

Human Capital Development in Côte d'Ivoire: A Structural Analysis and Challenges for the Education System

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Abstract. This article provides a comprehensive analysis of human capital development in Côte d'Ivoire against the backdrop of sustained economic growth and adverse demographic dynamics. Despite macroeconomic successes, the country faces systemic challenges in the sphere of education and workforce training, which threaten long-term development. Based on data from national and international statistics, government programs, and academic research, the article identifies key structural imbalances. It analyses quantitative and qualitative staffing shortages in the education system, with a particular focus on the acute shortage of teachers in STEM disciplines and foreign languages. The paradox of the high social status of teachers alongside extremely low levels of remuneration is examined. Institutional obstacles and dysfunctions in the labor market, such as the skills mismatch among graduates and "brain drain," are investigated.

Key words: human capital, Republic of Côte d'Ivoire, education system in Côte d'Ivoire, teacher shortage, labor market, skills gap, economic development of Côte d'Ivoire.

Introduction

Côte d'Ivoire demonstrates consistently high GDP growth rates; however, the long-term sustainability of this growth is directly dependent on the quality of human capital, which faces a number of systemic constraints in the country. Rapid demographic growth, reflected in a young age structure of the population, simultaneously creates potential for development and significant pressure on social infrastructure, primarily the education system. A central problem is the growing gap between the needs of a rapidly diversifying economy for skilled personnel and the actual capacity of the national education and vocational training system to meet them. This gap is manifested in unemployment among university-educated youth, a massive

shortage of teachers, especially in key subject areas, and the migration of skilled professionals abroad.

The aim of this article is to conduct a structural analysis of human capital development in Côte d'Ivoire, focusing on the challenges facing the education system. To achieve this, the following tasks are addressed: to analyze the demographic and economic context; to identify key quantitative and qualitative staffing shortages in education; to investigate the systemic causes of these shortages, including institutional and economic factors. We begin with a socio-economic profile of contemporary Côte d'Ivoire.

Socio-Economic and Demographic Context

According to the 2021 census [Côte d'Ivoire INS, 2021], the population of the Republic was over 29 million. The World Population Counter in 2025 indicates an increase to 32 million [Worldometers, 2025]. Various sources indicate that 51-52% of the population is male. The ratio between urban and rural residents is approximately the same.

Regarding age structure, due to high growth rates, the population of Côte d'Ivoire is very young: 75% are under the age of 35, of which about 38% are children under 15. The share of the population aged 35-64 constitutes about 21%, consequently, the percentage of people over 65 is in the single digits. Between 1998 and 2021, the average annual population growth rate was 2.9%, indicating a consistent dynamic of declining growth rates: the growth rate was 3.8% in 1988 and 3.3% in 1998. The census showed that 78% of the country's inhabitants are Ivorian. External migration was triggered by the political and economic crises of the 1990s and early 2000s, when Ivorians began to emigrate abroad. For example, by 2010, emigrants already accounted for 6% compared to 2% in the 1980s [OECD, 2017]; in 2017, the number of citizens who had emigrated to OECD countries rose to 10% [OECD, 2020]. The largest numbers left for France, Italy, Canada, and the USA.

Regarding economic status, Côte d'Ivoire is a leader in its sub-region, second only to Nigeria and Ghana, and demonstrates stable economic growth indicators:

during the period 2012-2021, Côte d'Ivoire's GDP remained high, averaging up to 7%, and according to the IMF, in 2024 the country led the ranking of fast-growing economies. After decades of economic decline, the country is developing steadily. The primary sector accounts for about 22% of GDP, the secondary sector for 23%, and the tertiary sector for about 55%. The poverty rate has decreased to 37%, and the unemployment rate among youth under 24 is less than 5%.

The economy's target indicators are: an increase in average income to 4 thousand US dollars by 2031; GDP per capita growth rate of 7% per year; population growth rate of 3% per year; reduction of the poverty rate to 20% of the population by 2030; an increase in the share of the educated young population by 30% compared to 2020; an increase in the share of the employed population by 55% compared to 2020 [Strategic Plan ..., 2022].

Since gaining independence, the country has paid more attention to importing qualified personnel than to developing its own educational institutions. Education expenditures have never been low: 3.4% of GDP in 2020. In recent years, the literacy rate has increased significantly, and the UN education index for Côte d'Ivoire has improved to 0.470. However, this progress also highlights the numerous challenges the country still faces in promoting universal quality education [BTI 2024].

The official working age in the country is 16 years and older. The labor force in Côte d'Ivoire is estimated at approximately 63% of the population. The majority of the labor force (59%) is male, with an average age of 35.

A gender difference is observed in the unemployment rate: among women it is traditionally higher than among men. The unemployment rate, according to 2019 data, does not exceed 2.9% and depends on age and education level. Paradoxically, the unemployment rate is directly proportional to the level of education: unemployment among youth with higher education (12.4%) was significantly higher than among those with secondary (6.4%), primary (2.2%), and no education (1.3%) [Côte d'Ivoire INS ..., 2017]. These trends indicate inequalities in the Ivorian labor market.

Challenges of Labor Market Integration

Three categories of problems hindering the integration of the Ivorian population into the labor market can be identified: problems characterizing youth, institutional obstacles, and dysfunctions of the labor market and the education system.

The first group points to a skills mismatch. A discrepancy has been identified between the offerings of the education system (the professional skills of youth) and the needs of large companies as potential employers. This primarily concerns the provinces, as the number of educational programs there is limited. Years of military and political crises have affected the quality of learning and the simplified nature of students' knowledge and skills, creating a contradiction with market demands. The education level of the working-age population remains low: 50% of people aged 25-44 have not even completed primary school [Kouakou, 2015]. It is also noted that youth are not sufficiently active in seeking employment [International Organization ..., 2023].

Difficulties with youth integration into the labor market also have an institutional and structural nature. In particular, this concerns the lack of coordination among the institutions responsible for this issue. This also includes non-compliance with a number of laws and regulations due to weak awareness. For example, there is a specific 2018 decree regulating the number of interns that companies in Côte d'Ivoire must accept for internships.

Problems related to education are extremely significant. The dysfunction of the education system lies in the misalignment of programs with the needs of the socio-professional community and the low degree of cooperation between educational institutions and the labor market. Furthermore, a systemic problem is associated with inequality of educational opportunities: access to education in public institutions is limited by competitive examinations, while access to private education is determined more by the financial capabilities of families. Another problem is related to the management and funding of universities. Educational institutions lack the infrastructure necessary for quality education. Finally, the uneven distribution of

educational institutions across the country also does not reflect the specific skills required in individual regions.

An analysis of labor demand in three sectors shows that the most in-demand (52%) are personnel in the production sector, 41% are in the trade sector, and a small share of the labor force is in construction and the public sphere [International Organization ..., 2023]. This information is corroborated by interviews with various professional groups of Ivorians.

Employers unanimously note a deficit among young graduates of the education system in technical skills, soft skills, and professional attitude (including work ethic, quality of work) in the labor market. This indicates a disconnect between vocational education and their demands.

According to separate studies [Ibourk, 2020 et al.], the economy currently and in the future will need graduates in the field of computer technology; however, most current vocational educational institutions have not yet included computer science in their curricula. Even today, it is difficult to find specialists in digital technologies, telecommunications, digital finance (financial IT engineering, consumer credit analytics, etc.), and cybersecurity in Côte d'Ivoire. Thus, personnel with digital skills in specific fields of activity are in deficit and in demand.

In addition to the three economic sectors mentioned, there are staffing and competency deficits in other promising areas, especially in healthcare, agriculture, and handicrafts. A difficult situation is also observed in providing the education system itself with qualified personnel.

The Teaching Profession: Paradoxes and Reforms

In a survey of representatives of over 100 teachers' unions worldwide, it was found that in no European or North American country is the teaching profession among the most respected. Only in Latin America, Asia, and Africa are there countries that have preserved its high social status. On the African continent, this applies to Côte d'Ivoire, Lesotho, and Kenya [Stromquist, 2018]. According to an Afrobarometer survey (2022), 65% of citizens express respect for teachers [Cote

d'Ivoire Round ..., 2022], which is linked to their historical role in providing basic education, combating child labor, and providing sanitary and hygienic education to the rural population. At the same time, it should be noted that earnings in public schools and universities are very low: the average salary of a school teacher in 2025 is about 24.3 US dollars, which is 81% more than that of kindergarten teachers [BDEX, 2025], and situations where teachers participate in protests demanding higher pay are not uncommon, even though it is already above the average income in the country.

Importantly, the vast majority of teachers have civil servant status. In 2020, 90% of public-school teachers were civil servants, while in private schools only 36% had this status. Most primary school teachers have higher education. In 2020, 76% of female teachers already had a teaching diploma. The share of teachers with higher education is higher in cities, at 81%, slightly exceeding rural areas (70%).

Recently, the Ministry of National Education and Literacy has modernized the system for distributing teachers among schools through the Teacher Workforce Regulation Program. A key indicator for distribution across regions (and simultaneously for improving education quality) became the pupil-teacher ratio. Starting from the 2023/24 academic year, the program allows for more accurate identification of vacancies in each region, relying on databases of regional directorates of national education and Teacher Training Pedagogical Centers (CAFOP). Candidates for employment apply in the region where they studied and commit to working there for 10 years before requesting a transfer to another location. To support the program, the digital personnel regulation application SYREM has been developed, allowing for the tracking of the pupil-teacher ratio in Côte d'Ivoire to prevent the creation of large or small classes amid teacher shortages [Centre de recherche ..., 2023]. Furthermore, SYREM enables the entire hierarchical line, up to the HR department of the MENA, to verify the reported student numbers and decisions on teacher appointments, as well as to conduct audits if necessary. Thus, the application provides additional incentives for obtaining quality data and optimizing teacher assignments across the country [UNICEF, 2023].

The National Development Plan for 2021–2025 already acknowledges the shortage of qualified teachers, especially in primary and secondary schools, and the lack of specialists in STEM fields, and establishes measures to increase the number of teachers through training and retraining programs. The Education Sector Development Strategy and Vocational Training (2016–2025), developed within this framework, confirms the problems of teacher shortages in rural areas and the low qualification level of teachers, announcing plans to increase the number of teacher training institutions and enhance teacher qualifications. Measures to hire and train new teachers, improve their working conditions, increase investment in education, and train teachers through international cooperation were recommended to the national government to overcome staffing shortages under the Education Sector Support Program PASE (2017–2023), the Sustainable Development Goals initiative (UN, 2015), the World Bank, the African Development Bank, and other organizations.

Specific Staffing Shortages in Education

To overcome shortages, Côte d'Ivoire is taking various measures. For example, since 2021, the "Teacher for All" Program has been in operation, ensuring the annual recruitment of teachers with housing guarantees in rural areas. Teacher training is conducted in two profiles, so-called "dual-subject educators" who can teach two subjects at school simultaneously, which to some extent addresses the staffing issue. A measure in 2025 was the government's announcement of the contract-based recruitment of nearly 3,000 teachers for secondary and high schools. In descending order, the demand is for teachers of mathematics, science, English, literature, and philosophy [Portail officiel ..., 2025], indicating the ranking of staffing shortages in schools.

The additional recruitment of teachers in Côte d'Ivoire responds to the growing demand for qualified teaching staff over the past decade, accompanied by active construction of new schools. The developed recruitment mechanisms do not match the pace of this construction; therefore, the creation of new positions by the Ministry

of National Education and Literacy is aimed at filling staffing shortages and improving the quality of schooling in the country.

In Côte d'Ivoire, despite significant progress in expanding access to education and recent reforms, such as the introduction of compulsory education for children aged 6 to 16, the problem of teacher shortage persists, exacerbated by high demographic growth and not always effective transformation of resources into quality outcomes. The government is undertaking measures, including school construction and mass recruitment of teachers; however, factors such as the financial burden on families, insufficient infrastructure, and frequent teacher strikes continue to limit the effectiveness of these efforts. One of the key development directions is digital transformation: starting from the 2025 academic year, the introduction of information and communication technologies at preschool and primary education levels has begun, indicating a growing need for teachers with relevant digital competencies.

Based on government documents (National Report MENA, 2023; PREM Program), UNESCO data, and academic research, we have identified the following key staffing shortages in education, ranked by quantitative criteria.

The primary education system, as the compulsory stage of general education in Côte d'Ivoire, experiences the main shortages. The staffing deficit in secondary education is three times smaller, and in vocational training, it is ten times smaller. The Ministry of Education attributes this to the rapid growth rate of students (over 4% per year). Furthermore, in rural areas, the cause of the shortage is the lack of housing and infrastructure [33], which encourages teachers to seek transfers.

In terms of disciplines, the imbalance is most pronounced in STEM and languages. In secondary education, there is an acute shortage of subject teachers. The greatest shortage is of mathematics teachers: in the Savanes and Montagnes regions, there are up to 150 students per mathematics teacher. The second line in the list of teacher shortages is occupied by physics and chemistry teachers, the third by language teachers, followed by teachers of French and computer science.

The predominant foreign language in Ivorian schools is English. According to Ministry of Education data, the number of teachers teaching it exceeds 12,000

[UNESCO, 2021]. Spanish is taught in 15% of schools, German in 15% (mainly in the capital), and less than 5% of schools offer Chinese or Arabic. In universities, English is also logically the main foreign language in undergraduate and graduate programs. Chinese has been introduced in 8 universities thanks to partnership with China (Confucius Institutes), and over 80% of its teachers are native speakers on contract. Arabic is taught in Islamic universities (Bouaké, Korhogo), and German is not taught in universities at all.

Accordingly, the main staffing shortages in the field of foreign languages concern English teachers. The reasons include deficits in school education, the limited number of students in the language track of education faculties, and the low level of English proficiency in the country. According to the "English Proficiency Index" (EPI) by Education First, Côte d'Ivoire ranks among the lowest in the world in English proficiency, which hinders the training of qualified teachers [English proficiency ..., 2025].

A systemic factor of the existing shortage is the absence of training programs for teachers in languages that are poorly represented in the country (for example, only the CAFOP in Abidjan trains Chinese teachers, but the intake is about two dozen students per year). The level of remuneration remains a significant factor: an English teacher in a school earns significantly less than in private language centers [Yao, Djandue, 2023]. The reason also lies in staff migration: 30% of graduates of Chinese language programs leave for work in Europe or China [Koné, 2020]; for English teachers, this statistic is also high. At the same time, it is recognized that knowledge of languages creates economic opportunities for the population and the state: for example, it is estimated that Côte d'Ivoire loses \$200 million/year due to a shortage of personnel to work with Chinese investors [Banque Mondiale, 2025].

Conclusion

In summary, it can be concluded that Côte d'Ivoire, like many other African countries, faces a number of staffing shortages observed in various economic sectors. These problems are exacerbated by factors such as the migration of qualified

specialists abroad (brain drain), insufficient funding for education and vocational training, and weak infrastructure for human capital development. The government of Côte d'Ivoire is taking steps to address these problems, including reforms in the education system and attracting foreign investment; however, the process of restoring human resource potential requires time.

The quantitative staffing shortage in Côte d'Ivoire's education is a systemic problem exacerbated by demographic, economic, and managerial factors. Among school teachers, some of the most in-demand are foreign language teachers—primarily English. The most in-demand programs in teacher training are STEM subjects, French, History, and English. It can be noted that specialists in this profile are largely also the most deficient in schools: mathematics and French teachers due to the very high growth rate of the student population (the system cannot train enough specialists for newly opened schools and classes) and their concentration in cities; the shortage of English teachers is better explained by labor migration, where some graduates prefer to build careers outside the education sector, using language skills as an advantage in the labor market.

To summarize, the following conclusions can be drawn about staffing shortages in the education system of Côte d'Ivoire:

1. Paradox of Status and Remuneration:

- High social status (the teaching profession is one of the most respected in society, linked to its historical role in enlightenment).
- Low wages (teachers' salaries remain very low, causing social unrest).

2. Structure and Characteristics of Teaching Staff:

- Teachers are divided into several categories (from fully qualified civil servants to assistants and volunteers).
- The vast majority of public-school teachers have civil servant status.
- Most teachers, especially in cities, have higher education.

3. Key Shortages:

- Quantitative (the most acute shortage of personnel is observed in primary school; the deficit in secondary education is 3 times smaller).

- Disciplinary (the greatest shortage of teachers is observed in the following areas, in descending order: mathematics, physics and chemistry, foreign languages (primarily English), official French language, and computer science).

4. Systemic Problems Exacerbating the Shortage:

- Rapid growth in student numbers (over 4% per year), outpacing the training of new personnel.
- Uneven distribution of teachers across the country.
- "Brain drain" (graduates of teacher training programs often migrate abroad or move to better-paid sectors).
- Lack of systematic training for languages rare in the system (Chinese, Arabic, Russian).

5. Measures Taken by the Government:

- Modernization of distribution (regulation of teacher numbers, optimization of assignments, and tracking of pupil-teacher ratios).
- Targeted teacher training programs.
- Strategic planning.

The staffing shortage in Côte d'Ivoire's education is a systemic problem caused by demographic growth, economic constraints, and managerial complexities. The government is actively taking measures to address the problem, but they do not yet fully cover the growing needs. Human capital development in the country is in a paradoxical situation: possessing significant demographic potential and a dynamically growing economy, the country faces a systemic crisis in its education system, which hinders progress. Despite the efforts of the authorities (targeted programs for teacher recruitment, digitalization of management, etc.), key problems—teacher shortages, their low pay, "brain drain," and a fundamental mismatch between the competencies produced and market needs—remain acute. The further economic success of Côte d'Ivoire will directly depend on how effectively the country can transform its demographic energy into quality human capital, which

requires not only targeted fixes but also a deep structural restructuring of the entire educational and economic ecosystem.

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