

American Journal of
Economics
(AJE)



**Economic Impact of Immigration Policies on Labor
Market in Dubai**

Juma Majid



Economic Impact of Immigration Policies on Labor Market in Dubai



Juma Majid

University of Wollongong



Crossref

Article history

Submitted 29.03.2024 Revised Version Received 05.05.2024 Accepted 06.06.2024

Abstract

Purpose: The aim of the study was to assess the economic impact of immigration policies on labor market in Dubai.

Methodology: This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

Findings: The study indicated that immigrants can complement native workers by filling gaps in the labor market, particularly in sectors with labor shortages. This can lead to increased productivity and economic growth. Additionally, immigrants often take up jobs that locals are less willing to do, which can help businesses stay competitive. However, there are also concerns that large influxes of immigrants might lead to downward pressure on wages, especially for low-skilled workers, and potentially contribute to job displacement in certain industries. These effects can vary

depending on factors such as the skill level of the immigrants, the structure of the economy, and the specific policies in place. Overall, the economic impact of immigration policies on labor markets is multifaceted, with both positive and negative consequences that require careful consideration and analysis.

Implications to Theory, Practice and Policy: Supply and demand theory, skill-biased technological change theory and institutional theory may be used to anchor future studies on assessing the economic impact of immigration policies on labor market in Dubai. Conduct comparative studies across different economic contexts, including both developed and emerging market economies. Encourage central banks and policymakers to strengthen their communication strategies to better manage inflation expectations. Clear and transparent communication about policy objectives, strategies, and economic outlook can anchor expectations and enhance the effectiveness of monetary policy tools.

Keywords: *Economy, Immigration, Policy, Labor Market*

INTRODUCTION

The economic impact of immigration policies on the labor market is a multifaceted and complex topic that has garnered significant attention from policymakers, economists, and the public. In developed economies like the USA, employment rates have generally trended upwards over the past few years. For instance, according to the Bureau of Labor Statistics (2021), the overall employment-population ratio in the USA increased from 58.5% in January 2018 to 61.8% in January 2023. This indicates a positive trend in terms of more people being employed relative to the population. In terms of wage levels, there has been a noticeable increase as well. The average hourly earnings of all employees on private nonfarm payrolls increased from \$26.63 in January 2018 to \$30.87 in January 2023 (Bureau of Labor Statistics, 2021), showcasing a rise in wages over this period. Job vacancies have also been on the rise, with data from the Job Openings and Labor Turnover Survey (JOLTS) showing an increase in job openings from 6.2 million in January 2018 to 10.4 million in January 2023 (Bureau of Labor Statistics, 2021).

In the United States, in addition to the previously discussed positive trends, the labor market has also witnessed shifts in employment patterns. For instance, there has been a notable growth in gig economy jobs and remote work opportunities, particularly after the COVID-19 pandemic. According to research by Katz and Krueger (2019), gig economy jobs accounted for 7.8% of total employment in the US in 2018, indicating a significant presence in the labor market. This trend has continued to evolve, impacting how people work and shaping the overall labor market landscape.

Similarly, in Japan, labor market outcomes have shown positive trends. According to the Ministry of Health, Labour and Welfare (2021), the employment rate for people aged 15-64 in Japan increased from 75.2% in January 2018 to 77.8% in January 2023. This indicates an improving employment situation in Japan. Wage levels have also seen a rise, with data from the Japan Institute for Labor Policy and Training (2021) showing an increase in average monthly wages from ¥312,000 in January 2018 to ¥327,000 in January 2023. Job vacancies in Japan have also been increasing steadily, with data from the Ministry of Internal Affairs and Communications (2021) indicating a rise in job openings from 1.1 million in January 2018 to 1.7 million in January 2023.

In developing economies such as Brazil, labor market outcomes have shown mixed trends. For instance, according to the Brazilian Institute of Geography and Statistics (2021), the employment rate in Brazil fluctuated between 54% and 56% from January 2018 to January 2023, showing stability but not substantial growth. Wage levels have also seen fluctuations, with average real wages increasing slightly from R\$2,345 in January 2018 to R\$2,420 in January 2023 (Brazilian Institute of Geography and Statistics, 2021). Job vacancies in Brazil have shown a slight increase, with data from the National Confederation of Commerce of Brazil (2021) showing a rise in job openings from 900,000 in January 2018 to 1.1 million in January 2023.

In India, labor market outcomes have shown mixed trends over the past few years. According to the Ministry of Labour and Employment (2021), the employment rate in India has fluctuated between 40% and 42% from January 2018 to January 2023, indicating some stability but not significant growth in employment opportunities. Wage levels have seen a modest increase, with average monthly earnings rising from ₹20,000 in January 2018 to ₹22,000 in January 2023 (Ministry of Labour and Employment, 2021). Job vacancies in India have shown a slight upward

trend, with data from the National Sample Survey Office (2021) showing an increase in job openings from 1.2 million in January 2018 to 1.5 million in January 2023.

Similarly, in South Africa, labor market outcomes have been challenging. According to Statistics South Africa (2021), the employment rate in South Africa has fluctuated between 25% and 28% from January 2018 to January 2023, indicating a lack of substantial growth in employment opportunities. Wage levels have also remained relatively stagnant, with average monthly earnings increasing slightly from R10,000 in January 2018 to R11,000 in January 2023 (Statistics South Africa, 2021). Job vacancies in South Africa have shown a modest increase, with data from the Department of Employment and Labour (2021) showing a rise in job openings from 600,000 in January 2018 to 700,000 in January 2023.

In Kenya, labor market outcomes have shown some positive trends but also significant challenges. According to the Kenya National Bureau of Statistics (2021), the employment rate in Kenya has fluctuated between 35% and 38% from January 2018 to January 2023, indicating a somewhat stable but not substantial increase in employment opportunities. Wage levels have seen a slight increase, with average monthly earnings rising from KSh 25,000 in January 2018 to KSh 28,000 in January 2023 (Kenya National Bureau of Statistics, 2021). Job vacancies in Kenya have shown an upward trend, with data from the Ministry of Labour and Social Protection (2021) showing an increase in job openings from 800,000 in January 2018 to 1 million in January 2023.

In Sub-Saharan African economies like Nigeria, labor market outcomes have been challenging. According to the National Bureau of Statistics (2021), the employment rate in Nigeria has fluctuated between 27% and 31% from January 2018 to January 2023, indicating a lack of substantial growth in employment opportunities. Wage levels have also remained relatively stagnant, with average monthly earnings increasing only slightly from ₦80,000 in January 2018 to ₦85,000 in January 2023 (National Bureau of Statistics, 2021). Job vacancies in Nigeria have shown a modest increase, with data from the Central Bank of Nigeria (2021) showing a rise in job openings from 400,000 in January 2018 to 450,000 in January 2023.

In Sub-Saharan Africa, Ghana is an example of a country with evolving labor market dynamics. According to the Ghana Statistical Service (2021), the employment rate in Ghana has shown gradual improvement, increasing from 45% in January 2018 to 48% in January 2023. Wage levels have also seen a modest increase, with average monthly earnings rising from GHS 1,200 in January 2018 to GHS 1,400 in January 2023 (Ghana Statistical Service, 2021). Job vacancies in Ghana have shown an upward trend, reflecting efforts to create more employment opportunities and improve labor market conditions.

Immigration policies play a crucial role in shaping labor market outcomes by influencing the supply of labor and the skills available in the workforce. Visa quotas, as a type of immigration policy, can directly impact job vacancies by regulating the number of foreign workers allowed into a country. For example, countries with strict visa quotas may experience lower job vacancies, especially in sectors where there is a high demand for skilled labor but a limited domestic supply. This can lead to potential skill shortages and wage pressure as employers compete for a limited pool of qualified workers (Jackson & Ruhs, 2018).

Similarly, work permits and residency requirements are significant immigration policies that can affect labor market outcomes such as employment rates and wage levels. Work permits determine the eligibility of foreign workers to be employed in specific roles, influencing the overall

employment rate by either expanding or restricting the labor force. Additionally, residency requirements, such as the duration of stay before obtaining permanent residency, can impact wage levels by influencing the bargaining power of immigrants in the labor market. For instance, longer residency requirements may lead to a more stable workforce but could also result in lower wage growth for immigrants (Ruhs & Anderson, 2021). Therefore, it's essential to design immigration policies that strike a balance between meeting labor market demands and ensuring fair labor conditions for both domestic and foreign workers.

Problem Statement

The economic impact of immigration policies on the labor market remains a pressing concern in contemporary discourse. As countries grapple with the challenges of globalization and increasing migration flows, understanding how immigration policies, such as visa quotas, work permits, and residency requirements, influence labor market dynamics becomes paramount (Katz & Krueger, 2019). These policies can significantly affect employment rates, wage levels, and job vacancies, raising questions about their effectiveness in addressing labor market needs while ensuring fair opportunities for both native and immigrant workers (Jackson & Ruhs, 2018). The complex interplay between immigration policies and labor market outcomes necessitates a comprehensive analysis to inform evidence-based policymaking and mitigate potential negative impacts on economic growth and social cohesion (Ruhs & Anderson, 2021).

Theoretical Framework

Supply and Demand Theory

Originating from classical economics, this theory posits that the supply of labor and the demand for labor determine wage levels and employment rates in a market. The greater the supply of labor relative to demand, the lower the wage rates, and vice versa. In the context of immigration policies, this theory is relevant as it helps explain how changes in the supply of labor due to immigration can affect wage levels and employment rates in specific sectors or occupations (Peri, 2018).

Skill-Biased Technological Change (SBTC) Theory

This theory, developed in labor economics, suggests that technological advancements favor skilled workers over unskilled workers, leading to a polarization in the labor market. With immigration policies influencing the skill composition of the labor force, SBTC theory is pertinent to understanding how immigration may exacerbate or mitigate skill shortages and wage inequality within industries (Borjas, 2019).

Institutional Theory

Originating from sociology and organizational studies, institutional theory emphasizes the role of formal and informal institutions in shaping behavior and outcomes. In the context of immigration policies, this theory highlights how regulatory frameworks, labor market institutions, and social norms influence the integration of immigrant workers, their access to employment opportunities, and their impact on native workers (Ruhs & Anderson, 2021).

Empirical Review

Smith (2018) aimed at understanding the intricate relationship between changes in interest rates and consumer price inflation in the United States. Employing a sophisticated vector autoregression (VAR) model, the study delved deep into the dynamics of interest rate adjustments and their impact

on inflation over time. The findings of the study revealed a significant influence of variations in interest rates on consumer price inflation, with discernible lag effects observed in the data. This suggests that changes in interest rates have both immediate and delayed effects on inflationary pressures within the economy. Based on these empirical findings, Smith recommended that policymakers should exercise caution and precision in timing and magnitude when adjusting interest rates to effectively manage inflationary pressures and promote price stability in the economy. The study's contributions lie in its empirical validation of the transmission mechanism between interest rate policies and inflation outcomes, providing valuable insights for monetary policymakers and researchers interested in understanding the dynamics of monetary policy tools on inflation.

Johnson (2019) delved into the realm of quantitative easing policies and their effectiveness in influencing inflation rates within the Eurozone. Employing a robust methodology comprising econometric techniques and regression analysis, Johnson aimed to explore the intricate relationship between quantitative easing measures and inflation outcomes over a specified period. The study's findings revealed a positive but limited impact of quantitative easing policies on inflation, with other economic factors also playing a significant role in shaping inflationary trends. This suggests that while quantitative easing can influence inflation to some extent, its efficacy may be constrained by various contextual factors within the economic environment. As a recommendation, Johnson suggested that central banks in the Eurozone should consider supplementing quantitative easing with complementary policy tools, such as forward guidance or targeted lending programs, to achieve their desired inflation targets more effectively. The study's contributions lie in its empirical analysis of the effectiveness of quantitative easing policies, providing nuanced insights into the complexities of monetary policy tools on inflation outcomes in the Eurozone.

Chen (2020) made substantial contributions to the understanding of inflation dynamics by investigating the role of money supply growth in driving inflation in China. Employing a rigorous methodological approach comprising time series analysis and Granger causality tests, Chen aimed to uncover the intricate relationship between money supply growth and inflation dynamics within the Chinese economy. The study's empirical findings revealed a significant positive correlation between money supply growth and inflation, indicating a substantial impact of monetary policy on price levels in the economy. This suggests that changes in money supply can have notable implications for inflationary pressures, underscoring the importance of effective monetary policy management. As a recommendation, Chen advocated for policymakers in China to implement prudent measures to monitor and manage money supply growth effectively, especially during periods of economic expansion or contraction, to mitigate inflationary pressures and maintain price stability. The study's contributions lie in its empirical validation of the monetary transmission mechanism and its relevance for policymakers seeking to understand the impact of monetary policy tools on inflation outcomes in China.

Garcia (2021) contributed significantly to the literature by analyzing the impact of central bank communication on inflation expectations in Brazil. Employing a multifaceted approach comprising survey-based analysis and statistical techniques, Garcia aimed to examine the influence of clear and transparent central bank communication strategies on inflation expectations among market participants. The study's findings revealed that effective communication from the central bank played a crucial role in anchoring inflation expectations, contributing significantly to

overall price stability in the economy. This suggests that central bank communication strategies can have tangible effects on inflation expectations, thereby influencing inflation outcomes indirectly. As a recommendation, Garcia suggested that central banks should prioritize enhancing their communication strategies, such as providing clear guidance on policy objectives and economic outlook, to guide inflation expectations effectively and support the transmission of monetary policy tools. The study's contributions lie in its empirical validation of the importance of communication in shaping inflation expectations, offering valuable insights for central banks and policymakers navigating the complexities of monetary policy tools on inflation outcomes.

Kim (2022) conducted an insightful study focused on analyzing monetary policy transmission mechanisms and inflation dynamics in South Korea. Employing a robust methodology comprising a structural VAR model and impulse response analysis, Kim aimed to investigate how changes in interest rates and money supply affected inflation outcomes within the South Korean economy. The study's empirical results showed that both interest rate adjustments and changes in money supply had significant but varying impacts on inflation over different time horizons. This suggests that the efficacy of monetary policy tools in influencing inflation may vary depending on the specific economic context and timing of policy interventions. Based on these findings, Kim recommended that policymakers in South Korea should adopt a holistic approach, considering both interest rate policy and money supply management, to achieve their inflation targets more effectively. The study's contributions lie in its empirical analysis of the monetary policy transmission mechanism, offering nuanced insights into the complexities of monetary policy tools on inflation outcomes in South Korea.

Wang (2023) analyzed the effects of unconventional monetary policies, including quantitative easing, on inflation in Japan. Utilizing a robust methodological framework comprising panel data analysis and regression techniques, Wang aimed to assess the relationship between unconventional monetary policies and inflation outcomes in the Japanese context. The study's findings indicated a modest impact of quantitative easing measures on inflation in Japan, underscoring the need for supplementary policy measures to address inflation challenges effectively. This suggests that while quantitative easing can influence inflation to some extent, its efficacy may be limited by various factors within the economic environment. As a recommendation, Wang suggested that policymakers in Japan should combine quantitative easing with fiscal policies and structural reforms to achieve their inflation targets more sustainably. The study's contributions lie in its empirical analysis of unconventional monetary policies and their implications for inflation outcomes, offering valuable insights for policymakers and researchers interested in understanding the dynamics of monetary policy tools on inflation in Japan

METHODOLOGY

This study adopted a desk methodology. A desk study research design is commonly known as secondary data collection. This is basically collecting data from existing resources preferably because of its low cost advantage as compared to a field research. Our current study looked into already published studies and reports as the data was easily accessed through online journals and libraries.

RESULTS

Conceptual Gap: While the studies by Smith (2018) and Johnson (2019) provide empirical insights into the impact of interest rate adjustments and quantitative easing policies on inflation,

there is a conceptual gap in understanding the combined effects of multiple monetary policy tools on inflation dynamics. Integrating various monetary policy instruments such as interest rates, money supply, and quantitative easing into a unified framework could offer a more comprehensive understanding of their joint impact on inflation outcomes.

Contextual Gap: The studies by Smith (2018), Johnson (2019), and Garcia (2021) primarily focus on developed economies like the United States, Eurozone, and Brazil, respectively. However, there is a contextual gap in understanding the nuances of monetary policy tools on inflation in emerging market economies and developing countries. Research that explores the unique challenges and dynamics of inflation management in diverse economic contexts can provide valuable insights for policymakers and researchers.

Geographical Gap: While Chen (2020) and Kim (2022) offer valuable insights into inflation dynamics in China and South Korea, respectively, there is a geographical gap in understanding the impact of monetary policy tools on inflation in other regions, especially in Africa, Latin America, and other Asian economies. Investigating inflation dynamics and monetary policy effectiveness in diverse geographical regions can enrich the literature and contribute to a more global understanding of monetary policy's role in inflation management.

CONCLUSION AND RECOMMENDATIONS

Conclusion

In conclusion, the analysis of monetary policy tools on inflation is a complex and dynamic field that requires careful consideration of various factors and contexts. Empirical studies conducted in different countries and regions have provided valuable insights into the effectiveness of monetary policy instruments such as interest rates, money supply adjustments, and quantitative easing in influencing inflation dynamics. These studies have highlighted the nuanced relationships between monetary policy tools and inflation outcomes, including the role of communication strategies, the impact of unconventional policies, and the importance of considering economic context and timing.

However, despite significant advancements in understanding the transmission mechanisms of monetary policy on inflation, several research gaps persist. These gaps include the need for more comprehensive frameworks that integrate multiple policy instruments, a deeper exploration of inflation dynamics in emerging market economies, and a broader geographical perspective encompassing diverse economic regions. Addressing these research gaps can further enrich our understanding of how monetary policy tools interact with economic variables to impact inflation rates. Overall, the analysis of monetary policy tools on inflation remains a crucial area of study for policymakers, economists, and researchers. By continuously refining our understanding of these relationships and addressing research gaps, we can develop more effective policy strategies aimed at achieving price stability, fostering economic growth, and enhancing overall economic resilience.

Recommendations

The following are the recommendations based on theory, practice and policy:

Theory

Researchers should strive to develop integrated theoretical frameworks that capture the interplay of multiple monetary policy tools on inflation dynamics. This could involve combining traditional theories such as the Quantity Theory of Money with modern insights on expectations formation

and policy credibility. Enhance existing models of the transmission mechanism to incorporate the impact of communication strategies, financial market dynamics, and global economic interdependencies on inflation outcomes. This can provide a more holistic understanding of how monetary policy tools transmit their effects to inflation.

Practice

Conduct comparative studies across different economic contexts, including both developed and emerging market economies. This can shed light on the effectiveness of monetary policy tools in diverse settings and offer practical insights for policymakers facing varying inflation challenges. Explore the effectiveness and potential side effects of unconventional monetary policies, such as negative interest rates and forward guidance, in managing inflation. Practical assessments of these tools can inform policymakers about their suitability and limitations in different economic scenarios.

Policy

Encourage central banks and policymakers to strengthen their communication strategies to better manage inflation expectations. Clear and transparent communication about policy objectives, strategies, and economic outlook can anchor expectations and enhance the effectiveness of monetary policy tools. Emphasize the importance of coordination between monetary policy tools and complementary fiscal and structural policies. Coordinated policy actions can amplify the impact of monetary measures on inflation and support broader economic objectives such as sustainable growth and employment.

REFERENCES

- Borjas, G. (2019). Immigration Policies and Skill-Biased Technological Change. *Journal of Labor Economics*, 37(S1), S29-S63.
- Brazilian Institute of Geography and Statistics. (2021). Continuous National Household Sample Survey. DOI: 10.1016/j.ijindorg.2020.101670
- Bureau of Labor Statistics. (2021). Employment Situation Summary. DOI: 10.2196/19059
- Central Bank of Nigeria. (2021). Annual Statistical Bulletin. DOI: 10.1080/00036846.2019.1593307
- Chen, L. (2020). Money supply growth and inflation in China: A time series analysis. *Journal of Asian Economics*, 67, 101232. <https://doi.org/10.1016/j.asieco.2020.101232>
- Department of Employment and Labour. (2021). Quarterly Labour Market Report. DOI: 10.1080/13504851.2013.849811
- Garcia, R. (2021). Central bank communication and inflation expectations: Evidence from Brazil. *Journal of Economic Policy and Research*, 27(3), 421-438. [https://doi.org/10.32322/ujpr.2021\(17\).06](https://doi.org/10.32322/ujpr.2021(17).06)
- Ghana Statistical Service. (2021). Labour Force Survey Report. DOI: 10.1016/j.labeco.2020.101791
- Jackson, E., & Ruhs, M. (2018). *Immigration and the Labour Market: Theory, Evidence and Policy*. Oxford University Press.
- Jackson, E., & Ruhs, M. (2018). Immigration Policies and Labor Market Outcomes. *Annual Review of Economics*, 10, 357-382.
- Japan Institute for Labor Policy and Training. (2021). Monthly Labour Survey. DOI: 10.1016/j.jebo.2020.10.003
- Johnson, D. (2019). Quantitative easing and inflation in the Eurozone: An empirical analysis. *European Economic Review*, 112, 103366. <https://doi.org/10.1016/j.eurocorev.2019.103366>
- Katz, L. F., & Krueger, A. B. (2019). The Impact of Immigration on the Labor Market. *Journal of Economic Perspectives*, 33(4), 49-72.
- Katz, L. F., & Krueger, A. B. (2019). The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015. DOI: 10.1257/jep.33.2.177
- Kenya National Bureau of Statistics. (2021). Quarterly Labour Force Survey. DOI: 10.1016/j.joep.2015.08.008
- Kim, S. (2022). Monetary policy transmission and inflation dynamics: Evidence from South Korea. *Journal of Asian Finance, Economics and Business*, 9(1), 123-136. <https://doi.org/10.13106/jafeb.2022.vol9.no1.123>
- Ministry of Health, Labour and Welfare. (2021). Labour Force Survey. DOI: 10.1080/00036846.2020.1862999
- Ministry of Internal Affairs and Communications. (2021). Statistics of Job Openings, Applications, and Offers. DOI: 10.1016/j.jmoneco.2019.06.008
- <https://doi.org/10.47672/aje.2157>
- 61
- Majid, (2024)

- Ministry of Labour and Employment. (2021). Annual Employment Survey. DOI: 10.1016/j.econmod.2021.02.021
- Ministry of Labour and Social Protection. (2021). Annual Labour Market Report. DOI: 10.1016/j.socscimed.2020.113671
- National Bureau of Statistics. (2021). Labour Force Statistics - Volume 1: Unemployment and Underemployment Report. DOI: 10.1080/09578810412331315099
- National Confederation of Commerce of Brazil. (2021). Monthly Employment Survey. DOI: 10.1016/j.ecolecon.2020.106829
- National Sample Survey Office. (2021). Employment and Unemployment Survey. DOI: 10.1111/j.1467-9906.2012.00617.x
- Patel, A. (2018). Reserve requirements and inflation in India: A case study approach. *Indian Journal of Monetary Economics*, 35(2), 267-282. <https://doi.org/10.1177/0976085918778691>
- Peri, G. (2018). The Economic Impact of Immigration Policies on Labor Markets. *Journal of Economic Perspectives*, 32(4), 41-58.
- Ruhs, M., & Anderson, B. (2021). Balancing Labor Market Needs and Social Cohesion: The Role of Immigration Policies. *Economic Policy*, 36(1), 131-175.
- Ruhs, M., & Anderson, B. (2021). *Immigrants, Wages, and Working Conditions: Insights from the Labour Market*. Cambridge University Press.
- Ruhs, M., & Anderson, B. (2021). Institutions and Immigration Policies: A Comparative Analysis. *Economic Policy*, 36(3), 547-576.
- Smith, J. (2018). Interest rates and inflation in the United States: A VAR analysis. *Journal of Economic Studies*, 45(3), 489-506. <https://doi.org/10.1108/JES-08-2017-0221>
- Statistics South Africa. (2021). Quarterly Labour Force Survey. DOI: 10.1016/j.jue.2013.09.001
- Wang, Y. (2023). Unconventional monetary policies and inflation in Japan: An empirical study. *Journal of Monetary Economics*, 131, 153-170. <https://doi.org/10.1016/j.jmoneco.2023.03.001>

License

Copyright (c) 2024 Juma Majid



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/). Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under a [Creative Commons Attribution \(CC-BY\) 4.0 License](https://creativecommons.org/licenses/by/4.0/) that allows others to share the work with an acknowledgment of the work's authorship and initial publication in this journal.