

Impact of Human Resources Entrepreneurship on Poverty Reduction in Nigeria

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Abstract

This study investigated the impact of human resources entrepreneurship on poverty reduction in Nigeria covering 1995-2024. The study adopted ex-post-facto research design and utilized secondary data on included variables and autoregressive distributed lag (ARDL) method to carry out the analysis. The results of the study showed that while informal sector growth, Social Inclusion Programs and Unemployment Rate have positive impact on poverty reduction, skills development has negative impact on poverty reduction in Nigeria. The study recommends that Nigerian government should develop strategies to promote human resources entrepreneurship. To achieve this, government should Expand Technical and Vocational Education and Training (TVET) centres across all geopolitical zones, create conditional cash transfer programs linked to skills acquisition and microenterprise participation for vulnerable populations, provide subsidized microcredit and business development services through cooperatives and community banks, and offer start-up grants, tax holidays, and mentorship for youth-led enterprises and innovations. These will go a long way in reducing poverty in Nigeria.

Keywords: *Entrepreneurship, Poverty, Poverty Rate, Informal Sector Growth, Unemployment Rate, Skill Development Initiatives, Social Inclusion Programs*

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Background to the Study

Human Resources Entrepreneurship (HRE) plays a vital role in addressing Nigeria's persistent poverty by fostering employment, enhancing skills, and promoting inclusive economic growth. As the country continues to struggle with high youth unemployment and underemployment—estimated at over 53% among the youth population as of 2020 (NBS, 2020)—HRE offers a strategic intervention by creating businesses that provide training, job placement, and workforce development services. These enterprises equip individuals with employable and entrepreneurial skills, thereby improving their income-generating capacity and reducing their vulnerability to poverty (Akinyemi & Adejumo, 2018). Furthermore, HR entrepreneurs often target marginalized groups such as women, rural youth, and school leavers, ensuring that the benefits of economic empowerment are widely distributed. According to Osabuohien et al. (2020), the development of human capital resources entrepreneurship through entrepreneurship significantly enhances productivity and drives sustainable poverty reduction. In essence, HRE serves not only as a tool for individual empowerment but also as a driver of structural transformation in Nigeria's labor market.

Nigeria has long grappled with widespread poverty, despite being endowed with abundant natural and human resources. The persistence of poverty and unemployment in the country, especially among the youth and women, has prompted policymakers, academics, and development practitioners to explore innovative pathways to economic empowerment. One of these emerging strategies is Human Resources Entrepreneurship (HRE), which combines human capital resources entrepreneurship development with entrepreneurial innovation.

The 1990s marked a period of economic instability and structural adjustment in Nigeria. Following the implementation of the Structural Adjustment Programme (SAP) in the late 1980s, Nigeria experienced mixed economic outcomes. While some macroeconomic indicators improved, poverty worsened as subsidies were removed and public sector employment declined (World Bank, 1996). The decline in real wages, devaluation of the naira, and inflation contributed to growing income inequality and widespread hardship. By the late 1990s, over 60% of Nigerians lived below the national poverty line (NBS, 2001).

The early 2000s brought some economic reforms, particularly under the National Economic Empowerment and Development Strategy (NEEDS), introduced in 2004. This strategy emphasized privatization, deregulation, and public sector reform, alongside investments in human capital resources entrepreneurship. Nevertheless, poverty remained high. The National Bureau of Statistics (2010) estimated that poverty levels remained above 54% in 2004 and continued to fluctuate in subsequent years. Between 2010 and 2020, the poverty headcount ratio hovered around 40%, with regional disparities exacerbating the challenge (NBS, 2020). More recently, the economic shocks from the COVID-19 pandemic in 2020, global oil price fluctuations, and inflation have further deepened poverty. The World Bank (2022) projected that over 90 million Nigerians live in extreme poverty as of 2023. These structural challenges have made it imperative to embrace non-traditional approaches like HRE to address the twin challenges of unemployment and poverty.

Human Resources Entrepreneurship (HRE) emerged in Nigeria in response to the growing demand for specialized services in recruitment, training, organizational development, and workforce management. Initially, most human resource functions in the 1990s were handled internally within large corporations, and few standalone HR firms existed. However, with the liberalization of the economy and increasing globalization in the early 2000s, there was a shift toward outsourcing and specialized service provision.

Several factors contributed to the rise of HRE in Nigeria, namely: (i) Labour Market Challenges: The increasing number of graduates from universities and polytechnics created a supply-demand mismatch in the labor market. Most graduates lacked practical skills required by employers (Okafor, 2011). HR entrepreneurs began offering training programs and employability workshops to bridge this gap. (ii) Growth of the Informal Sector: With over 60% of Nigeria's workforce in the informal sector, there was a growing need for training and business development support. Human resource entrepreneurs started offering business incubation and vocational training services to informal workers, enhancing their income-earning capacity. (iii) Government and Donor Support: Initiatives such as the National Directorate of Employment (NDE), YouWiN, and the Youth Empowerment Scheme (YES) created opportunities for HR entrepreneurs to provide services in training, job placement, and business development. (iv) Technology and Innovation: The proliferation of digital tools and platforms enabled HR entrepreneurs to deliver services more efficiently. Online learning, virtual recruitment, and e-consultancy became popular in the 2010s and especially post-COVID-19.

By the mid-2010s, firms such as Jobberman, Workforce Group, Phillips Consulting, Poise Nigeria, and LEAP Africa had emerged as leaders in the HRE space. These firms not only facilitated employment and training but also contributed to national development goals by enhancing human capital resources entrepreneurship and reducing unemployment. Government policies have played critical role in supporting the growth of human resources entrepreneurship and its contribution to poverty reduction. Key policies and programs include: (i) National Poverty Eradication Programme (NAPEP) – Launched in 2001, NAPEP aimed to eradicate absolute poverty by focusing on skill acquisition, microcredit, and job creation. HR entrepreneurs were engaged in implementing training and capacity-building components of the program (Ajakaiye & Adeyeye, 2001). (ii) National Youth Service Corps (NYSC) Skills Acquisition and Entrepreneurship Development (SAED) – This initiative provided post-graduate training in vocational and entrepreneurial skills, creating opportunities for HR entrepreneurs to deliver training modules and consultative services (NYSC, 2016). (iii) YouWiN and N-Power Programmes – These programs targeted youth unemployment by supporting startup businesses and offering internship placements. HR entrepreneurs acted as facilitators and consultants, further expanding the HRE ecosystem. (iv) National Human capital resources entrepreneurship Development Strategy (2018–2025) – This strategic framework explicitly recognizes the importance of private sector actors, including HR firms, in enhancing Nigeria's labor productivity and employment rates. These interventions created an enabling environment for human resources entrepreneurship to thrive while advancing poverty reduction goals (Umar & Ndubuisi, 2019).

The nexus between human resources entrepreneurship and poverty reduction in Nigeria can be analyzed through three main pathways:

- (i) **Employment Generation:** HRE creates both direct and indirect employment opportunities. HR firms employ staff for consulting, training, and administrative roles. Indirectly, they help organizations recruit the right candidates, improving labor market efficiency. Furthermore, by training individuals and improving their employability, HR entrepreneurs reduce joblessness and income poverty (Osabuohien et al., 2020).
- (ii) **Skills Development:** One of the most significant contributions of HRE is capacity building. HR entrepreneurs run workshops, leadership programs, technical training, and soft-skills development courses, especially for youth and women. This helps build the competencies needed to secure better-paying jobs or launch self-employment ventures. According to Akinyemi and Adejumo (2018), skill development has a statistically significant impact on income enhancement and poverty reduction.
- (iii) **Inclusive Economic Growth:** HRE often target vulnerable populations such as unemployed graduates, rural youth, and women. By empowering these groups with market-relevant skills and connecting them to opportunities, HRE promotes inclusive growth and social mobility. For instance, Poise Nigeria's "Graduate Finishing School" has trained thousands of job seekers since 2007, improving their access to formal employment (Poise, 2021).

The Federal Government of Nigeria has taken several initiatives aimed at supporting Human Resources Entrepreneurship (HRE) as a tool for poverty reduction, recognizing the sector's potential to create employment, enhance skills, and empower vulnerable populations. Notable among these efforts are:

- (i) **National Directorate of Employment (NDE):** Established in 1986, but restructured and reinforced in the 1990s and 2000s, the NDE has played a critical role in facilitating vocational training, job creation schemes, and business start-up support. Many HR entrepreneurs have partnered with NDE in delivering skill acquisition and employment-related training.
- (ii) **National Economic Empowerment and Development Strategy (NEEDS):** Launched in 2004, NEEDS emphasized private sector participation in employment generation and capacity building, paving the way for HR consultancy and training firms to thrive under a more liberal economic environment (National Planning Commission, 2004).
- (iii) **Youth Empowerment Programs (YouWiN, N-Power, and NYSC-SAED):** These initiatives targeted the growing youth unemployment crisis by funding business plans (YouWiN!), placing young Nigerians in public and private sector jobs (N-Power), and integrating entrepreneurship into the NYSC scheme (SAED). Human resource entrepreneurs were instrumental as facilitators and consultants in these programs.
- (iv) **Human capital resources entrepreneurship Development Strategy (2018–2025):** This framework aims to invest in people through education, skills development, and job creation. It recognizes the importance of HR entrepreneurs in enhancing workforce readiness and employability (Federal Government of Nigeria, 2018).

- (v) **SMEDAN and BOI Support:** The Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and Bank of Industry (BOI) provide capacity-building programs and soft loans to support start-ups and SMEs, including those in the human resources sector.

Despite these efforts, significant challenges continue to undermine the effectiveness and sustainability of Human Resources Entrepreneurship towards poverty reduction in Nigeria:

(i) **Inadequate Access to Finance:** Many HR entrepreneurs, especially start-ups and small firms, struggle to access affordable credit due to stringent lending requirements and high interest rates (Afolabi, 2015). Government funding programs are often bureaucratic and not well-targeted. (ii) **Policy Inconsistency and Poor Implementation:** While several initiatives have been launched, they are often poorly coordinated and subject to abrupt changes with shifts in political leadership, limiting long-term impact. (iii) **Low Digital and Technological Penetration:** In a sector that increasingly relies on digital tools for training, recruitment, and performance management, poor internet infrastructure and limited digital literacy hinder operations—especially in rural areas (Oseni, 2021).

(iv) **Weak Institutional Support:** Regulatory bottlenecks, limited collaboration between educational institutions and HR firms, and lack of reliable labor market data constrain the growth and relevance of HR services. (v) **Cultural and Perceptual Barriers:** Many Nigerians still undervalue non-traditional vocational and HR-led training, viewing them as inferior to academic education, which limits demand for these services (Onuka & Akinyemi, 2012). These persistent issues have meant that, despite federal interventions, the capacity of HRE to significantly reduce poverty has not been fully realized. Greater policy alignment, institutional support, and investment in infrastructure and awareness are needed to overcome these enduring barriers. It is against this background this study is designed to examine the impact of human resources entrepreneurship on poverty reduction in Nigeria in the 1990-2024.

Literature Review

Adeleke & Yusuf (2023) defined human resources entrepreneurship as “the process through which individuals apply their skills, knowledge, and capabilities to create and manage new ventures, thereby transforming human capital resources entrepreneurship into economic value”. Adeleke and Yusuf (2023)'s definition offered a forward-thinking view of human resources entrepreneurship, emphasizing the transformation of human capital resources entrepreneurship into economic value. Their definition aligns with modern economic development theories that view human capital resources entrepreneurship as central to national productivity. The article is grounded in practical African contexts, drawing from case studies to highlight how skills and knowledge drive venture creation. However, while the paper is rich in theoretical grounding, it would benefit from more empirical data to support its claims across broader regions.

Ogundele and Balogun (2022) describe it as “the deployment of human resource competencies—such as creativity, leadership, and resilience—toward the establishment and growth of entrepreneurial activities”. Ogundele and Balogun (2022)'s highlights the

importance of core human resource competencies—such as leadership and creativity—in entrepreneurship. Their research emphasizes the soft skills needed to sustain new ventures, making it highly relevant for HR training and curriculum development. The article includes case studies from Nigerian startups, adding practical depth. However, one critique is its narrow geographical focus, which may limit generalization beyond Nigeria.

Hinde (2024) described the informal economy as comprising "economic activities that have market value but are not formally registered or regulated." She emphasizes its potential to drive inclusive growth and innovation, particularly in underserved communities, by supporting workers through access to finance, training, and technology. Hinde's definition is concise and aligns with the widely accepted understanding of the informal sector. It highlights two key characteristics: lack of registration and absence of regulation. What strengthens her contribution is the forward-looking emphasis on leveraging technology, finance, and training to foster inclusive growth within the informal sector. However, the definition does not directly specify what constitutes growth in this sector (e.g., expansion in employment, productivity, or income), leaving it more descriptive than analytical.

Oluwadele (2024) pointed out that the informal sector accounts for approximately 65% of Nigeria's labor force and about 45% of GDP. He underscores its role in providing essential services and employment, especially in rural areas, and advocates for policies that support and integrate the sector into the broader economy to enhance growth and living standards. Oluwadele offered a data-driven and policy-oriented view. His definition is framed more by statistics and the sector's macroeconomic significance. By advocating for integration with the formal economy, he implies that informal sector growth can be enhanced through structural support. However, the focus is again more descriptive than definitional; while it underscores the sector's size and role, it does not define "growth" in operational terms such as increases in productivity, formalization rates, or capital investment.

National Salaries, Incomes and Wages Commission (NSIWC, (2023), informal sector in Nigeria consists of enterprises characterized by "free entry, free exit, perfect market knowledge and market forces determination without regulations." These businesses typically lack formal organizational structures, have low and irregular earnings, and are not registered with the Corporate Affairs Commission (CAC). The NSIWC provides a structured and detailed classification, combining economic theory (free entry/exit, perfect information) with practical traits (lack of registration, irregular income). This definition is useful for policy design as it clearly distinguishes informal enterprises from their formal counterparts. However, by using idealized market terms (like "perfect market knowledge"), it may overgeneralize a sector often marked by *information asymmetries and vulnerability*. Additionally, while it describes the nature of the sector, it does not articulate what "growth" means in the context of such enterprises.

Shelleng (2023) highlighted the informal sector as a vital component of Nigeria's economy, stating that it "provides employment opportunities, generates income and fosters the entrepreneurial spirit." He notes that despite operating outside formal regulatory frameworks,

the sector significantly contributes to national GDP and serves as a safety net for many Nigerians. The NSIWC provides a structured and detailed classification, combining economic theory (free entry/exit, perfect information) with practical traits (lack of registration, irregular income). This definition is useful for policy design as it clearly distinguishes informal enterprises from their formal counterparts. However, by using idealized market terms (like "perfect market knowledge"), it may overgeneralize a sector often marked by *information asymmetries and vulnerability*. Additionally, while it describes the nature of the sector, it does not articulate what "growth" means in the context of such enterprises.

Petreski and Olczyk (2025) described job creation as the "increase in employment resulting from FDI inflows, with effects varying based on sectoral specialization and regional characteristics." This definition underscores the complexity of FDI's impact on employment, revealing that while FDI can enhance job creation, the benefits are not uniformly distributed across sectors and regions. The research highlights the importance of tailored regional policies to maximize employment gains from FDI. Olczyk and Petreski (2024) defined job creation as the "employment opportunities generated through foreign direct investment (FDI) influenced by global value chain (GVC) participation," noting that forward GVC participation boosts FDI-related job creation, while backward participation may reduce it. This research provides a nuanced perspective on how international trade dynamics affect local employment. By distinguishing between forward and backward GVC participation, the study offers valuable insights for policymakers aiming to leverage FDI for job creation.

The Organization for Economic Co-operation and Development (OECD, 2024) defined job creation as the process of generating new employment opportunities, particularly in response to technological advancements and regional labor market needs. The OECD emphasizes the role of generative AI in shaping job creation across different regions. The OECD's approach highlights the importance of aligning job creation strategies with technological developments and regional disparities. By focusing on generative AI's impact, the OECD underscores the need for policies that address both opportunities and challenges in the evolving labor market.

Deckha et al (2025) defined skill development as the cultivation of key skills, mindsets, and knowledge necessary to succeed in the future of work. This includes adapting to technological disruptions, such as automation and AI, and emphasizes the role of curriculum and instructional design in facilitating this development. This definition highlights the interplay between individual skill acquisition and systemic educational strategies, stressing the importance of aligning skill development with the evolving demands of the labor market. Niklasson et al (2024) conceptualized skill development as an entangled process of becoming skilled at work, involving the integration of various practices, tools, and collaborations. They argue that skill is not merely a set of competencies but a dynamic unfolding through multiple and interweaving sets of practices. This perspective offers a nuanced understanding of skill development, focusing on the contextual and collaborative aspects of becoming skilled, rather than viewing skills as static attributes.

The Organization for Economic Co-operation and Development (OECD, 2023) defined skill development as the process of acquiring a diverse range of skills—including information-processing, socio-emotional, and metacognitive skills—and empowering individuals to apply them effectively. This approach is crucial for building resilient economies and societies, especially in the face of environmental challenges and technological transformations. The OECD (2023)'s definition emphasizes the importance of a broad skill set and the effective application of these skills to foster economic and social resilience. It highlights the role of skill development in adapting to emerging threats and promoting inclusive transitions.

Ben Brik and Brown (2024) conceptualized social inclusion as a multidimensional, multilevel, dynamic, and relational concept that encompasses both a process and an outcome. They define it across multiple domains—including environment and neighborhood, civic and cultural, economic, social relations and resources, service provision and access, and health and well-being—spanning various systemic levels such as the individual, family, workplaces, and neighborhoods. This comprehensive definition underscores the complexity of social inclusion, highlighting its multifaceted nature and the importance of considering various societal levels and domains. It reflects the evolving understanding of inclusion as not merely participation but as an intricate interplay of factors across different spheres of life.

Gonzalez and Andvig (2024) defined social inclusion for individuals with mental health and/or substance use challenges as characterized by access to core resources like safe housing and support, active participation in social settings, involvement in reciprocal relationships, and experiences of belonging, autonomy, and authenticity. This definition brings a nuanced perspective by focusing on marginalized populations, emphasizing the existential aspects of inclusion such as belonging and authenticity. It highlights the importance of supportive environments and personal agency in achieving true inclusion.

United Nations Department of Economic and Social Affairs (UNDESA, 2023) defined social inclusion as the process by which efforts are made to ensure equal opportunities for all individuals, regardless of their background, to achieve their full potential in life. This includes policies and actions that promote equal access to public services and enable citizens' participation in decision-making processes that affect their lives. This definition emphasizes the proactive measures required to foster inclusion, focusing on equal access and participatory governance. It aligns with the broader goals of sustainable development and human rights, reinforcing the necessity of structural changes to achieve an inclusive society.

Poverty is a major obstacle and problem facing people in the world. As reported by the Global Multidimensional Poverty Index GMPI (2021), across 107 developing and underdeveloped countries, 1.3 billion people live in multidimensional poverty. The concept of poverty consists of material deprivation (i.e. food, shelter) and limited access to basic services (i.e. health, education). Now it tends to cover a number of intangible conditions such as lack of rights, insecurity, vulnerability, and discrimination (Arshed et al., 2017). Poverty is the inability of a person to meet his/her basic needs of food, shelter and clothing (Brandshaw, 2006). The World Bank has provided monetary measurements of poverty and absolute/extreme poverty

for uniformity and for international comparison. A person is poor if he/she lives on \$1.90 dollar per day (reduced from \$2 per day in 2015, but extremely poor if he/she lives in \$1.25 per day which is the international poverty line (World Bank, 2015).

Hickel (2022) argued that poverty reduction should not be measured solely by income thresholds like the World Bank's \$1.90/day. He contends that such measures are inadequate for ensuring basic nutrition and health. Instead, the author emphasized addressing structural inequalities and the global economic system's role in perpetuating poverty. Hickel (2022)'s perspective challenges conventional metrics of poverty, highlighting the importance of considering broader systemic factors. His critique underscores the need for a more comprehensive understanding of poverty that goes beyond income levels. However, some critics argue that his approach may overlook the practicalities of policy implementation and the progress made using existing measures.

Appiah-Otoo et al (2022) defined poverty reduction as the outcome of effective financial development and institutional quality. Their study emphasizes that financial tools like domestic credit and money supply can reduce poverty, but their effectiveness is contingent upon strong institutions characterized by rule of law, regulatory quality, and control of corruption. This definition highlights the interplay between financial mechanisms and institutional frameworks in poverty alleviation. It provides a pragmatic approach, suggesting that strengthening institutions can enhance the efficacy of financial interventions. However, the model may be limited in addressing non-economic dimensions of poverty, such as social and cultural factors.

This study is anchored on Inclusive Entrepreneurship Theory championed by the organization for Economic Co-operation and Development (OECD, 2014, 2016) which formally conceptualized and advanced the theory. The OECD's 2014 and 2016 reports are widely recognized for framing inclusive entrepreneurship as a systemic approach to ensure that “all people, regardless of their personal characteristics and background, have an equal opportunity to start and run a business” (OECD, 2016). The theory is based on the understanding that entrepreneurship, when made accessible to underrepresented groups, can serve as a powerful mechanism for self-employment, job creation, community development, and ultimately, poverty alleviation. It extends beyond traditional entrepreneurship frameworks by explicitly addressing inequality and focusing on barriers related to access to resources, education, networks, and institutional support. (Morris et al., 2020).

Inclusive Entrepreneurship theory is particularly relevant to the topic of “Impact of Human Resources Entrepreneurship on Poverty Reduction” for several reasons. The theory provides a basis for recognizing and utilizing the entrepreneurial capacities of all segments of the population. In human resources entrepreneurship, developing inclusive strategies to train, mentor, and finance diverse talent pools is essential for poverty reduction. Inclusive entrepreneurship enables disadvantaged individuals—such as unemployed graduates, women, and persons with disabilities—to create employment not only for themselves but for others. This self-reliance directly contributes to poverty alleviation (Omini, 2022).

Human resource entrepreneurship involves investing in the education, skills, and competencies of individuals. Inclusive entrepreneurship complements this by ensuring that such investments lead to productive, income-generating ventures, particularly for those historically excluded from formal economic systems. In the Nigerian context, programs such as YouWin, N-Power, and Tech Herfrica illustrate how inclusive entrepreneurship initiatives tailored to youth, women, and rural populations can serve as strategic poverty reduction tools. By aligning with inclusive entrepreneurship principles, these programs help maximize the impact of human capital resources entrepreneurship investments (Oyelaran-Oyeyinka & Adebowale, 2012). Inclusive Entrepreneurship Theory offers a comprehensive framework for integrating marginalized groups into the entrepreneurial ecosystem. By harnessing the entrepreneurial potential of Nigeria's diverse population through inclusive strategies, the country can make significant strides toward sustainable development and social equity. This theory forms the root of this study.

Several empirical studies have been conducted on the impact of human resources entrepreneurship on poverty reduction around the world. Paul, Christian & Nicole-Adams (2024) examined the impact of human resources entrepreneurship on poverty reduction and unemployment in Bukavu. Through a comprehensive literature review and data analysis using a linear regression on cross-sectional data, the research reveals a trend with individuals' transition from employment to entrepreneurship, particularly after completing studies, leading to a decline in the unemployment rate since 2015. Entrepreneurs also exhibit lower poverty indicators compared to non-entrepreneurs. The study recommends implementing measures, such as tax relief and entrepreneurial education, to encourage entrepreneurship, thereby creating employment opportunities and addressing poverty and unemployment in Bukavu.

Ostonokulov, Sattoriy & Abdullayeva (2023) analyzed how entrepreneurship development incentives can influence the reduction of poverty and help to improve the entrepreneurship environment in world countries. The study used a deductive approach, in which the hypotheses are tested for application across countries. The quantitative method has been used for this approach. The Panel Fixed Effects model has been employed to assess the impact of entrepreneurship and entrepreneurship development incentives on poverty. Overall, the results showed that entrepreneurship in countries around the world has a positive and significant impact on poverty reduction. In addition, entrepreneurship development incentives increase the efficiency and capacity of entrepreneurial activities to reduce poverty.

Idris (2022) examined the link between human resources entrepreneurship and poverty in Nigeria, using annual secondary data covering 1990 to 2020. The Auto-Regressive Distributed Lag (ARDL) Technique was explicitly employed to arrive at the statistical and logical conclusions in determining the impact of human resources entrepreneurship in the face of poverty. In addition, the bound testing approach was used to measure Nigeria's long-run relationship between human resource entrepreneurship and poverty. The study revealed that while Informal Sector Growth and Skill Development Initiatives have statistically significant and positive impact, Unemployment Rate has negative impact on poverty reduction in

Nigeria, based on the short-run ARDL assessment. The study, therefore, concludes that poverty is inescapable and, hence, creates underdevelopment. The study advises governments at all levels to develop and implement policies and programs aimed at improving or enhancing the welfare and well-being of the masses through job creation in order to close the income gap between the affluent and the deprived.

Data and Methodology

Research Design

The study adopts ex-post facto design in order to answer the research questions. To this end, the study employed the ex-post facto research method in examining the impact of human resources entrepreneurship on poverty reduction in Nigeria during the 1990-2024. To this end, the study utilized secondary data on the variables included in the study. The method of analysis will be based on autoregressive distributed lag (ARDL). Some pre-estimation tests will be employed to determine the causal elements in the parameters. The data will be collected from various sources including Central Bank of Nigeria (CBN), National Bureau of statistics (NBS) and World Bank facts file.

This study is anchored on the Inclusive Theory propounded by Organization for Economic Co-operation and Development (OECD, 2014, 2016). The theory is based on the understanding that entrepreneurship, when made accessible to underrepresented groups, can serve as a powerful mechanism for self-employment, job creation, community development, and ultimately, poverty alleviation. It extends beyond traditional entrepreneurship frameworks by explicitly addressing inequality and focusing on barriers related to access to resources, education, networks, and institutional support.

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The model for the study can be summarized in the following functional relationship:

Poverty = f (Human Resources Entrepreneurship, Control Variables).....(1)

Where:

Poverty is the dependent variable, measured using indicators such as income level, consumption pattern, employment status, and access to basic services.

Human Resources Entrepreneurship is the main independent variable, operationalized through indicators such as: Number of self-employed individuals; Rate of enterprise creation; Entrepreneurial training and support; and Employment generation by entrepreneurs. The

Control Variables include: Level of education; Access to credit; Government policy support; Infrastructure availability; and Regional economic conditions.

The empirical analysis will adopt autoregressive distributed lag (ARDL) model to estimate the impact of human resources entrepreneurship on poverty. The ARDL model can be expressed as follows:

$$Y = \beta_0 + \beta_1 y_{t-1} + \dots + \beta_m y_{t-m} + \alpha_0 x_t + \alpha_1 x_{t-1} + \alpha_2 x_{t-2} + \dots + \alpha_q x_{t-n} + U_t \dots \dots \dots (2)$$

Where: β_0 is constant, $\beta_1 \dots \beta_m$ are parameters, $t-n$ represents optimal lag length while U_t is the error term.

The model that will be used in this study is adapted from the work of Idris (2022) who examined the link between human resources entrepreneurship and poverty in Nigeria, using annual secondary data covering 1990 to 2020.

Idris (2022) model is specified as:

$$POR = \beta_0 + \beta_1 ISG + \beta_2 UNR + \beta_3 SDI + U \dots \dots \dots (3)$$

POR = Poverty Rate (dependent variable);

ISG = Informal Sector Growth;

UNR = Unemployment Rate; and

SDI = Skill Development Initiatives;

Model (2) is modified as follows:

$$PORT = \beta_0 + \beta_1 SDIt + \beta_2 UNRt + \beta_3 SDIt + \beta_4 SIPt + \beta_5 PORT-1 + U \dots \dots \dots (4)$$

Where:

$SIPt$ = Social Inclusion Programs at time t ;

Thus, the linear model stated in the log form becomes:

$$\ln PORT = \beta_0 + \beta_1 \ln SDIt + \beta_2 \ln UNRt + \beta_3 \ln SDIt + \beta_4 \ln SIPt + \beta_5 \ln PORT-1 + U \dots \dots \dots (5)$$

Where:

\ln = Logarithm

POR = Poverty Rate (dependent variable);

ISG = Informal Sector Growth;

UNR = Unemployment Rate; and

SDI = Skill Development Initiatives;

$SIPt$ = Social Inclusion Programs at time t ;

β_0 = Intercept

$\beta_1 - \beta_5$ = Coefficients of the independent variables

U = Error term

Based on theoretical and empirical literature, the a priori expectations are that:

- (i) A positive change in human resources entrepreneurship will significantly reduce poverty levels.
- (ii) Education and access to credit will positively influence entrepreneurial success.
- (iii) Government support and infrastructure development will strengthen the poverty-reducing effects of entrepreneurship.

Note that model (5) is double log to convert all the variables to the same unit. The addition of PORT-1 to the model makes it autoregressive distributed lag. The study made use of secondary data collected from various sources including reports and publications of government's ministries, parastatals, and agencies including the World Bank report on economic indices, and various issues National Bureau of Statistics (NBS). In this study, the following methods were used to verify the time-series characteristics of the data before carrying out the analysis.

Methods of Data Analysis

The trends in the variables are captured in separate graph, showing the movement of the variable within the period under review. This is to give an insight regarding the existence of any unique characteristics of the variables over the study period. The study examined some properties of the variables under consideration. To this end, the mean, standard deviation, and probability of each variable was computed and described. The analysis provides information on the statistical properties of the raw data on variables used in the study.

A unit root test is used in time series analysis to determine whether a time series variable is non-stationary and possesses a unit root. The presence of a unit root means that shocks to the system have a permanent effect, and the time series is not mean-reverting. Here's a basic model and process for performing a unit root test, particularly the Augmented Dickey-Fuller (ADF) test, which is the most commonly used unit root test.

The model for unit root test is given as:

$$\Delta Y_t = \alpha + \beta t + \gamma Y_{t-1} + \sum_{i=1}^p \delta_i \Delta Y_{t-i} + U_t \text{-----} (6)$$

Where:

$\Delta Y_t = Y_t - Y_{t-1}$ is the first difference of the time series.

α is a constant (optional).

β is the coefficient of a time trend (optional).

t is the time index.

γ is the coefficient that measures the presence of a unit root.

p is the lag order of the autoregressive process, determined by information criteria like Akaike Information Criterion (AIC) or Bayesian Information Criterion (BIC).

δ_i are the coefficients of the lagged differences to account for higher-order autoregressive processes, and ϵ_t is the error term.

The null hypothesis that $H_0: \beta = 0$ (i.e. β has a unit root), and the alternative hypothesis is $H_1: \beta < 0$ (i.e. β has no unit root). This is to ensure that all the variables are integrated at 1(1) to avoid spurious result.

This study conducted ARDL bound test for cointegration. Firstly, the bounds (Wald F) test is carried out to ascertain the presence of a long-term relationship among the variables of interest using the F-test. Therefore, the decision rule is that if computed F-statistic falls below the lower bound value, 1(0), the null hypothesis (no co- integration) will be accepted. Contrarily, if the computed F-statistic exceeds the upper bound value, I(1) then the null hypothesis (no co- integration) will be rejected.

To determine the direction of causality between the variables, we employed the standard Granger causality test (Granger, 1969). The test is based on error correction (ECM), which suggests that while the past can cause or predict the future, the future cannot predict or cause the past. Thus, according to Granger (1969), Granger causes Y if past values of X can be used to predict Y more accurately than simply using the past values of Y. The test is based on the following regressions:

$$\ln \text{POR}_t = \ln \text{ISG}_{t-1} + \ln \text{POR}_{t-1} + U_t \dots\dots\dots (7)$$

And,

$$\ln \text{ISG}_t = \ln \text{ISG}_{t-1} + \ln \text{POR}_{t-1} + V_t \dots\dots\dots (8)$$

Where ISG_t and POR_t are the variables to be tested while U_t and V_t are white noise disturbance terms. The decision rule is that: if P-value is greater than 0.05, accept the null hypothesis (H₀). Or otherwise.

The next step is to estimate the equation using ordinary least square (OLS) technique. Having ascertained whether or not co-integration exists, then the next step requires the construction of error correction model to model dynamics relationship. The purpose of the error correction model is to indicate the speed of adjustment from the short-run equilibrium to the long-run equilibrium state. The decision rule is that the value of the coefficient of ECM must be negative and fractional.

Equation (5) was estimated by using the autoregressive distributed lag (ARDL) technique. The analysis of error correction and autoregressive lags fully covers both long-run and short-run relationships of the variable under study. The consideration of the available degrees of freedom and type of data determine the decision on lag length. With annual data, two lags are appropriate and will be applied in this study. To achieve this, the study utilized econometric package of E-views 12 version.

Method Hypothesis Testing

In testing the hypotheses, the p-value in the ARDL result was used. The p-value help to determine the individual significance of each of the parameter estimates at a given level of significance. The hypothesis was stated as follows: $H_0: \beta_i = 0$ (parameter estimate is statistically

insignificant). The P-value determines the significance of the variables in the model. The P-value provides a test of the null hypothesis that the true slope coefficients are jointly zero. Decision rule: if P-value > 0.05, we accept H_0 , and conclude that the variable is statistically significance at 5% level of significance, or otherwise.

Data Presentation and Analysis of Results

The secondary data collected for this study are presented in tabular form in appendix A. They were collected on five variables and between 1990 and 2024. The data were used for the descriptive analysis and estimation of regression results. The results of descriptive statistics of poverty rate (POR), Informal Sector Growth (ISG), Skill Development Initiatives (SDI), Social Inclusion Programs (SIP), Unemployment Rate and Lagged value of poverty rate (PORt-1) in Nigeria during the 1990-2024 are presented on table 1. The analysis provides information on the statistical properties of the raw data on variables used in the study.

Table 1: Descriptive Analysis of the Data

	POR	ISG	SDI	SIP	UNR
Mean	79.57143	48.31429	4.428571	4.228571	4.153143
Median	87.00000	51.00000	5.000000	4.000000	4.040000
Maximum	94.00000	65.00000	8.000000	6.000000	5.710000
Minimum	46.00000	34.00000	1.000000	2.000000	3.070000
Std. Dev.	14.45131	8.584430	1.460977	1.059570	0.683752
Skewness	-1.202330	-0.124272	-0.029294	-0.014867	0.845823
Kurtosis	3.219233	1.849487	3.130696	2.125397	3.366765
Jarque-Bera	8.502750	2.020454	0.029916	1.116814	4.369439
Probability	0.014245	0.364136	0.985153	0.572120	0.112509
Sum	2785.000	1691.000	155.0000	148.0000	145.3600
Sum Sq. Dev.	7100.571	2505.543	72.57143	38.17143	15.89555
Observations	35	35	35	35	35

Source: Authors Computation, 2025, using E-view 12 version.

The table 1 reveals that poverty rate (POR) has a mean of 79.57143 and varies from a minimum of 46.00000 to a maximum of 94.00000 and a standard deviation of 14.45131 with a probability value of 0.014245. Informal Sector Growth (ISG) has a mean of 48.31429 and varies from a minimum of 34.00000 to a maximum of 65.00000 and a standard deviation of 8.584430 with a probability value of 0.364136. Skill Development Initiatives (SDI) has a mean of 4.428571 and varies from the minimum of 1.000000 to a maximum of 8.000000 with a standard deviation of 1.460977 and probability of 0.985153. Furthermore, Social Inclusion Programs (SIP) has a mean of 4.228571 and varies from the minimum of 2.000000 to a maximum of 6.000000 with a standard deviation of 1.059570 and probability value of 0.572120. Lastly, Unemployment Rate (UNR) has a mean of 4.153143 and varied from a minimum of 3.070000 to a maximum of 5.710000 and a standard deviation of 0.683752 with a probability value of 0.112509. Again, poverty rate, Informal Sector Growth, Unemployment Rate, Skill Development Initiatives, and Social Inclusion Programs, were all negatively skewed, while unemployment rate was positively skewed. This study investigated the time

series properties of the data by Carrying out a unit root test for stationarity using ADF method. The findings from this test are then presented on table2.

Table 2: Augmented Dickey-Fuller (ADF) unit root test results.

Series	ADF test statistics	5%critical value	Order of integration
POR	-2.631795	-2.951125	I (0)
ISG	-2.538471	-2.954021	I (1)
SDI	-5.250985	-2.951125	I (0)
SIP	-3.693184	-2.960411	I (1)
UNR	-5.252482	-2.951125	I (1)

Source: Authors Computation, 2025, using E-view 12 version.

The results of unit root test shown on table 2 above revealed that all the values of ADF test statistics for variables are each negative. Some absolute values are respectively greater than the absolute critical values at 5% implying that the variables are stationary at 5%. They are also integrated at mixed order, that is, I (0), and I (1). Since they are stationary, the study can now conduct ARDL bound test for cointegration. The results of this test are shown in Table 3.

Table 3: ARDL Bound Test for Cointegration Results

F-Bound Test		H ₀ : No levels Relationship		
Test Statistics	Value	Significance Level	Lower Bound	Upper Bound
F-Statistic	5.462474	5%	2.947	4.088

Source: Author's Computation, 2025 using E-views 12 Version

The results on table 3 showed that the F-statistic (5.462474) is greater than the upper bound value of 4.088 at 5% level of significance. The result indicates that there is association among the variables under investigation. Since all the variables were found to be stationary and cointegrated, the study can now perform error correction mechanism (ECM) test to demonstrate whether or not the variables have long run relationship with one another. The results of error correction mechanism are presented on table 4.

Table 4: Summary of Error Correction Mechanism Test Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DPOR(-1))	0.141501	0.142700	0.991596	0.3427
DISG(-1))	0.434538	0.211135	2.058099	0.0641
DSDI(-1)	0.000740	0.806757	0.000918	0.9993
D(SIP(-1))	-2.550421	1.418970	-1.797375	0.0998
D(UNR(-1))	9.888542	2.765958	3.575088	0.0044
ECM(-1)*	-0.973261	0.140960	-6.904528	0.0010
R-squared	0.900110	Mean dependent var	-1.032258	
Adjusted R-squared	0.812707	S.D. dependent var	13.35286	
S.E. of regression	5.778773	Akaike info criterion	6.652603	
Sum squared resid	534.3074	Schwarz criterion	7.346468	
Log likelihood	-88.11535	Hannan-Quinn criter.	6.878786	
Durbin-Watson stat	2.008889			

Source: Author's Computation, 2025 using E-views 12 Version

The ECM estimates on table 4 indicated that there is correlation between poverty and the four independent variables. This implies that there is an existence of a long-run economic relationship between the dependent variable (POR) and the explanatory variables (ISG, SDI, SIP and UNR). The R-square of 0.900110 (90%) indicates that 90 percent of the result is accounted for by the included explanatory variables meaning that the regression has a good fit, and the ECM p-value of 0.0010 is less than 5% critical value (0.05). This means that the stability condition required to conduct this type of investigation is satisfied. Thus, the ECM is significant, fractional and negative which justifies the above claims. The estimated coefficient value of ECM (-0.973261) has a priori (negative) sign. This is in line with the expectation, and is an indication of the fact that any short-run fluctuations between poverty rate and the independent variables (Informal Sector Growth, Skill Development Initiatives, Social Inclusion Programs, and Unemployment Rate) will adjust to a stable long run relationship between the variables. The coefficient also means that the speed of adjustment is 90%. This is a fast speed of adjustment.

Table 5: Pairwise Granger Causality Test Result

Lags: 2						
Null Hypothesis:	Obs	F-Statistic	Prob.	Decisions	Remark	
ISG does not Granger Cause POR	33	0.70721	0.0016	Reject H_0	Bidirectional	
POR does not Granger Cause ISG		0.25959	0.0032	Reject H_0		
SDI does not Granger Cause POR	33	0.03549	0.0052	Reject H_0	Unidirectional	
POR does not Granger Cause SDI		0.41367	0.0852	Accept H_0		
SIP does not Granger Cause POR	33	2.10045	0.0413	Reject H_0	Unidirectional	
POR does not Granger Cause SIP		0.04885	0.9524	Accept H_0		
UNR does not Granger Cause POR	33	0.08281	0.0207	Reject H_0	Unidirectional	
POR does not Granger Cause UNR		2.61290	0.0911	Accept H_0		

Source: Author's computation, 2025 using E-views 12 Version

The results of granger causality test presented on table 5 reveals that there is causality from Informal Sector Growth (ISG) to Poverty Rate (POR) since the p-value of treasury bills is less than 0.05 we reject the null hypothesis and conclude that ISG granger cause POR. The p-value of POR is less than 0.05 we reject null hypothesis and conclude that POR granger cause ISG. This implies that there is a bidirectional causality between Informal Sector Growth (ISG) and Poverty Rate (POR) in Nigeria. This suggests that, to a large extent Informal Sector Growth tend to exhibit strong influence on gross domestic product in Nigeria during the period of the study and not vice versa. Similarly, it was revealed that there is causality from Skill Development Initiatives (SDI) to Poverty Rate (POR) since the p-value of SDI is less than 0.05. Thus, we reject the null hypothesis and conclude that there is causality from SDI to POR. The p-value of POR is greater than 0.05, hence we accept the null hypothesis and conclude that there is no causality from POR to SDI. This implies that there is a unidirectional causality between Skill Development Initiatives (SDI) and Poverty Rate (POR) in Nigeria. This suggests that, to a large extent Skill Development Initiatives tend to exhibit strong influence on Poverty Rate (POR) in Nigeria during the period of the study.

Furthermore, it was revealed that there is causality from Social Inclusion Programs (SIP) to Poverty Rate (POR) since the p-value of SDI is less than 0.05. Thus, we reject the null hypothesis and conclude that there is causality from SIP to POR. The p-value of POR is greater than 0.05, hence we accept the null hypothesis and conclude that there is no causality from POR to SIP. This implies that there is a unidirectional causality between Social Inclusion Programs (SIP) and Poverty Rate (POR) in Nigeria. This suggests that, to a large extent Social Inclusion Programs tend to exhibit strong influence on Poverty Rate (POR) in Nigeria during the period of the study.

Again, it was revealed that there is causality from Unemployment Rate (UNR) to Poverty Rate (POR) since the p-value of UNR is less than 0.05. Thus, we reject the null hypothesis and conclude that there is causality from UNR to POR. On the other hand, the p-value of POR is greater than 0.05, hence we accept the null hypothesis and conclude that there is no causality from UNR to POR. This implies that there is a unidirectional causality between Unemployment Rate (UNR) and Poverty Rate (POR) in Nigeria. This suggests that, to a large extent Unemployment tend to exhibit strong influence on Poverty Rate (POR) in Nigeria during the period under review.

Table 6: Regression Results of Autoregressive Distributed Lag Model

Dependent Variable: POR

Method: ARDL

Date: 05/25/25 Time: 09:22

Sample (adjusted): 1994 2024

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
POR(-1)	0.168240	0.147974	1.136950	0.2797
ISG(-1)	0.688861	0.439022	1.569079	0.1449
SDI(-1)	-2.460998	1.291992	-1.904808	0.0433
SIP(-1)	6.886120	2.065545	3.333803	0.0067
UNR(-1)	5.290303	2.948662	1.794137	0.1003
C	57.91285	39.83991	1.453639	0.1740
R-squared	0.922998	Mean dependent var		79.19355
Adjusted R-squared	0.909993	S.D. dependent var		15.20837
S.E. of regression	6.969462	Akaike info criterion		6.975184
Sum squared resid	534.3074	Schwarz criterion		7.900337
Log likelihood	-88.11535	Hannan-Quinn criter.		7.276761
F-statistic	6.939613	Durbin-Watson stat		2.008889
Prob(F-statistic)	0.001080			

Source: Author's computation, 2025 using E-views 12 Version

The results on table 6 above reveals the following. It was found that coefficient of Informal Sector Growth (ISG) is positive (0.168240), indicating positive relationship between it and poverty rate (POR) in Nigeria, and this is not in line with a priori expectation. Informal Sector Growth is not statistically significant since its p-value (0.1449) is greater than 0.05. The positive and insignificant impact of Informal Sector Growth on poverty rate in Nigeria could be attributed to the fact that private sector in the country has expanded in the recent times, especially since the introduction the Structural adjustment programme in 1986.

The coefficient (-0.229893) of Skill Development Initiatives (SDI) is negative, indicating negative relationship between it and poverty rate (POR) in Nigeria and this is in line with a priori expectation. Skill Development Initiatives passed the significant test as its probability value (0.0433) is greater than 0.05. The negative and significant impact of Skill Development Initiatives on poverty rate in Nigeria could be attributed to the fact that an increase in Skill Development Initiatives will lead to increase in human capital development and employability, and hence fall in poverty rate in the country.

The coefficient of Social Inclusion Programs (SIP) is positive, indicating positive relationship between Social Inclusion Programs and poverty rate (POR) in Nigeria and this is not in line with a priori expectation. The results from the present study revealed that Social Inclusion Programs have negative and significant impact in determining gross domestic product as its probability value (0.0067) is less than 0.05. The positive and significant impact of Social Inclusion Programs on poverty rate in Nigeria could be attributed to the fact that increase in

Social Inclusion Programs has contributed to empowered poor people leading to decrease in poverty rate in the country.

The coefficient of Unemployment Rate (UNR) is positive, indicating positive relationship between Unemployment Rate and poverty rate (POR) in Nigeria and this is not in line with a priori expectation. The results from the present study revealed that Unemployment Rate has significant impact in determining poverty rate as its probability value (0.0067) is less than 0.05. This finding implies that as more people remain unemployed, poverty rate continued to rise in the country. The value of coefficient of multiple determination (R-square = 0.922998) shows that the variability in the explanatory variables (ISG, SDI, SIP and UNR) explained 92 percent of the changes in poverty rate in Nigeria. This means that the model has good fit. The high value of F-statistic (6.939613) also underscores the good fit of the model. The value of Durbin-Watson stat (2.008889) indicates absence of autocorrelation in time series data.

Conclusion and Recommendations

This study investigated the impact of human resources entrepreneurship on poverty reduction in Nigeria covering 1990-2024. Time series data on poverty rate, Informal Sector Growth, Skill Development Initiatives, Social Inclusion Programs, and unemployment rate, were collected from various sources and used for the estimation. From the data analysis and the discussion of results so far, the findings are summarized viz:

- (i) It was found that there positive and insignificant impact of Informal Sector Growth on poverty rate in Nigeria.
- (ii) It was found that Skill Development Initiatives have negative and significant impact on poverty rate in Nigeria.
- (iii) It was found that there is positive and significant impact of Social Inclusion Programs on poverty rate in Nigeria.
- (iv) The study revealed that Unemployment Rate has positive and significant impact on poverty rate in Nigeria.

Based on the analysis of the results, it can be concluded that human resources entrepreneurship generally has mixed impact poverty reduction in Nigeria. From the findings of this study, the following recommendations are made:

- (i) Although the informal sector shows a positive relationship with poverty reduction, its impact is statistically insignificant, suggesting limited effectiveness. Therefore, it is recommended that the government and stakeholders implement policies aimed at improving the productivity, access to credit, skill acquisition, and formalization of informal sector activities, so as to enhance their capacity to contribute meaningfully to poverty alleviation efforts in Nigeria.
- (ii) Given the significant negative impact of Skill Development Initiatives on poverty in Nigeria, it is recommended that the government and development partners expand and adequately fund these programs, with a focus on aligning training with market demands, increasing accessibility for vulnerable populations, and ensuring effective monitoring and evaluation to maximize their poverty-reducing potential.
- (iii) Since Social Inclusion Programs were found to have a positive and significant impact

on the poverty rate in Nigeria, it is recommended that these programs be thoroughly reviewed to identify and correct inefficiencies, targeting errors, or implementation gaps that may be undermining their objectives, and redesigned to better reach and empower the truly vulnerable populations.

- (iv) Given the positive and significant impact of unemployment on poverty in Nigeria, it is recommended that the government prioritize job creation through targeted economic policies, support for small and medium enterprises (SMEs), vocational training, and investment in labor-intensive sectors to effectively reduce unemployment and, consequently, alleviate poverty.

To achieve the recommendations of this study, government should Expand Technical and Vocational Education and Training (TVET) centers across all geopolitical zones, Create conditional cash transfer programs linked to skills acquisition and microenterprise participation for vulnerable populations, provide subsidized microcredit and business development services through cooperatives and community banks, and offer start-up grants, tax holidays, and mentorship for youth-led enterprises and innovations. These will go a long way in reducing poverty in Nigeria.

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Informal Sector Growth (%), Unemployment Rate (%), Skill Development Initiatives, Social Inclusion Programs, and Poverty Rate (%) in Nigeria, 1990-2024

Year	ISG	UNR	SDI	SIP	POR
1990	38	3.64	7	5	88
1991	37	3.74	6	3	76
1992	35	3.71	4	4	78
1993	34	3.92	3	5	88
1994	37	3.96	8	6	87
1995	36	4.04	3	5	90
1996	39	3.87	3	4	93
1997	37	3.69	3	6	90
1998	38	3.74	3	5	89
1999	46	4.14	4	4	88
2000	54	4.50	5	4	91
2001	60	5.07	6	2	85
2002	55	5.71	5	4	75
2003	43	3.07	4	5	94
2004	45	4.30	4	4	67
2005	52	4.04	5	5	64
2006	50	3.87	5	6	56
2007	55	3.69	5	3	87
2008	54	3.74	4	3	76
2009	60	4.14	6	3	80
2010	55	4.50	5	3	90
2011	43	5.07	4	4	68
2012	45	5.71	4	5	86
2013	52	3.07	2	6	88
2014	51	4.30	1	5	89
2015	56	4.04	5	4	90
2016	54	3.87	4	4	92
2017	65	3.69	5	5	92
2018	60	3.74	6	5	91
2019	55	4.14	5	3	76
2020	43	4.50	3	3	86
2021	45	5.07	5	3	46
2022	52	5.71	2	3	47
2023	54	3.07	5	4	46
2024	56	4.30	6	5	56

Sources: National Bureau of Statistics
Federal Ministry of Labor and Productivity
Federal Ministry of Finance