
Guatemala	101	44	105	37	95	44	95	42	88	33
South Africa	83	48	102	0	59	46	105	49	47	31
Pakistan	106	41	121	84	101	39	92	40	90	34
Bolivia	91	47	55	56	120	60	98	36	96	32
Tajikistan	102	43	96	73	73	48	111	47	112	30
Kenya	103	42	116	56	77	40	86	46	100	35
Rwanda	93	46	117	48	51	40	87	50	62	35

Country	Cyclical Rank	Cyclical Score (0 to 100)	2.1 Absorptive Capability Rank	2.1 Absorptive Capability Score	2.2 Adaptive Capability Rank	2.2 Adaptive Capability Score	2.3 Transformative Capability Rank	2.3 Transformative Capability Score	2.4 Institutional Capability Rank	2.4 Institutional Capability Score
Honduras	98	44	81	37	103	51	94	40	105	33
Botswana	89	47	109	24	64	42	57	48	75	43
Mongolia	87	47	71	76	96	54	128	42	52	22
Namibia	85	48	87	10	57	50	79	49	85	37
Ecuador	96	45	74	43	122	54	96	35	89	33
Algeria	107	41	80	89	109	52	107	39	127	31
Bangladesh	109	40	107	77	117	43	102	37	106	32
Laos	108	40	97	61	97	48	119	41	122	27
Ghana	97	45	106	49	94	44	103	42	63	31
Tanzania	105	41	104	57	118	45	108	37	95	30
Gambia	114	39	129	61	108	36	106	39	82	31
Iran	110	40	99	56	123	47	104	35	117	31
Benin	117	38	125	63	102	37	90	40	115	35
Cambodia	104	42	79	N/A	121	52	120	35	107	27
Malawi	112	40	113	62	116	41	122	37	86	26
Nicaragua	113	40	89	42	113	50	121	38	126	26
Myanmar	128	35	86	81	132	50	N/A	29	132	N/A
Uganda	111	40	122	51	115	38	110	38	84	30
Côte d'Ivoire	120	37	133	65	111	34	77	38	121	38
Lesotho	118	38	115	45	105	40	125	40	110	25
Nigeria	115	39	108	70	98	43	113	41	116	28
Madagascar	121	37	114	51	126	41	127	31	104	24
Guinea	129	35	127	84	99	37	N/A	41	131	N/A
Ethiopia	130	35	124	70	127	37	118	31	120	27
Burkina Faso	116	38	118	39	125	39	101	31	99	32
Zimbabwe	127	35	126	32	124	37	117	33	114	27
Burundi	126	35	128	61	112	36	124	38	119	25
Mali	124	36	120	68	130	39	109	31	118	30
Cameroon	123	36	112	41	119	42	97	36	130	33
Mauritania	131	33	132	76	131	34	116	29	123	28
Liberia	122	36	119	70	84	39	N/A	44	129	N/A
Zambia	119	37	130	15	88	35	114	43	111	28
Haiti	134	29	123	55	135	38	N/A	25	134	N/A

Country	Cyclical Rank	Cyclical Score (0 to 100)	2.1 Absorptive Capability Rank	2.1 Absorptive Capability Score	2.2 Adaptive Capability Rank	2.2 Adaptive Capability Score	2.3 Transformative Capability Rank	2.3 Transformative Capability Score	2.4 Institutional Capability Rank	2.4 Institutional Capability Score
Venezuela	132	33	94	46	134	48	130	26	133	20
Mozambique	125	35	110	23	129	42	129	31	113	22
Angola	133	32	131	29	133	35	126	28	124	24
Yemen	136	24	134	66	128	30	N/A	31	136	N/A
Chad	135	26	135	64	136	28	N/A	22	135	N/A

Source: Whiteshield, Global Labour Resilience Index 2024.

Table 8: Global Labour Resilience by world region

Region	Number of Countries	GLRI Rank	GLRI Score (1-100)	Structural Rank	Cyclical Rank	Labour Resilience Rank Gap
North America	2	18	70	25	18	-8
Europe	37	29	66	30	29	-1
East Asia & Pacific	15	55	58	54	56	2
Central Asia & S. Caucasus	8	60	54	66	62	-4
Middle East & North Africa	16	73	52	65	76	11
Latin America & Caribbean	21	84	49	92	80	-12
South Asia	5	87	49	59	96	36
Sub-Saharan Africa	32	111	42	111	109	-1

Note: Displayed values are averages by region.
Source: Whiteshield, Global Labour Resilience Index 2024.

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