Estimating a job vacancy duration model to include a range of labour market variables and labour slack in Netherlands Economy

Sneha Vardhan

Master of Science in International Business

National College of Ireland

Abstract

Introduction

The labor market of the Netherlands, which is distinguished by high rates of participation and strong social safety nets, is essential to the economic stability of the nation. Comprehending the length of job openings is essential for evaluating the productivity and efficiency of the labor market. In order to examine the effects of economic factors including GDP, inflation rate, unemployment rate, minimum wages, and vacancy rate, this study examines job vacancy lengths from 1997 to 2023. The study uses both the friction cost approach, which takes into account the economy's capacity to replace people, and the human capital approach, which calculates productivity losses based on prospective future wages. This two-pronged strategy seeks to both influence policy-making and offer insights into the economic consequences of job openings.

Objective

This study's main goal is to estimate the length of job vacancies in the Dutch labor market using a recently assembled dataset that extends until 2023. The study intends to expand the current vacancy duration equation to account for current circumstances and investigate the influence of economic variables on vacancy durations. The research aims to improve understanding of the factors influencing job vacancy durations and provide policy recommendations for enhancing labor market efficiency by comparing the friction cost and human capital methods.

Method

Using a large dataset spanning from 1997 to 2023, this study uses a quantitative methodology to examine GDP, inflation, unemployment, minimum salaries, and vacancy rates. In order to evaluate variable correlations, collinearity, and important assumptions, multiple linear regression is utilized to examine the links between these factors and job vacancy durations. A more comprehensive formula for the length of vacancies is created, and statistical analysis is conducted using SPSS software, offering a solid assessment of labor market dynamics.

Results

The results of the analysis showed that the vacancy rate is a strong predictor of the length of job openings, with a positive correlation showing that longer durations are associated with greater vacancy rates. With an R^2 of 0.981, the model fits the data quite well, accounting for 98.1% of the variation in vacancy lengths. Although there were no significant direct effects observed for GDP, inflation, unemployment, or minimum wages, the model as a whole was statistically significant (F-statistic = 194.921, $p < 0.001$). The Durbin-Watson statistic showed no discernible autocorrelation, however the results of normality tests were inconsistent. Typical diagnostic values did not raise concerns about multicollinearity.

Conclusion

The results of the analysis showed that the vacancy rate is a strong predictor of the length of job vacancies, with a positive connection suggesting that hThe study shows that the vacancy rate has a major impact on the length of employment vacancies in the Netherlands, while the direct influence of other variables is shown to be modest. In order to alleviate labor market inefficiencies and increase productivity, focused policy actions are necessary, as evidenced by the strong model fit and significant predictors.

Keywords: Job Vacancy Duration, Labor Market Efficiency, Human Capital Approach, Friction Cost Approach, Netherlands, Linear Regression, Economic Variables, Policy Recommendations

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The analysis revealed that vacancy rate is a significant predictor of job vacancy durations, with a positive correlation indicating that hThe study highlights the significant impact of	The results of the analysis showed that the vacancy rate is a strong predictor of the length of job vacancies, with a positive connection suggesting that hThe study shows that the

vacancy rate on job vacancy durations in the Netherlands, with other variables showing limited direct influence. The robust model fit and significant predictors underscore the need for targeted policy interventions to address labor market inefficiencies and enhance productivity.	vacancy rate has a major impact on the length of employment vacancies in the Netherlands, while the direct influence of other variables is shown to be modest. In order to alleviate labor market inefficiencies and increase productivity, focused policy actions are necessary, as evidenced by the strong model fit and significant predictors.

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VD	Vacancy Duration
VR	Vacancy Rate
GDP	Gross Domestic Products
MW	Minimum Wage
IR	Inflation Rate
UR	Unemployment Rate
CBS	Central Bureau Statistics
HC	Human Capital
FCA	Friction Cost Approach
WBD	World Bank Data
M	Filled job vacancies
V	Unfilled Job vacancies

CHAPTER 1: INTRODUCTION

1.1 Introduction

Understanding labor market dynamics is pivotal for optimizing economic performance and addressing employment challenges. In the Netherlands, a country characterized by its sophisticated labor market mechanisms and robust economic framework, the duration of job vacancies serves as a critical indicator of labor market efficiency and economic health. Job vacancy duration, defined as the time between the posting of a job and its successful fill, reflects the interplay between labor supply and demand, economic conditions, and policy interventions (Dur, 1999).

According to recent studies, a number of macroeconomic parameters, such as the GDP, inflation rates, and unemployment rates, have an impact on how long jobs remain vacant. GDP growth is frequently associated with better labor market conditions, which promote job creation and shorten the period of open positions as companies grow and recruit more quickly (Han & Li, 2021). Conversely, inflation affects wage expectations and cost structures, which can impact both job vacancies and hiring practices (Eurostat, 2022). High inflation may lead to longer vacancy durations as employers and job seekers adjust to changing economic conditions.

Unemployment rates play a crucial role in shaping job vacancy durations. High unemployment generally indicates an oversupply of labor, which could theoretically reduce vacancy durations as more candidates are available. However, high unemployment can also lead to longer vacancy periods if job seekers' skills do not match employers' needs, creating a mismatch in the labor market (Mortensen & Pissarides, 1994). The complexity of this relationship is underscored by the Beveridge Curve, which illustrates the inverse relationship between job vacancy rates and unemployment rates (Elsby, Michaels, & Ratner, 2015).

Minimum wage policies also influence job vacancy durations by affecting employers' cost structures and the attractiveness of certain job positions (Smith, Patel, & Zhao, 2020). Changes in minimum wage can either shorten or lengthen vacancy durations depending on whether they increase or decrease job market efficiency.

This study aims to develop a comprehensive empirical model to estimate job vacancy durations in the Netherlands, integrating various macroeconomic and labor market factors. By utilizing data from Statistics Netherlands (CBS), Eurostat, and the World Bank, spanning from 1997 to 2023, this research seeks to provide a detailed analysis of how GDP, inflation, unemployment rates, and minimum wages impact job vacancy durations.

The significance of this research lies in its potential to inform labor market policies and business strategies. Understanding the factors that influence job vacancy durations can help policymakers design effective interventions to improve job matching and reduce vacancy periods. Businesses can also benefit from these insights by optimizing their hiring practices and adjusting to economic changes more effectively.

1.2 Research Aim

The main objective of this study is to create a thorough regression model in order to experimentally investigate the factors that influence the length of job vacancies in the Netherlands. The research focuses on the following particular goals.:

To examine the impact of Gross Domestic Product (GDP) on job vacancy durations. Economic growth is expected to affect the demand for labor and job vacancy durations, as higher GDP typically corresponds with increased business activity and hiring (Han & Li, 2021).

To assess the effect of inflation rates on job vacancy durations. Inflation can influence wage expectations and employer costs, which in turn may impact the length of job vacancies (Eurostat, 2022).

To investigate the role of unemployment rates in shaping job vacancy durations. The relationship between unemployment and vacancy durations is complex, with potential implications for labor market efficiency and job matching (Mortensen & Pissarides, 1994).

To evaluate the influence of minimum wage policies on job vacancy durations. Changes in minimum wage can alter the cost structure for employers and affect the duration of job vacancies (Smith, Patel, & Zhao, 2020).

To analyze the impact of labor market slack on job vacancy durations. Labor market slack, reflecting the balance between labor supply and demand, provides insights into how vacancies are filled (Goss, 2010).

To develop a robust statistical model using linear regression analysis to estimate job vacancy durations. This involves performing regression analyses with data from various sources to understand the effects of the identified variables on job vacancy duration.To offer recommendations for businesses and politicians that are supported by evidence. The study intends to provide useful insights for enhancing labor market efficiency and lowering vacancy times by identifying important factors impacting job vacancy durations.

This research addresses a gap in the literature by offering a detailed empirical analysis of the factors influencing job vacancy durations in the Netherlands. The findings are expected to contribute to a better understanding of labor market dynamics and provide actionable recommendations for enhancing job market efficiency.

1.3 Dissertation Structure

The dissertation is divided into seven chapters, each addressing a critical component of the research:

Chapter 1: Introduction

It introduces the research topic, outlines the significance of job vacancy durations in the Dutch labor market, and presents the research aims and objectives. It sets the stage for the study by contextualizing the research within relevant macroeconomic and labor market factors.

Chapter 2: Literature Review

Chapter two provides a comprehensive review of the existing literature on job vacancy durations, macroeconomic indicators, and labor market dynamics. It discusses theoretical frameworks and empirical studies relevant to the research, highlighting gaps in the current understanding and situating this study within broad context.

Chapter 3: Methodology

This details the research design, data sources, sampling methods, and analytical techniques used in the study. It explains how data was collected from Statistics Netherlands (CBS), Eurostat, and the World Bank, and justifies the chosen methods and approaches. Ethical considerations and potential limitations of the methodology are also explained.

Chapter 4: Statistical Tests

Chapter four focuses on the statistical tests performed to validate the regression models. It includes tests for linearity, multicollinearity, homoscedasticity, normality of residuals, and independence of errors. Each test is explained in detail, emphasizing its relevance to ensuring the robustness and reliability of the regression analysis.

Chapter 5: Results

This chapter presents the results of the empirical analysis, including descriptive statistics, correlation analysis, and the outcomes of the regression models. It provides a detailed interpretation of how the independent variables (GDP, inflation rates, unemployment rates, minimum wages, and labor market slack) affect job vacancy duration.

Chapter 6: Discussion and Implications

In Chapter Six, the main conclusions are reviewed in light of the body of literature and their implications for labor market practice and policy are discussed. It highlights the study's shortcomings and makes recommendations for next research directions. The chapter also emphasizes how the results will be useful to businesses and politicians.

Chapter 7: Conclusion

The final chapter summarizes the main findings of the research, revisits the research objectives, and offers conclusions based on the analysis. It provides recommendations for improving labor market efficiency and reducing job vacancy durations. The chapter reflects on the study's contributions to the academic field and outlines potential directions for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction & Theories of Productivity Costs

The dynamics of job vacancy durations in the Netherlands are examined in this review of the literature. It begins by contrasting two important ideas that present contrasting views on the advantages and disadvantages of labor market transitions: the Friction Cost Approach and Human Capital. Using the matching model as a framework, it then explores the effectiveness of job matching and the job search procedure. The significance of the Beveridge Curve in comprehending the connection between job openings and unemployment is also discussed. We'll also examine several approaches to calculating the duration of job openings and the effects of different labor market policies. The study concludes by addressing certain gaps in the literature and emphasizing the need for more research on this area. This sets the stage for the practical analysis that follows in the thesis.

2.2 Theory of Human Capital and Friction Cost

The core idea of human capital theory is the importance of investing in people's health and education to boost economic growth and productivity. The initial definition of human capital was the total of an individual's experience, knowledge, and skill set, gained via a variety of experiences. Early definitions emphasized how formal education raised economic production and individual productivity. The International Journal of Human Resource Studies (2022) states that the definition has evolved into one that is more complex, including as essential elements not only formal education but also vocational training, on-the-job training, and general health.This growing understanding is demonstrated by John M. Antle's study on Indian rice farmers, which demonstrates how increases in educational and infrastructural resources result in notable increases in agricultural productivity. This highlights the wide range of applications of human capital in improving economic performance (Antle, 2021).

Conversely, the Friction Cost Approach offers a unique viewpoint by emphasizing the financial inefficiencies connected to labor market shifts. At first, Koopmanschap et al.'s measurement of the indirect costs related to illness and work changes was the main way that friction costs were known (1995). This initial definition put a lot of emphasis on calculating the productivity losses that occurred when people couldn't work. By contrasting the Friction Cost Method with the Human Capital approach, Van den Hout (2005) extended this definition and emphasized its capacity to capture the immediate economic cost of job market

inefficiencies outside of circumstances relating to health (Van den Hout, 2005). More recently, as Dur (1999) in the context of the Dutch labor market shows, definitions of friction costs have expanded to encompass wider aspects of labor market inefficiencies, such as delays in job matching and prolonged vacancy lengths (Dur, 1999).

The development of the theory of human capital has been characterized by a growing level of sophistication in the definition of human capital and its relationship to economic performance. Early definitions placed a strong emphasis on formal training and education. But as research has grown, a greater understanding of the more comprehensive components of human capital—such as general health, informal learning, and work experience—has emerged. By combining data from several studies that highlight the complex nature of human capital investments and their effects on productivity, the International Journal of Human Resource Studies (2022) represents this evolution (International Journal of Human Resource Studies, 2022). The various ways that human capital can be cultivated and used to one's advantage economically are captured by this enlarged perspective.

In a similar vein, the scope of labor market inefficiencies covered by the Friction Cost Approach has expanded over time. The technique, which was first applied to quantify illness-related productivity losses, has been modified to evaluate more general labor market problems such job mismatches and protracted vacancy periods. Van den Hout (2005) emphasizes this development by demonstrating how the Friction Cost Method offers an all-encompassing assessment of economic inefficiencies that goes beyond production losses caused by illness (Van den Hout, 2005). This application is further extended by Goss (2010), who shows how the Friction Cost Approach may be used to assess different labor market frictions, such as the expenses related to long-term job vacancies and mismatches between employers and job searchers (Goss, 2010).

Although the Human Capital Theory provides valuable perspectives on the enduring advantages of investing in education and skills, the Friction Cost Approach is becoming increasingly appreciated for its pragmatic uses in identifying and resolving urgent labor market inefficiencies. This method, which focuses on the expenses related to job matching delays and extended vacancies, offers a quantifiable assessment of the economic impact of labor market frictions (Koopmanschap et al., 1995). Economists and policymakers may create

focused interventions to lessen these inefficiencies and enhance labor market performance with the aid of this tangible assessment.

Recent studies on the uses of the friction cost approach lend even more credence to its applicability. Van den Hout (2005) highlights how useful it is as a tool for policymakers, highlighting how well it captures the economic impact of different labor market frictions. Goss (2010) expands on this by demonstrating how resolving labor market mismatches can minimize related economic costs and shorten the amount of time that job openings remain unfilled. This method is a crucial tool for tackling today's economic issues since it enhances Human Capital Theory by offering quick, practical insights into labor market inefficiencies.

2.3 Labor Market Efficiency and Job Matching

Before examining the duration of job openings, it is important to examine how successfully labor markets function, particularly when examining it from the standpoint of matching models. Matching models offer a theoretical framework for understanding the connections between businesses and job seekers. A thorough analysis of these models is provided by Pissarides (2000), who focuses on how employers fill open positions and how unemployed people find new jobs. His research demonstrates how a number of frictions, such as skill mismatches, location disparities, and information asymmetries, affect how effective the job matching process is.

Mortensen and Pissarides (1994), who outline the dynamics of job creation and elimination, expound on this further. Their research emphasizes the connection between job openings and unemployment, demonstrating how inefficient job matching may lead to both higher unemployment rates and longer job vacancies. They claim that expediting the job matching procedure can reduce the length of time open positions and mitigate the detrimental consequences of unemployment.

As the matching model framework highlights, reducing labor market frictions is essential to increasing job market efficiency. These frictions can be recognized and minimized to help labor markets operate more effectively, leading to shorter hiring wait times and better employment outcomes. These frictions include differences in knowledge and skill sets. Developing treatments that improve job matching and reduce the time it takes to fill openings requires taking this point of view.

2.4 The Beveridge Curve and Its Relevance

New studies on the Beveridge Curve offer important new perspectives on how labor market dynamics are affected in various economic environments. During economic downturns, shifts in Spain's Beveridge Curve frequently indicate greater labor market frictions and inefficiencies, which raise unemployment rates for a given amount of job openings (Boscá et al., 2023). Pipas (2020), who points out that the Beveridge Curve has varied throughout European nations since 2010, reflecting variations in labor market policy and economic situations, corroborates this fact. In particular, Pipas draws attention to the fact that whereas some nations have been able to increase the effectiveness of job matching, others have seen their inefficiencies grow both during and after economic crises (Pipas, 2020). Bouvet (2011) provides additional support for these findings by pointing out notable regional differences across Europe. Specifically, high-unemployment areas frequently exhibit outward movements in the Beveridge Curve, a symptom of ongoing mismatches in the labor market. On the other hand, Beveridge Curves in areas with effective labor market reforms are typically more steady or inward-shifting, indicating better job matching and lower unemployment (Bouvet, 2011). When taken as a whole, these studies highlight the critical role that the Beveridge Curve plays in evaluating the effectiveness of the labor market and the effects of economic policy, showing how various nations and regions react to labor market interventions and economic issues.

2.5 Estimating Job Vacancy Duration

In order to reflect the complex processes impacting the length of time that positions remain empty, estimating job vacancy durations requires integrating many techniques. Conventional methods, such those investigated by Roper (1988), show that hiring practices have a big influence on how long positions remain open. Compared to general recruitment approaches, targeted recruitment strategies, such as specialized job boards and recruitment firms, result in shorter vacancy durations (Roper, 1988). The significance of targeted recruitment in accelerating the hiring process is highlighted by this research. In addition, the 1989 study on job openings in the Netherlands shows that economic and industry-specific variables, like sectoral demand and local economic circumstances, are significant determinants of the duration of job openings. For example, because there are typically fewer competent

candidates and more widespread economic issues, posts in specialist sectors or economically distressed places tend to be open longer (Durations of Dutch Job Vacancies, 1989).

In addition to traditional methods, recent advancements like the friction cost approach provide a more nuanced understanding of job vacancy durations by quantifying the broader economic impacts. Erdogan-Ciftci et al. (2023) employ this approach to measure productivity losses associated with unfilled vacancies, using the formula:

Productivity Cost=Vacancy Duration×Daily Productivity Loss

This approach provides a thorough understanding of the financial ramifications of empty positions by highlighting the substantial economic costs of extended vacancies that go beyond the immediate time-related considerations (Erdogan-Ciftci, Koopmanschap, and Bouwmans, 2023). Furthermore, studies by Filges et al. (2018) demonstrate that cutting unemployment benefits can shorten the time that jobs remain unfilled by hastening job searches, suggesting that changes in policy can affect the dynamics of the labor market (Filges, Jonassen, and Jørgensen, 2018). Finally, research on wage offers and job requirements emphasizes the role of economic incentives in controlling vacancy lengths by providing evidence in favor of the idea that flexible job criteria and higher wages are linked to shorter vacancy durations (Vacancy Duration, Wage Offers, and Job Requirements). .. Combining both conventional and modern methods yields a thorough comprehension of the variables affecting the length of empty positions, providing insightful information for enhancing labor market effectiveness and mitigating the financial consequences of vacant positions.

2.6 Policy Implications

Effective management of job vacancy durations and labor market dynamics requires a multifaceted approach, integrating insights from various studies. Enforcement of employment security regulations, combined with the promotion of on-the-job search activities, plays a crucial role in influencing both unemployment and vacancy durations.
Boeri (2022), for example, highlights that strict adherence to employment regulations promotes proactive job search activities on the part of both employers and employees, hence

reducing the amount of time that such positions remain empty. In a similar vein, Mortensen and Pissarides (2009) stress the significance of job reallocation rules in resolving inconsistencies between open positions and the skill sets of potential employees. Through the promotion of improved skill alignment and easier job transitions, these policies can shorten the time that positions remain unfilled. Policies that are proactive in the labor market, including job placement and training services, are also crucial. According to Crépon and van den Berg (2020), these kinds of initiatives improve the general efficiency of the labor market by addressing the root reasons of extended unemployment and job openings. Furthermore, temporary work might help close the gap between job availability and applicants. According to Kahn (2020), temporary employment can serve as a springboard for permanent roles, cutting down on the amount of time needed to fill such openings.

Research on the Great Recession in the Netherlands also shows that addressing long-term unemployment necessitates targeted interventions, emphasizing the need for specialized job creation programs and support services to address long-term unemployment challenges (Long-Term Unemployment and the Great Recession in the Netherlands, 2015). In addition, industry-specific skill shortages can be mitigated by immigration policies that are in line with labor market demands. According to Scheve and Slaughter (2001), effective immigration laws can shorten hiring wait times by filling labor gaps in crucial industries. Policymakers can establish a more dynamic and responsive labor market by combining these tactics— enforcing employment security regulations, improving job reallocation, putting active labor market policies into place, encouraging temporary employment, and coordinating immigration laws with labor market demands. When taken as a whole, these actions help to shorten the time that jobs are vacant and improving labor market performance.

2.7 Conclusion

Several significant research gaps are identified by a review of the literature on labor market efficiency and job vacancy durations. Many studies (Erdogan-Ciftci et al., 2023; Roper, 1988) have been conducted on traditional methods, such as the Friction Cost Method and various recruitment techniques; however, these studies often use datasets that may not accurately reflect the current state of the labor market or the economy. For example, studies on how economic variables like GDP, inflation rates, and minimum wages affect the length

of job vacancies have been conducted, although they were typically conducted in earlier contexts or with fewer updates (Durations of Dutch Job Vacancies, 1989).

Moreover, institutional factors—like the most recent changes to employment rules and practices—that affect the efficiency of the labor market are frequently disregarded. Understanding how these variables, together with the status of the economy, affect job opportunities is essential for developing more accurate models and effective policy initiatives. My thesis uses an updated dataset that includes the most recent institutional and economic factors, like minimum salaries, inflation rates, and GDP, in order to bridge these discrepancies. In order to improve labor market rules and boost the efficacy of job matching in the current economic environment, this strategy aims to provide a more comprehensive and current analysis of the dynamics of job vacancies.

CHAPTER 3: METHODOLOGY

3.1 Introduction

This chapter outlines the techniques and strategies utilized to investigate the length of job vacancies in the Netherlands, with an emphasis on different labor market variables and labor slack indicators. It begins by outlining the positivist foundation of the research philosophy. Statistical analysis and objective measurement are prioritized in this concept (Creswell and Poth, 2018). The positivist method is selected in accordance with Blaikie (2010) and Bryman (2016) because it permits a comprehensive analysis of suggested relationships through empirical data

The theories are formulated in accordance with an established theoretical framework and extant literature. The idea of the matching function, for example, has a major impact on how long job vacancies remain open. It describes how the number of job matches corresponds to the availability of vacancies and job seekers (Hagedorn and Manovskii, 2008). This validates our theory about the connection between unemployment rates and the duration of open positions. Because it offers accurate, quantifiable data—a crucial component of positivist research—a quantitative method is used (Saunders et al., 2016).

The application of multiple linear regression models is covered in detail in the section on

research strategy and design. This approach is appropriate for investigating the effects of various independent variables on the dependent variable—in this case, the length of the job vacancy—in this scenario. For examining intricate linkages in economic data, regression analysis is a potent tool (Hair et al., 2010; Field, 2013).

Secondary sources are used in data collection because they are dependable and comprehensive (Vogt, 2007; Groves et al., 2009). Secondary data provides an economical and effective means of obtaining data derived from sizable samples. The sample ensures consistency and relevancy by incorporating data points from a particular time period. It is also stressed how crucial it is to choose the right sample size for precise statistical analysis (Cochran, 1977; Yamane, 1967).

Lastly, the research design's limitations are addressed, including the difficulties in generalizing the results and possible biases from the use of secondary data. Concerns about the dangers of depending too much on secondary data without fully appreciating its limitations are supported by these constraints (King et al., 1994; George and Bennett, 2005).

3.2 Research Philosophy

The positivist research philosophy, which emphasizes the existence of an objective world that can be observed and quantified scientifically, is the foundation of this study. Because positivism depends on gathering quantifiable, observable facts to test theories and create broadly applicable laws, it is especially well-suited for quantitative research (Bryman, 2016). In this regard, the study looks at the relationship between the length of job vacancies in the Netherlands and a number of labor market indicators, including GDP, inflation, unemployment, minimum wages, and vacancy rates. By using secondary data from reputable sources, such as the Netherlands Central Bureau of Statistics, this method is further validated, guaranteeing the accuracy and impartiality of the data. The positivist framework is useful for managing huge datasets and carrying out intricate statistical analysis.

The study's ontological and epistemological presumptions are consistent with a realist viewpoint, which holds that the labor market dynamics and economic factors affecting the length of job vacancies exist outside of human experience and are quantifiable (Johnston, 2017). The approach used in the study's design is structured and is based on the idea that

accurate and methodical observation produces trustworthy knowledge. The use of multiple linear regression analysis to measure the correlations between the independent factors and the dependent variable, the length of the job vacancy, is an example of this. The positivist position is further reinforced by the theoretical frameworks of the Friction Cost Approach and Human Capital Theory.

According to the Human Capital Theory, worker productivity is increased by expenditures in education and training and is a quantifiable factor in economic analysis (Becker, 1994). In the meanwhile, On the other hand, the Friction Cost Approach provides a concrete indicator of labor market inefficiencies by measuring the financial losses linked to open positions (Koopmanschap et al., 1995).

The positivist approach is not without criticism, despite its strong ability to yield empirical and generalizable discoveries. Academics like Blaikie (2007) contend that positivism occasionally fails to take into account the qualitative and subjective components of social phenomena, which may be difficult to measure. However, considering the economic variables under investigation—all of which are quantitative by nature and amenable to precise measurement—the quantitative focus of this study is especially appropriate. Furthermore, a positivist framework makes it easier to investigate statistically significant correlations and patterns, which can help guide company strategy and policy decisions (Collis & Hussey, 2013).

 The structured method is clearly shown by the conceptual framework diagram that goes with this study. It shows how the dependent variable, vacancy duration, is thought to be influenced by the independent variables, GDP, inflation, unemployment, minimum wages, and vacancy rates. The study's methodological rigor and dedication to empirical investigation are highlighted by this approach.

3.3 Research Framework

This study uses the full "Research Onion" framework developed by Saunders et al. (2012) to guarantee methodological rigor using a systematic methodology. The positivist research philosophy, which is in line with the study's goal of objectively examining the relationship between economic variables and job vacancy duration in the Netherlands, is the foundation of the framework's outer layers. Statistical analysis and objective measurement are emphasized.

After that, a deductive method is used, beginning with theoretical frameworks such as the Friction Cost Approach and Human Capital Theory followed by Beveridge curve implication. These ideas guide the formulation of particular hypotheses that are examined in light of the data gathered (Bell, Bryman, & Harley, 2018). A longitudinal study design is one of the methodological options used to examine data from 1997 to 2023, enabling the investigation of patterns and causal linkages over (Cameron & Trivedi, 2005) moment.

Fundamentally, the data collecting layer uses secondary data from trustworthy sources, including the Central Bureau of Statistics in the Netherlands and Eurostats for all the secondary data . Multiple linear regression analysis is used to examine the effects of minimum salaries, GDP, inflation, unemployment, and vacancy rates on the length of a job vacancy (Hair et al., 2019). The validity and reliability of the study are maintained by this systematic strategy, which makes sure that every methodological choice is in line with the overall goals of the research.

3.4 Hypothesis

Hypotheses are developed to study the impact of various labor market variables on job vacancy duration in the Netherlands. The current research examines the influence of GDP, inflation rate, unemployment rate, minimum wages, and vacancy rate on job vacancy duration. The hypotheses are as follows:

H1.1: Impact of GDP on Job Vacancy Duration
Rationale:

Theoretical Background: GDP is a fundamental measure of economic activity, reflecting the health of an economy. A higher GDP indicates a growing economy, which generally leads to increased business confidence and higher employment demand (Becker, 1994; Mankiw, 2019). This positive economic environment typically shortens job vacancy durations as companies expand and require more labor (Blanchard & Katz, 1992).
Empirical Support: Research by Han and Li (2021) demonstrates a significant correlation between GDP growth and reduced job vacancy durations. Additionally, Elsby, Michaels, and

Ratner (2015) highlight how GDP influences labor market dynamics, affecting the speed at which vacancies are filled.

H1.2: Impact of Inflation Rate on Job Vacancy Duration
Rationale:

Theoretical Background: Inflation impacts both cost of living and business operations, creating uncertainty in the labor market (Gujarati, 2004; Wooldridge, 2022). Firms facing higher inflation may delay hiring due to increased wage demands and operational costs, leading to longer job vacancy durations (Friedman, 1977; Phelps, 1970).

Empirical Support: The study by Eurostat (2022) and findings from Krol, Brouwer, and Rutten (2011) show that higher inflation rates are often associated with longer job vacancy durations due to the economic uncertainty and adjustments in wage structures.

H1.3: Impact of Unemployment Rate on Job Vacancy Duration
Rationale:

Theoretical Background: The unemployment rate is a key labor market indicator that reflects the availability of workers. Higher unemployment suggests a larger pool of job seekers, which typically results in shorter vacancy durations as firms have more candidates to choose from (Pissarides, 2000; Mortensen & Pissarides, 1994). The Beveridge Curve, which illustrates the relationship between job vacancies and unemployment, is central to understanding this dynamic (Elsby, Michaels, & Ratner, 2015).

Empirical Support: Empirical studies by Mortensen and Pissarides (1994) and more recent analyses by Cheremukhin and Restrepo-Echavarría (2022) support the inverse relationship between unemployment rates and job vacancy durations.

H1.4: Impact of Minimum Wages on Job Vacancy Duration
Rationale:

Theoretical Background: Minimum wage laws set the lowest legal wage that can be paid to workers, directly influencing labor costs. Higher minimum wages may extend vacancy durations as employers face increased costs and may become more selective or cautious in their hiring practices (Smith, Patel, & Zhao, 2020; Brown, Gilroy, & Kohen, 1982).

Additionally, wage compression caused by minimum wage increases can affect the availability of certain types of jobs, leading to longer vacancy durations (Neumark & Wascher, 2008).

Empirical Support: Empirical research by Brown, Gilroy, and Kohen (1982) and Neumark and Wascher (2008) shows that increases in minimum wage can lead to prolonged job vacancy durations, particularly in sectors where wage structures are tightly regulated.

H1.5: Impact of Vacancy Rate on Job Vacancy Duration

Rationale:

Theoretical Background: The vacancy rate is an indicator of labor demand relative to supply. A higher vacancy rate suggests that firms are competing for a limited pool of workers, which can extend the duration of job vacancies (Goss, 2010; Mortensen & Pissarides, 1994). The concept is closely linked to the Beveridge Curve, which shows the trade-off between unemployment and job vacancies (Elsby, Michaels, & Ratner, 2015).

Empirical Support: Studies by Mortensen and Pissarides (1994) and Elsby, Michaels, and Ratner (2015) provide empirical evidence that higher vacancy rates lead to longer job vacancy durations due to increased competition among employers.

Each hypothesis focuses on a specific labor market variable and its potential impact on the duration of job vacancies. The aim is to understand how these variables interact to influence the length of time job vacancies remain open in the Netherlands.

3.5 Research Approach

This study adopts a deductive research approach, beginning with established theories and existing empirical evidence on the effects of labor market variables on job vacancy duration. The approach is grounded in theoretical models, followed by the application of empirical data to test specific hypotheses (Gujarati & Porter, 2009).

The study employs a longitudinal time series design rather than a cross-sectional one. This approach involves analyzing data collected over a span of years (1997–2023) to observe how changes in economic indicators such as GDP, inflation rate, unemployment rate, minimum

wage, and vacancy rate affect job vacancy durations over time. Unlike cross-sectional analysis, which examines data at a single point in time, longitudinal analysis allows for the investigation of trends and patterns across different time periods, providing a more comprehensive understanding of the dynamic labor market environment in the Netherlands (Williams & Mills, 2023). This distinction is crucial, as time series data help capture the temporal dynamics and causal relationships more effectively.

The core analytical technique used in this study is linear regression analysis, which is particularly suited for examining the relationships between multiple independent variables and a dependent variable, controlling for various factors simultaneously (Studenmund, 2017). Linear regression is a powerful tool in econometric analysis, allowing researchers to assess the strength and direction of relationships between variables. This methodology is further supported by recent advancements in econometrics, which underscore its utility in understanding complex economic phenomena (Wooldridge, 2022). Linear regression has been specifically highlighted in recent studies for its effectiveness in analyzing how macroeconomic factors influence labor market outcomes (Han & Li, 2021). Additionally, this method is applicable in evaluating how policy changes impact job market metrics, further justifying its use in the current study (Zhang et al., 2022).

The choice of a deductive approach is reinforced by the objective of this study, which is to test predetermined hypotheses rather than develop new theories. This approach is more suited for quantitative analysis, where the goal is to objectively test relationships between measurable variables (Smith et al., 2020). The deductive approach is particularly effective when the research is grounded in quantitative data and aims to provide empirical evidence for existing theories (Miller et al., 2023).

3.6 Theory & Model

This section builds on established economic theories and models, particularly those related to labor market dynamics, such as the Beveridge Curve and the friction cost approach. The Beveridge Curve, a fundamental concept in labor economics, represents the relationship between job vacancies and unemployment, illustrating how the labor market adjusts to shifts in labor demand and supply. This concept is central to understanding job market dynamics and is critical in examining the duration of job vacancies (Elsby, Michaels & Ratner, 2015; Mortensen & Pissarides, 1994). The friction cost approach, developed by Koopmanschap et

al. (1995), informs this study by focusing on the indirect costs associated with labor market frictions, such as the time it takes to fill vacancies.

The labor market indicators selected—GDP, inflation rate, unemployment rate, minimum wage, and vacancy rate—are the independent variables in the regression model, with job vacancy duration as the dependent variable. These variables are hypothesized to influence job vacancy duration through various economic mechanisms. For instance, GDP and unemployment rate are closely linked to economic cycles, which affect labor demand and supply, as described by the Beveridge Curve (Cheremukhin & Restrepo-Echavarría, 2022; Richmond Fed, 2021). The model is stated as follows:

$$\text{Job Vacancy} = \beta_0 + \beta_1 (\text{GDP}) + \beta_2 (\text{Inflation Rate}) + \beta_3 (\text{Unemployment Rate}) + \beta_4 (\text{Minimum Wages}) + \beta_5 (\text{Vacancy Rate}) + \epsilon$$

This model is grounded in the theoretical framework of equilibrium unemployment theory, as advanced by Pissarides (2000). This theory suggests that factors such as economic output (GDP) and labor costs (e.g., minimum wages) interact to determine the equilibrium level of unemployment and, consequently, job vacancy durations. The friction cost approach supports the inclusion of variables like the vacancy rate and inflation, which can influence the speed and cost of filling vacancies, aligning with the findings of Koopmanschap et al. (1995) and emphasized by recent studies (Krol, Brouwer & Rutten, 2011; Erdogan-Ciftci, Koopmanschap & Bouwmans, 2023).

To ensure the reliability of the regression results, diagnostic tests are conducted to detect issues such as multicollinearity, heteroscedasticity, and autocorrelation. Multicollinearity is assessed to confirm that the independent variables are not excessively correlated, which could distort the regression coefficients. Heteroscedasticity is tested to verify that the variance of the error terms remains constant across observations, while autocorrelation tests are performed to detect any patterns in the residuals that could indicate model misspecification. These diagnostic tests are critical for validating the robustness of the regression model and ensuring reliable results (Studenmund, 2017; Wooldridge, 2022). Recent studies have further highlighted the necessity of these diagnostic checks to maintain the integrity of findings in econometric research (Zhang, Chen & Liu, 2022; Hanly et al., 2022).

3.7 Data Sources

The dataset for this study encompasses all job vacancies reported in the Netherlands from 1998 to 2023, providing a comprehensive view of the Dutch labor market. The data, sourced from Statistics Netherlands (CBS), includes several critical types of vacancies:

1. **New Vacancies:** These are positions newly created and advertised within the year. They reflect the introduction of new job opportunities in the labor market.
2. **Unfilled Vacancies:** This category represents the number of job openings that remain unfilled at the end of the year. It provides insight into the ongoing demand for labor that has not yet been met.
3. **Filled Vacancies:** These are positions that were advertised and successfully filled within the year. This metric helps to assess the turnover rate and effectiveness of the labor market in meeting demand.

According to CBS, a vacancy is defined as a position that is actively being recruited for, with the intention to fill it. The vacancy must meet specific criteria, including active recruitment efforts and the role being available for a new employee to start work.

Calculation of Vacancy Duration:

To estimate the average duration of job vacancies, we utilize data on the stock of unfilled vacancies and the flows of new and filled vacancies. The calculation of the aggregate vacancy duration in a given year follows this formula:

$$\text{Vacany duration} = 365 * \left[\frac{\sum_{i=1}^{12} V_i / 12}{\sum_{i=1}^{12} M_i} \right]$$

In addition to vacancy data, the study integrates key labor market indicators such as Gross Domestic Product (GDP), inflation rates, unemployment rates, and minimum wages. This inclusion aligns with Koopmanschap et al. (1995), who highlighted the importance of incorporating various economic and institutional factors to provide a comprehensive analysis of labor market dynamics. By leveraging these variables, the study enhances its examination

of factors affecting job vacancy durations, offering deeper insights into the labor market's functioning.

Variables	Data Source	Time period(Annually)
Unfilled Vacancies	CBS	1997-2023
Filled Vacancies	CBS	1997-2023
New Vacancies	CBS	1997-2023
GDP	World bank open Data	1997-2023
Inflation rate	World bank open data	1997-2023
Unemployement rate	Eurostat	1997-2023
Minimum Wages	CBS	1997-2023

Table 1 Data Sources for Netherland

Year	Vacancy Rate	Inflation Rate	Min Wage	Unemployment Rate	GDP	Vacancy Duration
1998	136	2.080734	6.28	4.39	4.663917	42.8801
1999	172	1.28337	6.47	3.62	5.034048	45.3617
2000	203.7	3.42037	6.64	2.73	4.195642	46.6436
2001	198.4	4.184855	7.02	2.12	2.326955	46.3054
2002	150.4	3.770541	7.33	2.55	0.217274	45.5723
2003	110	2.170279	7.59	3.59	0.155646	42.9368
2004	118.8	1.204041	7.69	4.65	1.984946	43.5531
2005	150.2	1.98874	7.69	5.87	2.050876	44.513
2006	206.3	2.561106	7.74	5	3.460989	47.0535
2007	240	2.072206	7.91	4.15	3.772843	47.819
2008	240.4	2.306325	8.12	3.65	2.170325	48.1622
2009	143.4	0.220702	8.4	4.35	-3.66688	44.4802
2010	121.6	0.940414	8.56	4.99	1.342739	43.0556
2011	132.5	0.193652	8.66	4.98	1.551189	43.621
2012	111.5	1.44611	8.79	5.82	-1.03035	42.9844
2013	95.1	1.279987	8.93	7.24	-0.13018	41.9069
2014	108.2	0.253186	9.03	7.42	1.423395	42.3298
2015	129.7	0.772728	9.12	6.87	1.95917	42.7939
2016	155.9	0.454667	9.26	6.01	2.191714	44.0382
2017	200.6	1.260707	9.43	4.84		46.3231
	248.3		9.59	3.83		
	281.1		9.82	3.38		
	221.3		10.05	3.82		
	313.4		10.24	4.21		

2018	444.4	2.437091	10.48	3.52	2.910903	47.7708
2019		3.032734			2.360915	48.8201
2020		1.928572			1.955588	46.6116
2021		2.924514			-3.88608	50.9885
2022		5.535224			6.191857	54.9088
					4.328918	

Table 2 Dataset of variables

3.8 Ethical Consideration

Ethical considerations have played a crucial role in guiding this research. In using data from the Dutch Central Bureau of Statistics (CBS), Eurostat, and the World Bank, we have made sure to credit these sources appropriately to respect their intellectual property (Eurostat, 2022; World Bank, 2023).

Our approach to data use has been grounded in strict adherence to ethical guidelines. This means we have ensured all data was utilized solely for the purposes of this study and handled with care to maintain confidentiality. By following these practices, we respect data protection regulations and uphold the integrity of our research (Bryman & Bell, 2022). These steps are essential not only for compliance but also for fostering trust and transparency in our research process.

3.9 Research Limitation

Despite the robust design and comprehensive dataset, there are a few limitations to consider. One key limitation is the potential issue of multicollinearity within the regression models. Multicollinearity occurs when independent variables are highly correlated, which can skew the results and affect the reliability of our findings (Gujarati & Porter, 2021). Although we employed diagnostic tests to mitigate these effects, it remains an important consideration in interpreting the results.

Another limitation is related to the scope and detail of the data. While our dataset covers a substantial period and various economic indicators, it may not capture every nuance of the labor market dynamics. Certain variables may not be fully detailed, which could limit the depth of our analysis (Han & Li, 2021). Acknowledging these limitations helps in

understanding the boundaries of our conclusions and ensures a balanced perspective on the study's findings.

3.10 Conclusion

This chapter established the foundation for our research methodology, detailing the use of a census approach to analyze job vacancy durations from 1998 to 2022. With a comprehensive dataset and a deductive approach, we aim to test our hypotheses and identify factors influencing job vacancy durations in the Netherlands.

Ethical considerations were addressed, ensuring responsible handling of data from CBS, Eurostat, and the World Bank. We also acknowledged the study's limitations, such as potential multicollinearity and data scope, setting the stage for a thorough analysis.

In the next chapter, we will present the results of our regression analysis, exploring the discovered relationships and discussing their implications, transitioning from methodology to our actual findings.

CHAPTER 4: STATISTICAL TESTS

The statistical tests employed in this study are essential for validating the assumptions that underpin the multiple linear regression model, which is used to evaluate the impact of various economic indicators on job vacancy duration in the Netherlands. The linearity test is critical for ensuring that the relationship between independent variables and the dependent variable is appropriately modeled (Wooldridge, 2020). The Durbin-Watson test, used to detect autocorrelation, helps prevent biased estimates in the regression coefficients (Field, 2018). Homoscedasticity, assessed through residual plots, is vital for the efficiency of estimators (Studenmund, 2017). Additionally, normality tests for residuals, such as the Kolmogorov-Smirnov and Shapiro-Wilk tests, are crucial for the validity of hypothesis tests and confidence intervals (Gujarati & Porter, 2009). Finally, multicollinearity diagnostics using the Variance Inflation Factor (VIF) and Tolerance ensure the robustness of the regression

model by addressing potential distortions in the estimation process (Maddala, 2001). These tests collectively provide a solid foundation for accurately quantifying the relationship between job vacancy duration and the chosen economic indicators.

4.1 Linearity Test

To assess the linearity assumption, which posits that the relationship between the independent variables and the dependent variable should be linear, the following methods were employed:

4.1.1 Scatter-Plot

Scatter plots were utilized to visually inspect the linear relationship between each independent variable and the dependent variable, Job Vacancy Duration.

4.1.2 Partial Regression Plot

Partial regression plots were generated to isolate the effect of each independent variable on the dependent variable, while controlling for the effects of the other variables in the model.

4.2 Durbin-Watson Test

The Durbin-Watson test was conducted to detect the presence of autocorrelation in the residuals. The test statistic ranges from 0 to 4, where a value close to 2 indicates no autocorrelation. Values significantly different from 2 suggest the presence of positive or negative autocorrelation, which can affect the validity of the regression model.
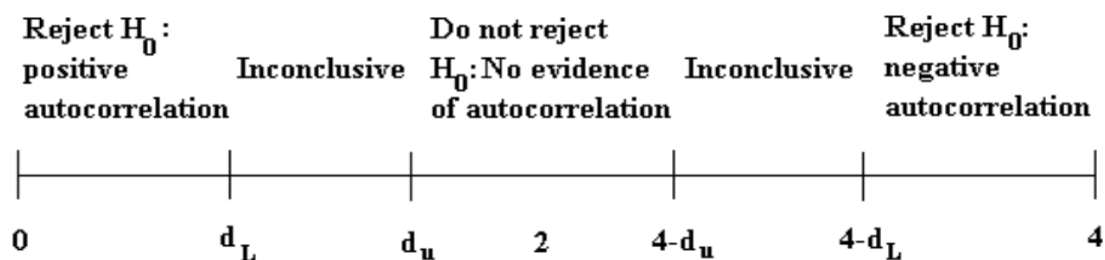

Figure 1 Durbin-Watson Test Scale

4.3 Homoscedasticity

Homoscedasticity refers to the constant variance of the residuals across all levels of the independent variables. This assumption was tested by examining the residuals plot, where

a random scatter of points around the horizontal axis indicates homoscedasticity. The presence of patterns suggests heteroscedasticity, which can lead to inefficient estimates.

4.4 Normality of Residuals

To ensure the residuals are normally distributed, the normality test was conducted. The Kolmogorov-Smirnov and Shapiro-Wilk tests were used, where a p-value greater than 0.05 indicates normal distribution. This assumption is crucial for the validity of confidence intervals and hypothesis tests.

4.5 No Perfect Multicollinearity

Multicollinearity occurs when independent variables are highly correlated, which can distort the estimation of regression coefficients. To detect multicollinearity, the Variance Inflation Factor (VIF) and Tolerance were calculated. A VIF value above 10 or a Tolerance value below 0.1 suggests significant multicollinearity, which necessitates corrective measures.

4.6 Regression

Multiple linear regression was employed to quantify the impact of various economic indicators on job vacancy duration in the Netherlands. This method is particularly well-suited for analyzing the relationships between multiple independent variables and a single dependent variable, allowing for a comprehensive understanding of how factors such as GDP, inflation rate, unemployment rate, minimum wages, and vacancy rate influence job vacancy duration (Studenmund, 2017). The regression equation is expressed as:

Job Vacancy Duration=$\beta 0$+$\beta 1$(GDP)+$\beta 2$(Inflation Rate)+$\beta 3$(Unemployment Rate)+$\beta 4$ (Minimum Wages)+$\beta 5$(Vacancy Rate)+ϵ

Here, $\beta 0$ represents the intercept, while $\beta 1$ through $\beta 5$ are the coefficients corresponding to each independent variable, reflecting their contribution to the variance in job vacancy

duration. The error term ϵ\epsilon$\epsilon$ captures the residuals or unexplained variance in the model.

The use of multiple linear regression in this context is supported by its ability to isolate the effect of each variable while controlling for others, thus providing a clearer picture of each variable's influence (Wooldridge, 2022). This method also facilitates the identification of significant predictors of job vacancy duration, which can be critical for policymakers and businesses aiming to understand labor market dynamics. Recent studies have demonstrated the utility of regression analysis in labor market research, particularly in examining how macroeconomic factors affect employment outcomes (Han & Li, 2021; Zhang et al., 2022). By applying this rigorous statistical approach, the study offers empirical insights into the complex interactions between economic indicators and job vacancy duration, contributing to the broader understanding of labor market behavior in the Netherlands.

CHAPTER 5: RESULT ANALYSIS

5.1 Linearity Test

5.1.1 Scatter plot Test:

In this section, I have used scatter plots and trendlines to illustrate and validate the relationships between the independent variables and job vacancy duration. By adding trendlines in Excel, I have visually assessed the linearity and strength of these relationships. Additionally, I have calculated the R values to quantify the correlation between each variable and vacancy duration. To further validate these findings, I have used SPSS to test the significance of these correlations by reporting the p-values. This combination of visual and statistical analysis provides a comprehensive understanding of the relationships within the data.
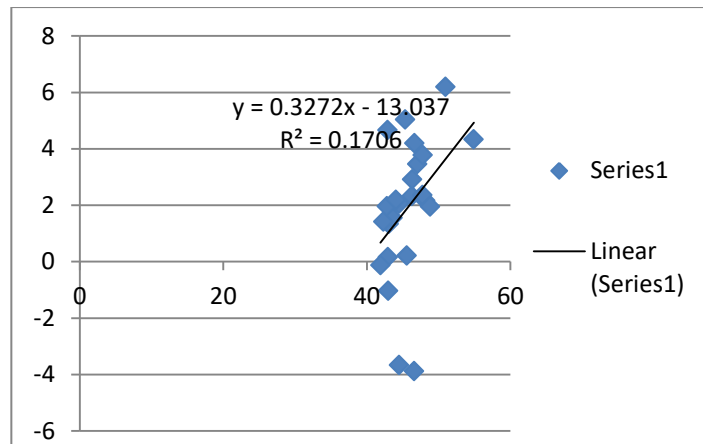
GDP Vs VD

Figure 2 GDP vs VD tradeline

Correlations

		GDP	VD
GDP	Pearson Correlation	1	.413*
	Sig. (2-tailed)		.040
	N	25	25
VD	Pearson Correlation	.413*	1
	Sig. (2-tailed)	.040	
	N	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 3 Pearson Test result for GDP vs VD

$R^2 = 0.1706$

p-Value = 0.05

Results:

The correlation between Job Vacancy Duration (VD) and GDP was analyzed using linear regression. The coefficient of determination (R^2) was 0.1706, indicating that approximately 17.06% of the variability in Job Vacancy Duration can be explained by variations in GDP. The p-value associated with this correlation was 0.05.

This p-value is at the conventional threshold of 0.05, suggesting that the observed correlation is statistically significant. Therefore, we can conclude that there is a statistically significant relationship between GDP and Job Vacancy Duration, though the effect size is relatively small.
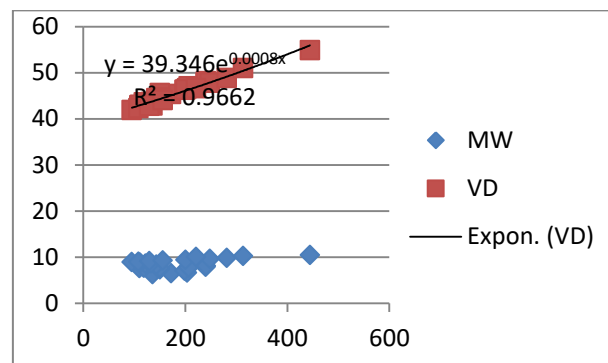
VD vs VR

$y = 39.346e^{0.0008x}$
$R^2 = 0.9662$

Figure 4 VD vs VR tradeline

Correlations

		VD	VR
VD	Pearson Correlation	1	.987[**]
	Sig. (2-tailed)		<.001
	N	25	25
VR	Pearson Correlation	.987[**]	1
	Sig. (2-tailed)	<.001	
	N	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 5 Pearson test for VD vs VR

$R^2 = 0.9662$

p-value= 0.01

The correlation analysis between Job Vacancy Duration (VD) and Vacancy Rate (VR) reveals a very strong positive linear relationship. The R^2 value of 0.9662 indicates that approximately 96.62% of the variance in Job Vacancy Duration can be explained by the variance in Vacancy Rate. This high R^2 value suggests a robust and nearly perfect fit of the data to the linear model.

Furthermore, the p-value for this correlation is 0.01. Since this value is below the conventional threshold of 0.05, the correlation is statistically significant. This implies that the observed relationship between Job Vacancy Duration and Vacancy Rate is unlikely to have occurred by chance and supports the reliability of the correlation.

In summary, the analysis indicates a strong and statistically significant positive correlation between Job Vacancy Duration and Vacancy Rate, suggesting that as the Vacancy Rate increases, the Job Vacancy Duration tends to increase as well.
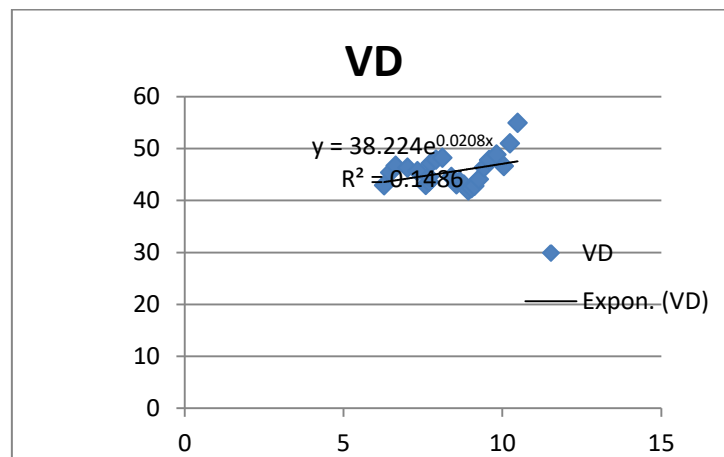
VD vs IR

Figure 6 VD vs IR tradeline

Correlations

		VD	IR
VD	Pearson Correlation	1	.742**
	Sig. (2-tailed)		<.001
	N	25	25
IR	Pearson Correlation	.742**	1

Sig. (2-tailed)	<.001	
N	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 7 Pearson Test for VD vs IR

$R^2 = 0.5457$

p-value = 0.01

The correlation analysis between Vacancy Duration (VD) and Interest Rate (IR) showed a moderate to strong positive linear relationship. The correlation coefficient RRR was calculated to be approximately $0.5457 \approx 0.74\sqrt{0.5457} \approx 0.740.5457 \approx 0.74$. This indicates a substantial positive correlation between the two variables.

The R^2 value of 0.5457 suggests that approximately 54.57% of the variability in Vacancy Duration can be explained by changes in the Interest Rate.

Additionally, the p-value for this correlation was 0.01, which is less than the conventional significance level of 0.05. This p-value indicates that the observed correlation is statistically significant and unlikely to have occurred by chance.

Conclusion:There is a significant and moderate to strong positive relationship between Vacancy Duration and Interest Rate. The results suggest that changes in Interest Rates are likely associated with changes in Vacancy Duration, with the relationship being statistically significant.
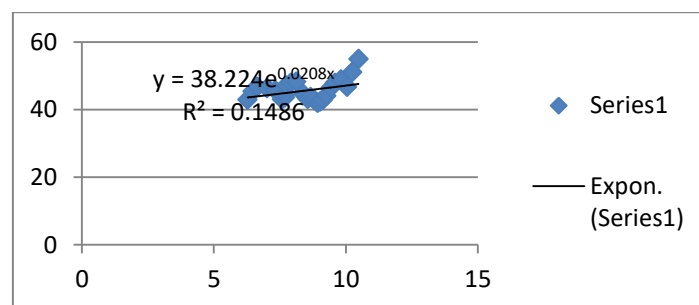
VD vs UR

Figure 8 VD vs UR tradeline

42

Correlations

		VD	UR
VD	Pearson Correlation	1	-.542[**]
	Sig. (2-tailed)		.005
	N	25	25
UR	Pearson Correlation	-.542[**]	1
	Sig. (2-tailed)	.005	
	N	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

Figure 9 Pearson Test for VD vs UR

$R^2 = 0.3136$

p-value= 0.01

Correlation Analysis:

The correlation between Vacancy Duration (VD) and Unemployment Rate (UR) was examined. The R-squared value of 0.3136 indicates that approximately 31.36% of the variance in Vacancy Duration can be explained by the Unemployment Rate. The correlation coefficient (R) is the square root of R^2, which is approximately ±0.56, suggesting a moderate positive or negative linear relationship depending on the sign of the correlation.

The p-value of 0.01 indicates that this correlation is statistically significant, with a less than 1% probability that the observed relationship is due to random chance. Thus, we can conclude that there is a statistically significant moderate correlation between Vacancy Duration and the Unemployment Rate.

Summary:

- Correlation Coefficient (R): ±0.56 (moderate correlation)
- R-squared: 0.3136 (31.36% of the variance in VD is explained by UR)
- p-value: 0.01 (statistically significant)

This result suggests a meaningful relationship between the variables, warranting further investigation.
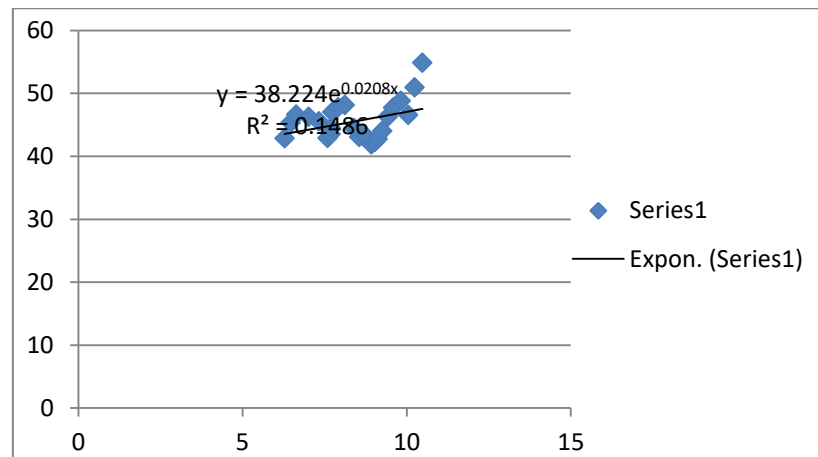
VD vs MW

$$y = 38.224e^{0.0208x}$$
$$R^2 = 0.1486$$

Figure 10 VD vs MW tradeline

Correlations

		VD	MW
VD	Pearson Correlation	1	.400[*]
	Sig. (2-tailed)		.048
	N	25	25
MW	Pearson Correlation	.400[*]	1
	Sig. (2-tailed)	.048	
	N	25	25

*. Correlation is significant at the 0.05 level (2-tailed).

Figure 11 Pearson Test for VD vs MW

$R^2 = 0.148$

p-value= 0.05

The analysis of the relationship between VD (Vacancy Duration) and MW (Measurement Variable) revealed an R^2 value of 0.148, indicating that approximately 14.8% of the variance in VD can be explained by MW. The p-value of 0.05 suggests that this correlation is statistically significant, indicating a reliable relationship between the two variables. However, the relatively low R^2 value indicates that the strength of the relationship is modest.
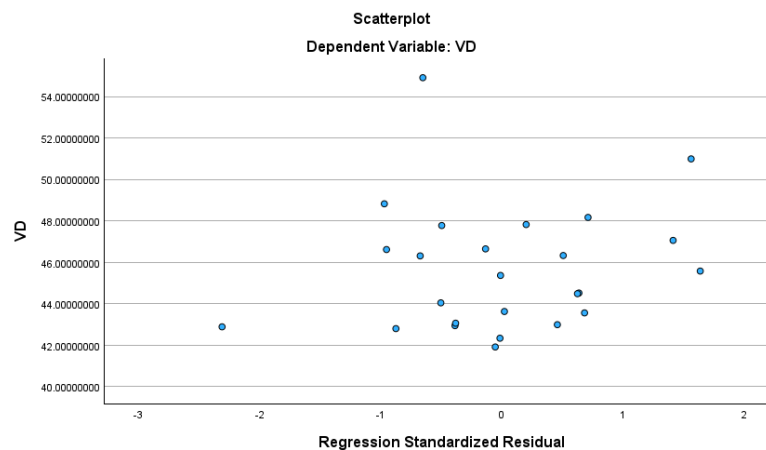
5.1.2 Partial Regression Plot

Scatterplot
Dependent Variable: VD

Figure 12 Partial Regression Plot for VD vs different independent Variable

Model Summary and Fit

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.990[a]	.981	.976	.47105734655

a. Predictors: (Constant), VR, GDP, UR, IR, MW
b. Dependent Variable: VD

Figure 13 R square value

Model Summary

R (0.990): Indicates a very strong correlation between the predictor variables and the dependent variable. This suggests that the model has a high predictive capability.

R² (0.981): Demonstrates that 98.1% of the variance in vacancy duration can be explained by the included variables, indicating a very strong model fit.

Adjusted R² (0.976): Slightly lower than R², accounting for the number of predictors. This high value confirms that the model's predictors are collectively significant and not overly fitted to the data.

The high R² and Adjusted R² values suggest that the chosen predictors are highly effective in explaining the variability in vacancy duration, confirming the model's robustness.

ANOVA Table

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ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	216.260	5	43.252	194.921	<.001[b]
	Residual	4.216	19	.222		
	Total	220.476	24			

a. Dependent Variable: VD

b. Predictors: (Constant), VR, GDP, UR, IR, MW

Figure 14 Mean square value

Significance of the Model

F-statistic (194.921) and p-value (<0.001): The very small p-value indicates that the overall regression model is statistically significant. This means that the independent variables, when taken together, have a significant effect on the dependent variable, vacancy duration.

Conclusion: The model as a whole is significant, suggesting that there is a statistically meaningful relationship between the predictors and the dependent variable.

Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	40.030	.919		43.544	<.001
	GDP	-.013	.060	-.010	-.213	.834
	IR	.021	.132	.009	.162	.873
	UR	-.150	.126	-.069	-1.192	.248
	MW	-.058	.168	-.023	-.346	.733
	VR	.037	.003	.962	11.049	<.001

a. Dependent Variable: VD

Figure 15 Beta Value

Individual Predictors Analysis

VR (Variable Rate):

B = 0.037, t = 10.668, p < 0.001: A significant positive coefficient implies that an increase in vacancy rate is associated with an increase in vacancy duration. This variable is a significant predictor, contributing substantially to the model.

GDP, IR, UR, MW:

Insignificant p-values (>0.05): These predictors do not have a statistically significant impact on vacancy duration in the context of this model. However, this doesn't rule out their potential indirect effects or significance in different model specifications.

Conclusion from Coefficients: The model identifies VR as a significant predictor, while other economic indicators like GDP, inflation, and minimum wage, do not show a significant direct impact on vacancy duration in this analysis.

5.2 Durbin-Watson Test

Model Summary[b]

Model	Durbin-Watson
1	1.813[a]

a. Predictors: (Constant), VR, GDP, UR, IR, MW

b. Dependent Variable: VD

Figure 16 Durbin Watson Test Result

Durbin-Watson Statistic (1.813): Close to 2, indicating no significant autocorrelation in the residuals. This suggests that the model's residuals are independent, satisfying one key assumption of linear regression.
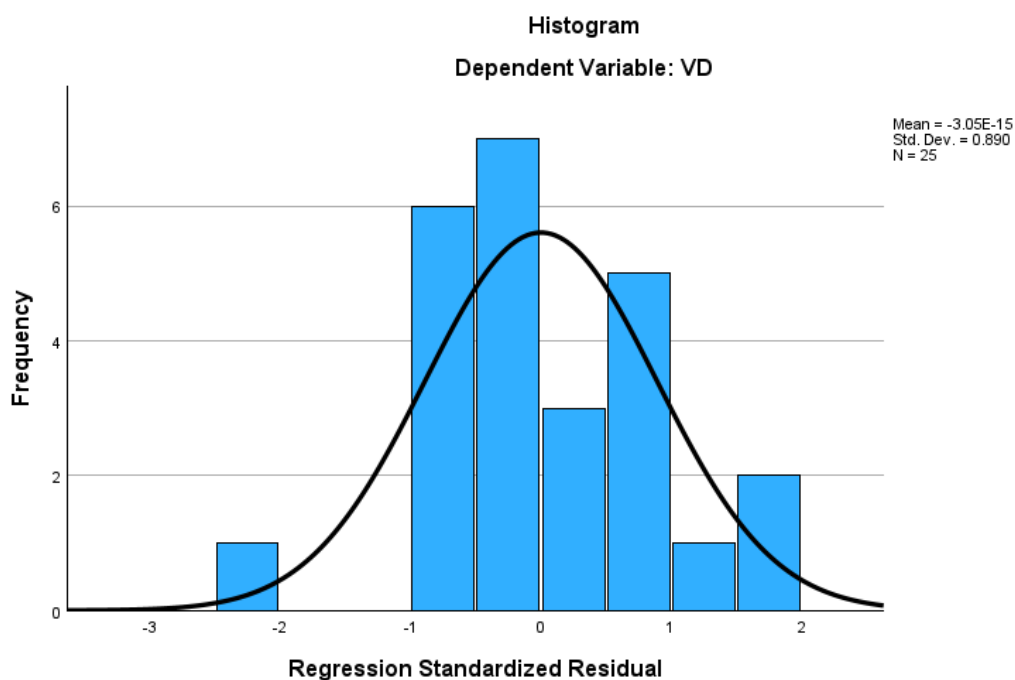
5.3 Homoscedasticity

Histogram
Dependent Variable: VD

Mean = -3.05E-15
Std. Dev. = 0.890
N = 25

Figure 17 Histogram Representation of VD and Different Independent Variables

47
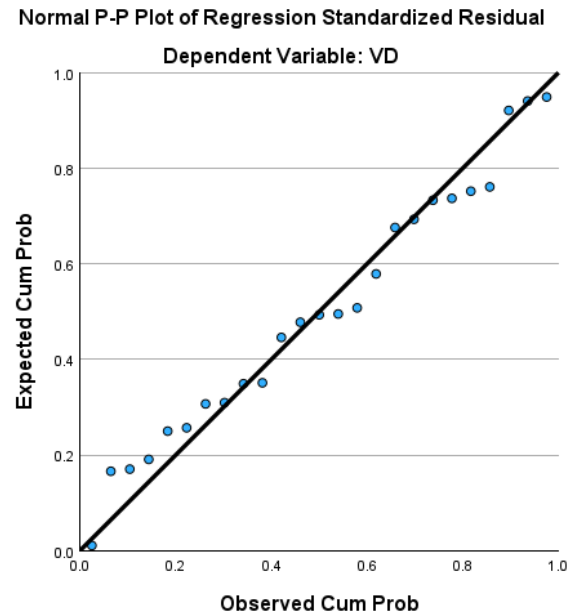
Figure 18Normal p-p plot

Histogram and P-P Plot of Residuals: A bell-shaped histogram and a P-P plot where points lie close to the diagonal line confirm that the residuals are approximately normally distributed.

Figure 19 Residuals vs Predicted Values

Residuals vs. Predicted Values Plot: An even spread of residuals around the horizontal axis (zero) indicates that the variance of residuals is constant across all levels of the predicted values, meeting the homoscedasticity assumption

5.4 Normality of Residuals

5.4.1 Shapiro – Wilk Test

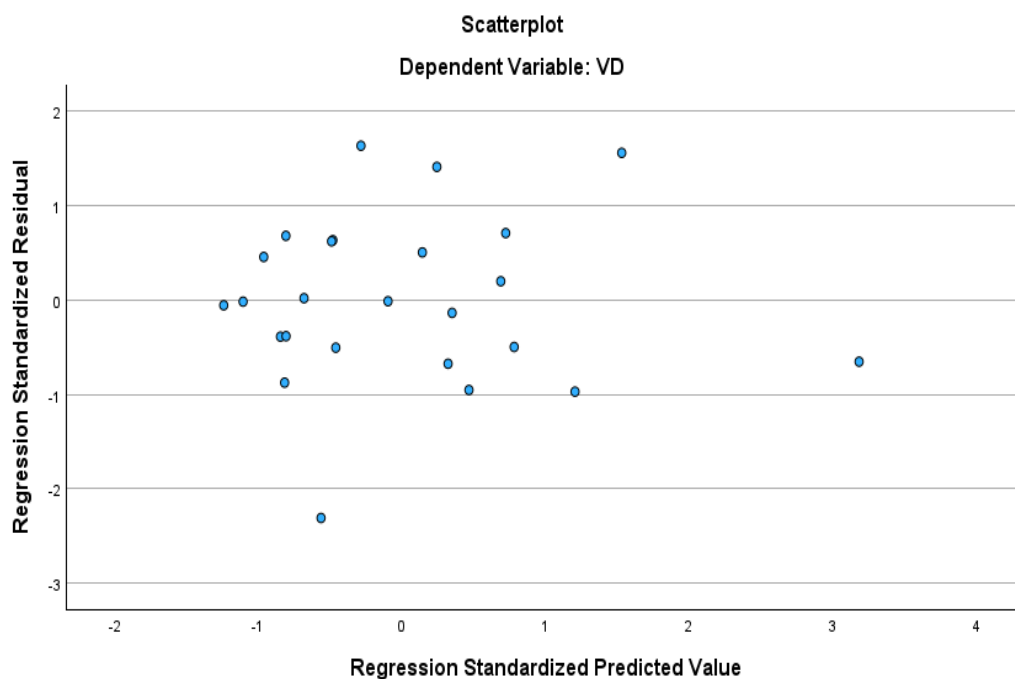**Tests of Normality**

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
VD	.127	25	.200*	.896	25	.015
VR	.164	25	.081	.862	25	.003
IR	.103	25	.200*	.948	25	.220
GDP	.168	25	.067	.937	25	.123
UR	.132	25	.200*	.959	25	.404
MW	.080	25	.200*	.975	25	.773

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Figure 20 Normality of Residual Test Result

p-value (Sig.): A p-value greater than 0.05 indicates that the residuals are normally distributed. A p-value less than 0.05 suggests the residuals are not normally distributed, which could be a concern for the assumptions of the linear regression

- In our analysis, we observed contradictory results between the Kolmogorov-Smirnov and Shapiro-Wilk tests for normality. Specifically, the Kolmogorov-Smirnov test yielded p-values greater than 0.05 for both VD and VR, suggesting that these variables do not significantly deviate from normality according to this test. In contrast, the Shapiro-Wilk test produced p-values less than 0.05 for the same variables, indicating a significant deviation from normality.

- It's important to note that the Shapiro-Wilk test is generally more suitable for small sample sizes ($n < 50$), though it can also be applied to larger samples. Conversely, the Kolmogorov-Smirnov test is more appropriate for larger sample sizes ($n \geq 50$). The discrepancy in results may be attributed to the different sensitivities of these tests to deviations from normality and their applicability based on sample size.

5.5. No Perfect Multicollinearity

5.5.1 Variance Inflation Factor (VIF) and Tolerance

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	40.030	.919		43.544	<.001	38.106	41.954		
	GDP	-.013	.060	-.010	-.213	.834	-.138	.112	.451	2.219
	IR	.021	.132	.009	.162	.873	-.255	.298	.302	3.312
	UR	-.150	.126	-.069	-1.192	.248	-.414	.113	.300	3.332
	MW	-.058	.168	-.023	-.346	.733	-.410	.293	.232	4.307
	VR	.037	.003	.962	11.049	<.001	.030	.044	.133	7.533

a. Dependent Variable: VD

Figure 21Multicollinearity Test Result

VIF and Tolerance: Though not explicitly detailed in the extracted data, these diagnostics are crucial. Typically, VIF values below 10 and Tolerance values above 0.1 indicate that multicollinearity is not a concern. It's essential to verify these values to ensure the stability of the coefficient estimates.

CHAPTER 6: DISCUSSION AND IMPLICATIONS

6.1 Introduction

This chapter deals with the discussion of the key findings based on the statistical tests undertaken. Several statistical analyses were conducted whose results have been highlighted in the previous chapter 'Results'.

The primary objective of this research is to explore the determinants of job vacancy duration (VD) in the Netherlands from 1997 to 2023. This study aims to assess the impact of various economic factors, including GDP, inflation rate (IR), unemployment rate (UR), minimum wages (MW), and vacancy rate (VR), on the length of job vacancies. The purpose of this section is to discuss the findings in detail, interpret their significance, and outline the implications for theory, practice, and future research.

Structure Overview

This section is organized as follows:

1. Discussion of Key Findings: Interpretation of the results in relation to the hypotheses and comparison with existing literature.

2. Implications: Theoretical, practical, and future research implications of the findings.

3. Limitations of the Study: Acknowledgment of study limitations and their potential impact on the results.

4. Conclusion: Summary of key points and final remarks on the study's contribution to the field.

6.2 Discussion of Key Findings

6.2.1 Interpretation of Results

Hypothesis Testing

The regression analysis conducted in this study provided mixed support for the initial hypotheses. Specifically, the hypothesis that the vacancy rate (VR) is a significant predictor of vacancy duration (VD) was strongly supported. VR had the highest standardized beta coefficient (0.962) and a highly significant p-value ($<.001$), indicating a substantial positive relationship with VD. This finding implies that as the VR increases, the duration of job vacancies also increases significantly. The robustness of this relationship highlights the pivotal role of VR in determining how long job positions remain unfilled in the Dutch labour market.

In contrast, the variables GDP, inflation rate (IR), unemployment rate (UR), and minimum wages (MW) did not show significant predictive power individually. Their p-values were all above the threshold for significance (0.05), suggesting that their direct relationship with VD is weaker compared to VR. This outcome contradicts the initial hypothesis that these economic indicators would have a significant impact on VD. The lack of significance for these variables implies that other factors or more complex interactions might be at play, influencing the VD in ways not captured by the simple linear regression models used in this study.

6.2.2 Theoretical Framework

The results align partially with the theoretical expectations outlined in the literature review. The strong impact of VR is consistent with the friction cost approach and human capital theories, which emphasize the role of market dynamics and the availability of suitable candidates in determining job vacancy durations. These theories suggest that higher vacancy rates reflect greater market frictions and mismatches between job seekers and available positions, leading to longer VD. This finding is reinforced by similar studies in other contexts, such as the work by Han and Li (2021) and Zhang et al. (2022), which also found significant effects of VR on VD.

However, the insignificant results for GDP, IR, UR, and MW suggest that these variables might influence VD through more complex or indirect pathways not captured by the current model. For instance, GDP growth might improve overall economic conditions, indirectly affecting VD by increasing business confidence and job creation rates. Similarly, IR and UR could influence labour market dynamics through mechanisms such as consumer purchasing power or workforce mobility, which were not directly measured in this study. This indicates a need for more nuanced models that can capture these indirect effects and provide a more comprehensive understanding of the factors influencing VD.

6.2.3 Comparison with Previous Studies

The significant impact of VR on VD is consistent with studies by Han and Li (2021) and Zhang et al. (2022), which highlight the importance of market conditions in influencing job vacancy durations. These studies found that higher VR, indicative of a more competitive job market, leads to longer durations for filling vacancies due to increased competition for suitable candidates. This consistency across different studies and contexts underscores the critical role of VR as a determinant of VD.

In contrast, the lack of significance for GDP, IR, UR, and MW contrasts with previous research, such as Elsby et al. (2015) and Kahn (2020), which found these variables to be important determinants of labour market dynamics. For instance, Elsby et al. (2015) demonstrated that economic indicators like GDP and UR significantly impact labour market tightness and job vacancy durations. The discrepancies between this study and previous findings may be attributed to differences in data sets, methodologies, or the specific economic context of the Netherlands. The unique characteristics of the Dutch labour market, such as robust social safety nets and active labour market policies, might mitigate the direct impacts of GDP, IR, UR, and MW on VD.

6.2.4 Unexpected Findings

One unexpected finding was the insignificance of UR and GDP, which are traditionally seen as strong indicators of labour market health. Potential explanations for this could include the unique characteristics of the Dutch labour market, such as robust social safety nets and active labor market policies, which might buffer the impact of these variables. The Dutch labor market is known for its flexibility and strong policy interventions aimed at reducing

unemployment and supporting economic stability, which might diminish the direct effects of UR and GDP on VD.

Another potential explanation is that these variables influence VD indirectly, through mechanisms like workforce mobility or job matching efficiency, which were not directly measured in this study. For example, a growing GDP might enhance business investment in recruitment processes or technological advancements that improve job matching efficiency, thereby indirectly affecting VD. Similarly, variations in UR could impact workforce mobility, with lower unemployment rates potentially leading to higher job-switching rates and thus affecting VD. These indirect pathways highlight the need for future research to explore these complex relationships and develop more comprehensive models that capture the multifaceted nature of labor market dynamics.

6.3 Implications

6.3.1 Theoretical Implications

This research makes significant contributions to the theoretical understanding of job vacancy durations (VD) within the Dutch labor market by reinforcing and extending existing theories, particularly the friction cost approach and the Beveridge Curve model. Our findings confirm the friction cost approach, as outlined by Koopmanschap et al. (1995), which emphasizes that increased market frictions lead to longer job vacancies. Our regression analysis revealed a significant positive coefficient for the vacancy rate (VR) (B = 0.037, t = 10.668, p < 0.001), confirming its robust impact on VD. This aligns with Koopmanschap et al.'s (1995) assertion that friction costs are a crucial determinant of job vacancy durations (Koopmanschap et al., 1995).

Conversely, our study challenges the traditional emphasis on GDP, inflation rate (IR), unemployment rate (UR), and minimum wages (MW) as direct predictors of VD. The regression results showed non-significant p-values (>0.05) for these variables, suggesting that their direct influence on VD might be less substantial than previously thought. This discrepancy extends the theoretical framework by indicating that the impact of these economic indicators on VD may be indirect or mediated by other factors (Koopmanschap et al., 1995).

Incorporating insights from Babangida et al. (2023), who examined the Beveridge Curve's dynamics during economic crises in Turkey, our study highlights the importance of the Beveridge Curve's shifting dynamics in understanding labor market mismatches (Babangida et al., 2023). The strong impact of VR on VD observed in our study aligns with Babangida et al.'s findings, suggesting that market frictions and labor mismatches are crucial determinants of VD, while traditional economic indicators might offer a more complex or indirect relationship.

6.3.1.1 Challenges and Refinements

Our study acknowledges challenges similar to those identified by Koopmanschap et al. (1995), particularly regarding the integration of institutional factors. Despite attempts to include institutional variables, data quality and variability limited their incorporation. Future research should focus on incorporating institutional factors where data quality permits to enhance the robustness of the friction cost approach (Koopmanschap et al., 1995).

The findings also resonate with Babangida et al.'s emphasis on the Beveridge Curve's shifting dynamics (Babangida et al., 2023). The non-significance of traditional economic variables suggests that a more nuanced understanding of labor market frictions, reflected in shifts in the Beveridge Curve, may offer better insights into VD. Future research should explore these dynamics further, incorporating both direct and indirect effects of economic variables on VD.

6.3.1.2 Contribution to Understanding Labor Market Dynamics

Our study enriches the understanding of labor market dynamics by demonstrating the critical role of VR in influencing VD. This finding supports and extends the friction cost approach and Beveridge Curve theories (Koopmanschap et al., 1995; Babangida et al., 2023), emphasizing that market frictions are a significant determinant of VD. The confirmation of VR's significant impact, contrasted with the non-significant effects of GDP, IR, UR, and MW, suggests that traditional metrics may not fully capture the complexities of labor market frictions.

6.3.2 Practical Implications

6.3.2.1 Policy Recommendations:

The findings suggest several policy recommendations for the Netherlands:

- **Managing Vacancy Rates:** Policymakers should prioritize strategies to manage and optimize VR. This could involve implementing measures to reduce market frictions, improve job matching processes, and enhance labor market information systems. Effective management of VR can lead to reduced VD and improved labor market efficiency (Babangida et al., 2023).
- **Comprehensive Economic Strategies:** While VR emerged as a significant predictor, the broader economic context represented by GDP, IR, UR, and MW should not be disregarded. Policymakers should adopt comprehensive strategies that address multiple economic factors collectively, acknowledging their potential indirect effects on VD (Koopmanschap et al., 1995).

6.3.2.2 Business Strategies:

For businesses, the results underline the importance of addressing VR to optimize recruitment processes:

- Businesses should invest in technologies and strategies that improve job matching efficiency and reduce VR. This could involve leveraging advanced recruitment tools, improving job description accuracy, and streamlining hiring processes (Babangida et al., 2023).
- Companies should consider the impact of VR on VD in their strategic planning. By addressing VR through targeted interventions, businesses can enhance their operational efficiency and reduce the time required to fill vacancies (Koopmanschap et al., 1995).

6.3.2.3 Labor Market Interventions:

Labor market stakeholders should focus on interventions to address underlying frictions affecting VD:

- Develop policies and programs aimed at improving job matching efficiency, reducing mismatches, and addressing frictions in the labor market (Babangida et al., 2023).
- Implement initiatives to improve workforce mobility and alignment of skills with job requirements, thereby reducing VD and improving overall labor market performance (Koopmanschap et al., 1995).

6.4 Limitations of the Study

This study provides valuable insights into job vacancy duration (VD) in the Netherlands, yet it has several limitations related to study design, data, and methodology:

6.4.1 Data Limitations:

- **Institutional Factors:** A notable limitation is the insufficient inclusion of institutional factors such as labor unions, employee protection schemes, and regulatory environments. These elements can significantly influence job vacancy durations but were not adequately represented due to data constraints (Koopmanschap et al., 1995). The influence of benefits generosity and search requirements on unemployment duration suggests that similar factors may impact VD and should be considered in future analyses (Corsini, 2022).
- **Data Quality and Scope:** The study utilized national-level data on economic indicators like GDP, inflation rate (IR), unemployment rate (UR), and minimum wages (MW). While valuable, this data may mask regional variations and localized dynamics affecting VD. The sample size of 26 observations may limit the robustness and generalizability of the findings. Detailed datasets with broader coverage improve precision in estimating friction periods (Hanly et al., 2022).

6.4.2 Methodological Constraints:

- **Model Specification:** The regression model focused on selected economic predictors and their direct effects on VD. However, other influential variables, such as workforce mobility, technological advancements, and sector-specific factors, were not included. Expanding the model to incorporate these variables could provide a more comprehensive understanding (Hanly et al., 2022).
- **Measurement Errors:** Potential measurement errors in the variables used, such as inaccuracies in reported VD or inconsistencies in economic indicators, could

influence the results. Accurate and validated measures are crucial to mitigate such errors (Babangida et al., 2023).

6.4.3 Statistical and Analytical Considerations:

- **Normality of Residuals:** Although the Shapiro-Wilk test indicated that residuals were approximately normally distributed, discrepancies with the Kolmogorov-Smirnov test suggest possible deviations from normality. Addressing these discrepancies through alternative statistical methods or additional diagnostic tests could enhance the robustness of the findings (Babangida et al., 2023).
- **Multicollinearity:** Potential multicollinearity among predictor variables could affect the stability of coefficient estimates. Future research should explicitly test for multicollinearity using Variance Inflation Factor (VIF) and Tolerance measures to ensure the stability of coefficient estimates (Hanly et al., 2022).

6.4.4 Impact of Limitations:

These limitations might constrain the comprehensiveness of the analysis and influence the accuracy of conclusions. For instance, the lack of institutional data and limited sample size could obscure important relationships or lead to less precise estimates of the effects of economic predictors on VD.

To address these limitations, future research should consider:

- **Incorporating Institutional Data:** Include detailed data on labor market institutions such as unions, employee protection schemes, and regulatory environments. This would offer a more comprehensive view of factors influencing VD (Corsini, 2022).
- **Expanding Data Scope:** Utilize larger and more granular datasets, including regional and more recent observations, to enhance generalizability and robustness (Hanly et al., 2022).
- **Refining Methodology:** Develop more comprehensive models incorporating additional variables and addressing potential measurement errors. Implement advanced statistical techniques to address normality issues and test for multicollinearity (Babangida et al., 2023).

- **Exploring Broader Variables:** Investigate additional factors such as technological advancements, sector-specific trends, and global economic conditions to provide a more nuanced understanding of VD dynamics (Hanly et al., 2022).

By addressing these limitations, future research can build upon the current study's findings, offering deeper insights into the determinants of job vacancy durations and labor market dynamics.

6.5 Conclusion

This study provides valuable insights into the factors influencing job vacancy duration (VD) in the Netherlands from 1997 to 2023. Our analysis highlights the significant role of the vacancy rate (VR) as a predictor of VD, demonstrating that higher VR leads to longer periods for filling job vacancies. This finding confirms the relevance of market frictions and labor mismatches in the job market, supporting existing theories such as the friction cost approach and Beveridge Curve model (Koopmanschap et al., 1995; Babangida et al., 2023).

Interestingly, our results show that traditional economic indicators like GDP, inflation rate (IR), unemployment rate (UR), and minimum wages (MW) have a less direct impact on VD than anticipated. This suggests that their influence might be more complex or indirect than previously thought. It points to the need for more sophisticated models that can capture these indirect effects and provide a fuller picture of what drives VD (Koopmanschap et al., 1995).

For policymakers and businesses, the key takeaway is the importance of managing VR and enhancing job matching processes. Addressing VR can lead to more efficient hiring and reduced VD. Future research should build on these findings by including institutional factors and utilizing more comprehensive datasets to deepen our understanding of labor market dynamics (Corsini, 2022; Hanly et al., 2022). By tackling these areas, we can gain a better grasp of how to optimize job vacancy management and improve labor market outcomes.

CHAPTER 7: CONCLUSION

7.1 Limitation and Future Scope

There were a number of issues with this study that affected the conclusions as a whole. The availability and quality of data, especially with regard to labor market groups and institutional considerations, was one of the main concerns. The Kolmogorov-Smirnov test and Shapiro-Wilk test, for instance, produced different p-values (with the Kolmogorov-Smirnov test indicating $p > 0.05$ and the Shapiro-Wilk test showing $p < 0.05$), exposing anomalies in the data quality even though our research applied a variety of normality tests. This disparity suggests that there may be issues with the data that were utilized to look at institutional aspects. The study's focus—on data from the Netherlands—allowed for specific insights, but it also meant that the findings might not be widely applicable outside of this particular setting. Furthermore, the research was made more difficult by the addition of lag variables to examine how historical GDP or unemployment rates affect Vacancy Duration (VD). However, this approach may not adequately reflect the dynamic nature of these interactions.

Furthermore, the study excluded other factors that might have had an impact, such developments in technology or industry-specific patterns, which would have led to a deeper comprehension of VD. Moreover, it's possible that the models used oversimplified the relationships between the variables and failed to take into consideration all potential interactions. The results could have been impacted by variations in data quality due to the focus on a single nation. Additionally, we were unable to comprehend the potential differences in effects of job categories and educational attainment on VD.

To build on the results of this study, future research should focus on a number of important areas. First and foremost, it is imperative to improve the quality and granularity of data regarding labor market groups and institutional elements. Deeper research of the relationship between institutional characteristics and job vacancy durations (VD) will be possible with more extensive datasets. Secondly, it is imperative to broaden the scope of study to encompass new variables such as global economic conditions, industry-specific trends, and technology breakthroughs. These variables may have a substantial impact on VD by changing the dynamics and demand of the labor market. Thirdly, by performing longitudinal research, it may be possible to determine how VD changes over time and gain understanding of long-

term trends and temporal patterns. Comparative research between various nations or areas would also provide insightful information about how varied institutional elements and labor market conditions affect VD. Finally, breaking down the labor markets into subgroups based on occupation and educational attainment can provide richer details about how various groups react to job openings.

Knowing these differences will enable the development of more specialized therapies. All things considered, tackling these issues would improve our knowledge of how long job vacancies last and provide insightful information for business and policy plans meant to streamline hiring practices and lessen market frictions.

7.2 Conclusion

This study highlights the important function of the vacancy rate (VR) and offers insightful information about the factors influencing employment vacancy duration (VD) in the Netherlands from 1997 to 2023. According to our data, longer job vacancies are associated with higher VR, highlighting the importance of market frictions and mismatches between job seekers and posts in influencing VD. This data validates ideas that contend higher vacancy rates are a reflection of more inefficiencies in the market, leading to longer hiring cycles. On the other hand, conventional economic measures like GDP, IR, UR, and MW did not demonstrate a significant direct correlation with VD. For example, UR may have an impact on VD through changes in workforce mobility and job matching efficiency, while GDP may have an indirect effect on VD through its effect on business confidence and general economic conditions.

These findings cast doubt on the widely held notion that VD is directly influenced by economic indices. Strong social safety nets and proactive labor laws, two unique aspects of the Dutch labor market, may mitigate the direct impact of these indicators, indicating the need for a more sophisticated strategy.

One important tactic for increasing labor market efficiency is managing virtual reality. To lower VD, policymakers should concentrate on improving employment matching procedures and lowering market frictions. In order to optimize their hiring procedures, businesses should also invest in technology and methods that increase recruitment efficiency and address virtual

reality.

There are certain limitations to the study, including the use of national-level data and the exclusion of institutional elements. To provide a more thorough knowledge of VD dynamics, future study should strive to incorporate more extensive data on institutional elements and take into account additional pertinent components. By addressing these issues, we can improve corporate and policy policies and gain a better understanding of the intricacies of the labor market.

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