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The percentage of ICT services exports relative to total trade

Decreased on average by -6.89% between 2016 and 2022.

The variable "ICT services exports, % total trade" represents the percentage of ICT (Information and Communication Technology) services exports relative to a country's total trade in goods and services. ICT services include the provision of services such as software development, IT consulting, data management, telecommunications services, and other digital services. This percentage provides an indicator of the economic relevance of the ICT sector within a country's foreign trade. A higher value indicates an economy more oriented toward the export of technological and digital services, also suggesting a high level of competence in areas of technological and digital innovation. Conversely, a lower value may indicate greater dependence on the export of tangible goods or traditional services. The importance of monitoring this variable lies in the fact that the ICT sector is increasingly seen as a key driver of economic development and global competitiveness. A high share of ICT exports reflects a country's ability to generate added value in the digital sector, promoting economic growth and improving the trade balance. Additionally, it allows for the measurement of the impact of government policies aimed at encouraging technological and digital development. In summary, "ICT services exports, % total trade" is a crucial measure for understanding the role of the technology sector in a country's economy, highlighting its integration into global markets through the export of ICT services.

The percentage of ICT services exports relative to total trade in 2022 reveals a diverse and telling picture of the economic specialization of different countries in the Information and Communication Technology sector. The rankings are led by nations such as Cyprus, India, Ireland, and Israel, which reach 100% ICT exports in their total trade. This indicates that the entire export of these countries is dominated by digital services, suggesting economies strongly oriented toward the technology sector. These countries have successfully leveraged their technological expertise, creating favorable ecosystems for the development of digital services and their commercialization on a global scale. In Europe, Ireland stands as a prime example: it has attracted numerous technology multinationals thanks to a favorable tax environment and advanced infrastructure. Similarly, Israel, often dubbed the "Startup Nation," is known for its capacity for technological innovation and a robust ICT sector that drives the local economy, supported by a strong educational system and significant investments in research and development. Countries like Finland, with a percentage of 93.8%, are distinguished by their commitment to developing advanced technologies. Finland, historically associated with the success of companies like Nokia, continues to be a leader in digital innovation and high-quality services, especially in fields like artificial intelligence and connectivity. As we move down the rankings, unexpected countries appear in the upper tier, such as Kuwait (70.6%) and Ukraine (60.5%). For Kuwait, the data suggests a growing economic diversification, an attempt to reduce dependence on oil by investing in innovative sectors. Ukraine, on the other hand, has emerged in recent years as one of the main hubs for software development and IT outsourcing in Eastern Europe, thanks to a large pool of highly qualified professionals at competitive costs. Costa Rica and Armenia, with percentages of 55.1% and 53.5% respectively, represent examples of small economies that have made

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the ICT sector a pillar of their growth strategies. In particular, Costa Rica has attracted many technology companies due to its political stability and skilled workforce, while Armenia has become a key hub for startups and IT companies in the Caucasus region. Countries like Romania (51%) and Sweden (47.8%) show how the ICT sector plays a central role in their economies. Romania is known as a key destination for IT offshoring services, while Sweden stands out for its innovation ecosystem, which has given rise to globally successful tech companies like Spotify and Klarna. An interesting element is the presence of developing economies, such as the Philippines (45.3%), Sri Lanka (45.2%), and Kenya (29.3%), which are using the ICT sector as a growth engine. The Philippines, for example, is a world leader in business process outsourcing (BPO), while Kenya is often considered the "Silicon Savannah" for its vibrant tech scene and innovative startups. On the other hand, the relatively low percentage of countries like China (18%), the United States (16.5%), and Germany (15.8%) might be surprising but must be interpreted within the context of diversified economies where the trade of tangible goods remains predominant. Although these nations are global leaders in the technology sector, their overall exports include a wide variety of industrial and manufactured products, thereby reducing the percentage share of ICT exports relative to the total. Italy, with 11.7%, reflects a reality where the ICT sector is growing but not yet central compared to other traditional economic sectors like manufacturing. Despite having a significant number of innovative companies and tech startups, Italy's economy is still dominated by the export of tangible goods, such as luxury products, machinery, and food. At the bottom of the rankings, we find countries like Mexico (0%) and Angola (0.4%), where ICT exports represent an insignificant share of total trade. This indicates economies still heavily reliant on traditional sectors or natural resources. In Mexico, despite a growing tech industry, exports are dominated by manufactured goods, particularly in the automotive sector. The figures of 1.3% for Thailand and 1.2% for Iran reflect economies characterized by a strong focus on different industries, such as tourism for Thailand and energy resources for Iran. In these economies, the ICT sector has not yet emerged as a key player in exports. Overall, these data highlight how the share of ICT exports in total trade can provide a clear indication of the degree of digitalization and economic structure of various countries. The leading countries in this ranking have developed technological capabilities that not only meet domestic demand but are also highly competitive internationally. However, the presence of emerging countries in the upper ranks suggests that the ICT sector offers opportunities even for less developed economies that can leverage outsourcing, digitalization, and innovation to accelerate their economic growth. In conclusion, the variable "ICT services exports as a percentage of total trade" represents not only an indicator of a nation's technological capacity but also a reflection of its economic priorities and competitive positioning in the global context. Analyzing these data underscores the growing importance of digital services in international trade dynamics and how they are reshaping the global economic landscape, providing new opportunities for both advanced and emerging economies. The percentage of ICT services exports relative to total trade between 2016 and 2022 provides an insightful analysis of the deep economic transformations many countries have undergone in terms of digitalization, technological development, and international trade strategies. Some countries have seen spectacular growth, while others have experienced significant declines, indicating structural changes in their economies. Namibia stands out as one of the most surprising cases, with an increase of 1800% in the percentage of ICT exports relative to total trade, rising from 0.1% in 2016 to 1.9% in 2022. Although this growth starts from a very low base, it reflects the country's attempt to diversify its economy and invest in high-value sectors like ICT. Similarly, Saudi Arabia registered a growth of 1733.33%, increasing from 0.3% to 5.5%. This growth indicates the country's efforts to reduce its dependence on oil by promoting the development of the technology sector and supporting initiatives like "Vision 2030," aimed at digitalizing and modernizing the Saudi economy. Countries such as Qatar and Turkey saw growths of 577.78% and 466.67%, respectively. Qatar, already a significant hub for ICT

infrastructure, has substantially increased its presence in this sector, while Turkey, despite a complex geopolitical context, has strengthened its ICT exports, benefiting from a thriving tech sector. Among European countries, Lithuania and Belarus stand out with strong growths of 170.27% and 140.99%, respectively. Lithuania, already known for its solid digital infrastructure, has consolidated its role as a tech hub in the Baltic region. Belarus, despite political difficulties and international sanctions, has seen significant growth driven by the IT industry, which remains one of the few viable paths for economic development in the country. Another emblematic case is Finland, with a growth of 50.08%, solidifying its position as one of the world leaders in technological innovation. This growth reflects Finland's continued development of advanced technologies and leadership in areas like 5G and artificial intelligence. The growth of countries like China (100%) and Japan (166.67%) highlights how Asian powers are increasing their presence in the global trade of ICT services, even though China already started from a solid base. Japan's growth suggests a transition towards a more digital economy, driven by an aging population and the need for advanced technological solutions. On the other hand, some countries have seen a significant reduction in the share of ICT exports relative to total trade. A dramatic example is Nepal, which recorded a decline of 80.48%, dropping from 82.5% in 2016 to 16.1% in 2022. This decline can be attributed to various factors, including a lack of investment in the technology sector, talent migration, and political instability. Nepal's situation mirrors that of many developing countries that, despite initially investing in the ICT sector, failed to sustain long-term growth. Similarly, Costa Rica experienced a contraction of 44.9%, falling from 100% in 2016 to 55.1% in 2022. Although the country remains a significant exporter of digital services, the increasing global competitiveness in this sector has made it more difficult to maintain such a high share in total trade. In Europe, Sweden saw a significant contraction of 34.34%, dropping from 72.8% to 47.8%. Despite remaining one of the most technologically advanced countries, this decline may reflect greater economic diversification and increased international competitiveness in the ICT sector. Switzerland also recorded a dramatic decline of 46.88%, likely due to a growing focus on other high-value sectors. Other countries that experienced sharp declines include Uganda (64.71%), Senegal (73.73%), and Burundi (82.62%). These countries, which initially aimed to develop ICT as a growth engine, have faced economic difficulties, lack of investment, and political instability, all factors that have hindered sustainable expansion in this sector. Italy registered a decline of 24.52%, dropping from 15.5% to 11.7%. This indicates that, despite some growth in tech companies and digital startups, the ICT sector still fails to represent a significant share of Italian foreign trade. The Italian economy remains strongly oriented toward the export of tangible goods, especially in the manufacturing and agri-food sectors. France and Germany, with declines of 22.81% and 17.28%, respectively, show a similar trend. Despite being global leaders in technology and innovation, their ICT exports have not kept pace with increasing global competition and the diversification of their economies. The most significant drop is observed in countries like Tajikistan (95.92%) and Benin (89.44%), which failed to maintain their initial growth in the ICT sector. In many cases, these countries faced challenges related to a lack of infrastructure, low technology penetration, and general economic difficulties, which limited their ability to export digital services. In summary, the data shows that the ICT sector is continuously evolving and reflects the complex dynamics of global economies. Countries that have successfully invested in technological infrastructure and human capital have seen significant growth, consolidating their position in international digital services trade. Conversely, economies that failed to sustain such investments or experienced political and economic instability saw their share of ICT exports drastically reduced. These changes underscore the importance of a long-term strategy for developing the technology sector, requiring a mix of investments, favorable government policies, and a stable environment to attract talent and capital.

Economic Policies. The economic policies aimed at increasing the percentage of ICT services exports relative to total trade require an integrated and multidimensional approach. The growth of this sector depends on a combination of factors, including investments in technological infrastructure, human capital development, fiscal incentives, access to international markets, and strong digital governance. First and foremost, one of the fundamental policies concerns the development of advanced digital infrastructure. To enable ICT companies to grow and compete globally, it is essential to have an efficient, high-speed, and widespread telecommunications network. Countries that have invested in 5G networks, broadband, and data centers, such as South Korea and Finland, have seen a significant increase in their ICT exports. An effective infrastructure policy must include public and private investments, promote public-private partnerships, and ensure that even remote areas have access to modern technologies. In addition to infrastructure, human capital development is crucial. Digital skills are at the core of building a competitive ICT ecosystem. Governments need to invest in technology-oriented educational programs, from primary school to university, focusing on advanced skills such as artificial intelligence, programming, data management, and cybersecurity. Countries like India, which has become a global hub for software and IT services, have implemented educational policies aimed at training a highly skilled workforce by creating technical institutes and universities specialized in the ICT sector. Additionally, continuous training and upskilling programs for workers already in employment can help maintain competitiveness in a rapidly evolving sector. Another key element is the creation of fiscal and financial incentives for ICT companies. Governments can introduce tax breaks for startups and tech companies, reducing tax rates or offering exemptions for the first years of operation. Countries like Ireland have attracted global tech giants by offering a favorable tax regime, thereby creating a thriving ecosystem that has boosted ICT service exports. In addition to tax incentives, it is possible to facilitate access to credit for ICT companies through public funds or loan guarantees, supporting the creation of new businesses and the expansion of existing ones. Internationalization policies are equally crucial for increasing the share of ICT exports. Access to foreign markets can be facilitated through bilateral or multilateral trade agreements that include specific provisions on digital services. The creation of specialized diplomatic and commercial networks with the aim of promoting ICT services abroad can facilitate the entry of national companies into international markets. Countries like Singapore have implemented aggressive internationalization strategies, promoting their technological offerings through trade missions and participating in international trade fairs. These strategies have allowed local companies to expand rapidly on a global scale. Effective digital governance is another pillar of economic policies for the expansion of ICT exports. Governments need to create a clear and predictable regulatory framework that protects intellectual property, ensures cybersecurity, and facilitates digital transactions. A stable and transparent regulatory environment is essential to attract foreign investment and stimulate the growth of ICT businesses. Additionally, policies that promote transparency, system interoperability, and personal data protection are crucial for building trust among consumers and businesses in digital services. Countries like Israel and Estonia, which have heavily invested in cybersecurity and digital governance, have seen significant growth in their ICT sectors. The promotion of innovation and research and development (R&D) is another important lever. Governments must encourage the creation of tech hubs and industrial clusters where businesses, universities, and research centers can collaborate to develop innovative solutions. Public grant programs for research projects, incentives for collaboration between companies and universities, and the creation of technology parks are essential policies to stimulate innovation. For example, countries like Israel have created a favorable innovation ecosystem with research support policies that have fostered a vibrant startup sector. At the same time, it is necessary to promote digital entrepreneurship. Encouraging the creation of tech startups and small and medium-sized enterprises (SMEs) in the ICT sector can expand the production base and increase exports. Policies that facilitate access to venture capital, accelerate startups, and

simplify bureaucratic procedures can support the growth of new digital businesses. Countries like the United States and the United Kingdom have benefited from a robust venture capital ecosystem and incubators that have fueled the growth of their tech industries and made them globally competitive. Lastly, a policy of social cohesion and digital inclusion is essential to ensure that the benefits of growth in the ICT sector are widely shared. The adoption of digital technologies must be accompanied by digital literacy programs that enable the entire population to participate actively in the digital economy. Digital inclusion not only improves social well-being but also expands domestic demand for ICT services, which can then translate into greater international competitiveness. In summary, to increase the percentage of ICT services exports relative to total trade, it is necessary to adopt a holistic approach that integrates investments in digital infrastructure, human capital development, fiscal incentives, internationalization policies, solid digital governance, innovation promotion, and support for entrepreneurship. Each country must tailor these policies to its specific context, but the common goal remains to create a favorable ecosystem for ICT sector growth that can drive the economy and enhance global competitiveness. Technological evolution requires that these policies be dynamic and flexible, capable of adapting to the rapid changes in the global digital market. Investing today in a well-defined strategic framework can yield long-term benefits, making ICT exports a stable and sustainable driver of economic growth in the future.

Conclusions. The value of ICT services exports relative to total trade decreased on average by -6.89% between 2016 and 2022. Some countries showed a growth rate in ICT services exports above the average, such as Namibia with +1800.00%, Saudi Arabia with +1733.33%, Nigeria with +900.00%, Qatar with +577.78%, and Turkey with +466.67%. On the other hand, some countries recorded ICT services exports values significantly below the average, including Senegal with -73.73%, Nepal with -80.48%, Burundi with -82.62%, Benin with -89.44%, and Tajikistan with -95.92%.

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