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Three Essays on Immigrant Workers in Kuwait

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by

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Abstract

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Three Essays on Immigrant Workers in Kuwait

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This thesis explores how labour and immigration policies affect immigrant workers in Kuwait, a labour market heavily reliant on foreign workers. It presents three empirical studies using rich microdata and causal inference methods to examine employment, wage, and remittance outcomes.

The first study study investigates wage differentials between natives and immigrants by nationality and skill levels. Using Blinder-Oaxaca (BO) decomposition, the Brown, Moon, and Zoloth (BMZ) model, and Nopo non-parametric matching approach, it shows that a substantial portion of wage gaps cannot be explained by observable characteristics which highlights a potential structural discrimination and unequal treatment in the labour market.

The second evaluates the effects of Employment Protection Legislation (EPL) introduced in the private sector. Applying a Difference-in-Differences (DiD) approach, it finds that while EPL increased employment, it simultaneously reduced real wages. This reveals a critical trade-off between job security and wage outcomes for migrant workers.

The third study examines the family reunion policy that introduced a minimum income threshold for family reunification. Using Regression Discontinuity Design (RDD) and Difference-in-Discontinuity (Diff-in-Disc) method, it shows that restricting family reunification significantly increased remittances among low-skilled immigrants, suggesting behavioural adaptation to policy constraints.

Together, these findings offer new evidence on the unintended consequences and equity challenges of labour regulation in migrant-dependent economies. They underscore the need for policies that balance protection with fairness, account for behavioural responses, and address underlying structural inequalities.

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To My Family…

Definitions and Abbreviations

BMZ	Brown, Moon, and Zoloth.
BO	Blinder-Oaxaca.
$CAPI$	Computer Assisted Personal Interviewing.
CCT	Calonico, Cattaneo, and Titiunik.
CGE	Computable General Equilibrium.
CPI	Consumer Price Index.
CSB	Central Statistical Bureau.
CSC	Civil Services Commission.
DiD	Difference-in-Difference.
$Diff-in-Disc$	Difference-in-Discontinuity.
EPL	Employment Protection Legislation.
GCC	Gulf Co-operation Council.
GDP	Gross Domestic Product.
GDR	General Department of Residency.
ID	Civil Identification.
ILO	International Labour Organization.
$ISCO$	International Standard Classification of Occupations.
$ISIC$	International Standard Industrial Classification.
IV	Instrumental Variable.
$KIES$	Kuwait Households Income and Expenses Survey.
$KLFS$	Kuwait Labour Force Survey.
KWD	Kuwaiti Dinar.
$LMIS$	Labour Market Information System.

MOI	Ministry of Interior.
MSB	Migration Statistics Bulletin.
MSE	Mean Squared Error.
NELM	New Economics of Labour Migration.
OECD	Organization for Economic Co-operation and Development.
OLS	Ordinary Least Square.
PACI	Public Authority for Civil Information.
PAM	Public Authority of Manpower.
PZMS	Placebo Zone Model Selection.
RDD	Regression Discontinuity Design.
RIF	Recentered Influence Function
UQR	Unconditional Quantile Regression.

Chapter 1

Introduction

1.1 Preamble

Migration has become a defining feature of labour markets in high-income economies, particularly in the Gulf Cooperation Council (GCC) region where migration flows are predominantly labour-driven and institutional structures rely heavily on foreign workers Al Abri et al. 2023. Kuwait represents an extreme case of this model. According to the 2011 census[1], foreign workers constitute the vast majority of the labour force, especially in the private sector, while Kuwaiti nationals are primarily concentrated in public sector employment. This demographic and institutional configuration has produced a highly segmented labour market in which nationals and non-nationals face distinct regulatory frameworks, incentives, and labour market outcomes.

Despite the central role that migrant workers play in Kuwait's economic development, empirical evidence on how labour market institutions and policy reforms shape their employment, wages, and economic behaviour remains limited Abdelnabi 2025; Erumban and Al-Mejren 2024. Yet, the past decade has witnessed a series of important policy developments that directly affect foreign workers, including: (i) persistent wage differentials associated with nationality-based labour market segmentation; (ii) the 2015 introduction of Employment Protection Legislation (EPL), which altered hiring and firing rules; and (iii) the 2019 reform of the family reunification income threshold, which has implications for savings and remittances.

This thesis examines how these institutional features and policy changes influence the labour market outcomes of immigrant workers in Kuwait. By analysing the effects of labour market segmentation, employment regulation, and remittance-relevant income policies, the thesis contributes to a deeper understanding of how immigrant-dependent labour markets respond to regulatory interventions.

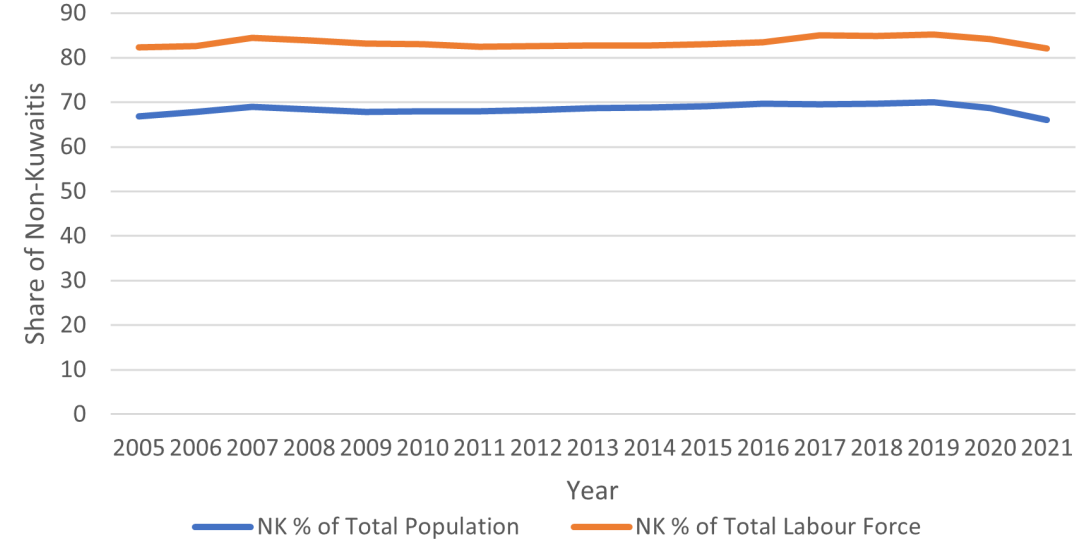
The remainder of this chapter is structured as follows. Section 1.2 provides an overview of Kuwait's labour market, with a focus on demographic composition, sectoral segmentation, and the institutional framework governing migrant workers. Section 1.3 presents the motivation for the research, the key questions addressed, and the main objectives of the thesis. Section 1.4 outlines the contributions of the three empirical papers, followed by Section 1.5, which summarises the overall structure of the thesis.

[1] Central Statistical Bureau of Kuwait 2015 (https://csb.gov.kw/Pages/Statistics_en?ID=18&ParentCatID=2).

1.2 Kuwait's Labour Market: Structure, Demographics, and Immigration Dependence

Kuwait's labour market is highly segmented and structurally dependent on foreign labour. As a rentier state, oil revenues fund a large public sector that predominantly employs Kuwaiti nationals, while the private sector relies overwhelmingly on migrant workers Shah 1995; Louer 2021; Abdelnabi 2025. According to the 2011 census, non-Kuwaitis comprised approximately 64% of the population and nearly 81% of the labour force, with their share rising to around 95% in the private sector.[2] Nationals, by contrast, remain strongly concentrated in public-sector employment.

Figure 1.1 illustrates the dominant share of non-Kuwaiti workers in the labour force between 2005 and 2021. Their participation consistently exceeds 80% of total employment, reflecting both low labour-force participation among nationals and the central role of foreign workers in sustaining economic activity. A rise in the foreign labour share is observed after the establishment of the Public Authority for Manpower (PAM) in 2013 and the introduction of employment protection legislation (EPL) in 2015, with a temporary decline during the COVID-19 pandemic.



Source: Public Authority for Civil Information (PACI), December 2005–2021.

FIGURE 1.1: Non-Kuwaiti Share of Population and Labour Force, 2005–2021

[2] Central Statistical Bureau of Kuwait 2015 (https://csb.gov.kw/Pages/Statistics_en?ID=18&ParentCatID=2).

1.2.1 Labour Market Segmentation and Wage Structure

Kuwait's labour market is segmented along both sectoral and nationality lines. Migrant labour became institutionalised with the expansion of the oil economy in the 1950s and the subsequent development of the sponsorship system (Kafala), which ties a worker's residency status to an employer AlShehabi 2021. This system continues to shape mobility and bargaining power.

A defining feature of this segmentation is the presence of large and persistent wage disparities. Migrant workers earn, on average, only one-fifth of what nationals earn Erumban and Al-Mejren 2024, and the gap is amplified within the private sector where most foreign workers earn considerably below KWD 600 per month Hertog 2020. Historical analyses attribute roughly half of the Kuwait–non-Kuwait wage gap to discriminatory practices AlQudsi 1985. These averages, however, mask substantial heterogeneity across nationalities and occupations. Understanding these wage disparities and their structural origins is the focus of Chapter 2.

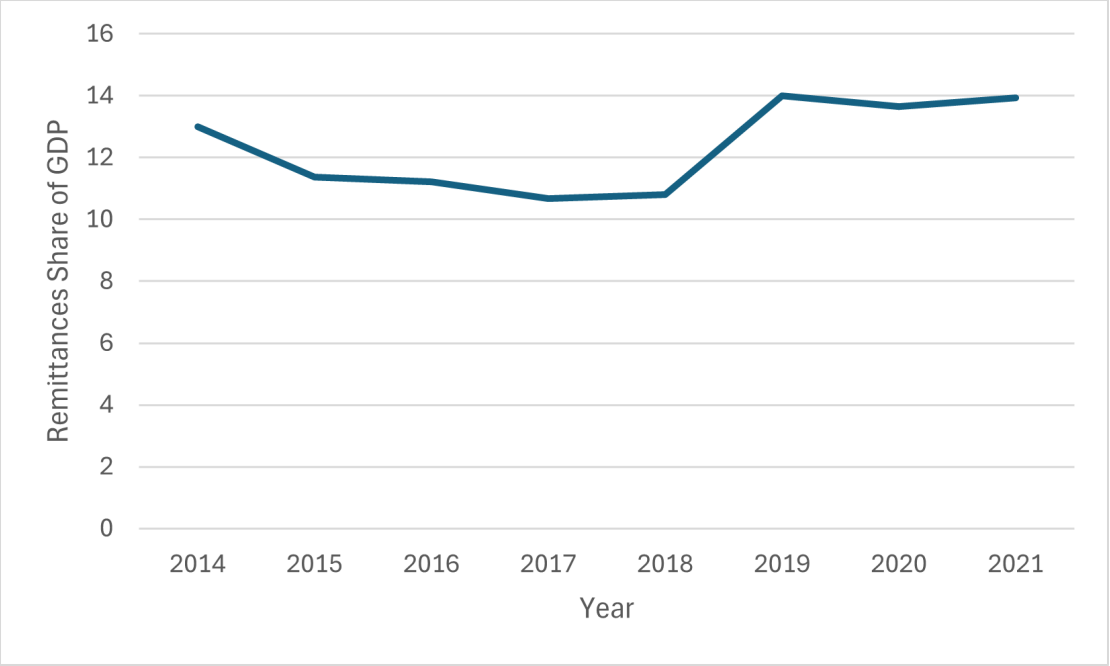
1.2.2 Employment Protection Legislation (2015)

In 2015, Kuwait implemented a major labour market reform introducing new Employment Protection Legislation (EPL) that altered hiring and firing procedures in the private sector. The reform restricted arbitrary dismissal, strengthened job security provisions, and centralised regulatory oversight under the Public Authority for Manpower (PAM). Given the heavy reliance on foreign labour in the private sector, the EPL represented a significant institutional shock with potentially important consequences for employment dynamics and wage-setting behaviour. Assessing the distributional impact of the 2015 EPL reform forms the basis of Chapter 3.

1.2.3 Family Sponsorship System and the 2019 Income Threshold

Family reunification for migrants in Kuwait operates under a regulated sponsorship system. Private-sector workers (Visa 18) may sponsor dependents only if they meet a set of eligibility criteria, the most restrictive being a minimum income threshold. In 2019, Ministerial Decision No. 957 raised this threshold from KWD 450 to KWD 500, tightening access to family sponsorship and disproportionately affecting low-skilled workers.

Remittances constitute a major component of the economic behaviour of migrant households. As shown in Figure 1.2, outward remittances account for 11–14% of real GDP between 2014 and 2021, highlighting their macroeconomic relevance. Restrictions on family presence abroad or in Kuwait may alter the balance between domestic consumption and remittances, depending on income, household structure, and expectations. Chapter 4 analyses the impact of the 2019 policy change on the remittance behaviour of low-skilled workers using administrative and survey data.



Source: Central Bank of Kuwait (CBK), 2019–2022.

FIGURE 1.2: Remittances as a Share of Real GDP, 2014–2021

1.2.4 Remaining Structural Features

Gender segmentation further characterises Kuwait's labour market: male migrants dominate construction and industrial occupations, while female migrants are concentrated in domestic and care work, which often falls outside formal labour protections. Visa types reinforce these divisions, with distinct rights and restrictions across visa categories De Bel-Air 2019.

Finally, despite ongoing "Kuwaitisation" initiatives, nationals overwhelmingly prefer public-sector employment due to higher wages, better benefits, and greater job security. Structural mismatches in skills and preferences have limited the success of these reforms United Nations Kuwait 2021. As a result, Kuwait's labour market remains highly reliant on foreign labour and

sensitive to regulatory changes, underscoring the importance of the three policy areas examined in this thesis.

1.3 Motivation, Research Questions, and Objectives

Kuwait's labour market is characterised by a deep structural reliance on migrant workers, who constitute the overwhelming majority of the private sector workforce Assaad 2014. This reliance is embedded within a dual labour market in which nationals predominantly occupy public-sector positions, while non-nationals face different institutional arrangements, wage-setting mechanisms, and mobility constraints. The sponsorship (Kafala) system, nationality-based occupational channels, and segmented visa categories reinforce these patterns and shape the distribution of risks, opportunities, and protections available to workers Palier, Azoulay, and Louer 2021; Bartoszewicz and Lang 2024. Despite the centrality of migrant labour to Kuwait's economy, evidence on how specific labour market institutions and policy reforms affect the welfare and economic behaviour of foreign workers remains limited.

This thesis is motivated by three major institutional features and policy reforms introduced over the past decade, each with potentially far-reaching implications for migrant workers yet understudied in the academic literature.

First, persistent wage differentials across nationality groups both between nationals and non-nationals and within the immigrant workforce, reflect underlying labour market segmentation. Nationality often determines access to occupations, contract types, and informal privileges, leading to large disparities in earnings and job conditions. However, little is known about the relative importance of worker characteristics, occupational structure, and institutional factors in shaping these wage gaps.

Second, the 2015 introduction of Employment Protection Legislation (EPL), following the establishment of the Public Authority for Manpower (PAM), represented a major regulatory shift altering hiring and firing rules in the private sector. While EPL reforms are typically designed to enhance job security, their effects in migration-dependent labour markets where employers rely heavily on flexible foreign labour are unclear. No causal evidence currently exists on how the Kuwaiti EPL reform affected immigrant employment and wages.

Third, the 2019 amendment to the family reunification policy increased the minimum income requirement for sponsoring dependents, effectively restricting family presence for many low-skilled migrants. This policy change altered the economic incentives and household arrangements of foreign workers and likely influenced remittance behaviour, yet it has not been examined using micro-level data.

In response to these gaps, this thesis addresses the following research questions:

- **Chapter 2:** What are the magnitudes and determinants of wage differentials between Kuwaiti nationals and immigrant workers, and among immigrant workers themselves, across different skill levels?
- **Chapter 3:** What is the causal effect of the 2015 Employment Protection Legislation (EPL) on the employment and real wages of immigrant workers in the private sector?
- **Chapter 4:** How did the 2019 increase in the minimum income threshold for family reunification affect the remittance behaviour of low-skilled immigrant workers?

The overarching objective of this thesis is to provide rigorous and policy-relevant evidence on how institutional and regulatory changes shape the labour market outcomes and economic decisions of migrant workers in Kuwait. By combining causal inference techniques with rich survey and administrative data, the thesis contributes to a deeper understanding of how labour market segmentation, employment regulation, and immigration policies interact to influence employment, wages, and household financial behaviour. The findings aim to inform both academic debates and ongoing policy discussions concerning labour market reform, demographic sustainability, and migration governance in Kuwait and the broader Gulf region.

1.4 Overview and Contribution of the Thesis

This thesis consists of three empirical studies that evaluate the effects of major labour market institutions and policy reforms on immigrant workers in Kuwait. Each chapter examines a distinct but interrelated policy area, wage inequality, employment protection, and family reunification, and together they provide the first comprehensive micro-level evidence on how regulatory

changes shape the economic outcomes of foreign workers in a highly segmented and migrant-dependent labour market. The studies contribute to the fields of labour and migration economics by combining rigorous empirical methods with rich Kuwaiti microdata, generating findings of direct relevance to ongoing policy debates in the Gulf region.

Chapter 2 investigates the structure and determinants of wage inequality in Kuwait. It examines wage differentials not only between Kuwaiti nationals and immigrant workers but also across immigrant groups differentiated by nationality and skill level. Using a suite of decomposition techniques including the Blinder 1973; Ronald Oaxaca 1973 (BO) approach, the Brown, Moon, and Zoloth 1980 (BMZ) extension, and the Nöpo 2008 non-parametric matching method, the chapter quantifies the contributions of observable characteristics, occupational sorting, and structural factors to wage disparities. This is the first detailed decomposition of wage inequality within Kuwait's private sector and provides new evidence on the mechanisms through which nationality-based segmentation shapes labour market outcomes.

Chapter 3 evaluates the causal impact of Kuwait's 2015 Employment Protection Legislation (EPL) on immigrant workers' real wages and employment probabilities. Employing a Difference-in-Differences (DiD) strategy, the study identifies the effect of tightened job-security regulations in a labour market where employers rely heavily on flexible foreign labour. The chapter presents the first causal analysis of EPL in the Kuwaiti context and offers novel insights into how job protection reforms operate in rentier economies with segmented labour markets.

Chapter 4 examines the behavioural effects of the 2019 reform to Kuwait's family reunification policy, which raised the minimum income threshold for sponsoring dependents. Using a Regression Discontinuity Design (RDD) and a Difference-in-Discontinuity (Diff-in-Disc) framework, the analysis identifies the policy's impact on remittance behaviour among low-skilled immigrant workers. The findings reveal that workers just below the new threshold significantly increased the share of income remitted abroad, suggesting that tighter family restrictions amplify transnational financial obligations. This constitutes the first empirical evidence on the remittance effects of family sponsorship rules in the Gulf region.

Taken together, the three chapters make several substantive contributions. First, they provide rare empirical evidence on the labour market experiences of immigrant workers in Kuwait, addressing major gaps in the literature despite the country's heavy reliance on foreign labour. The studies

draw on nationally representative data from the Labour Force Survey and the Income and Expenditure Survey, allowing for credible identification of policy effects. Second, the thesis advances methodological practice by applying robust causal inference tools such as DiD, RDD, Diff-in-Disc, and decomposition frameworks in a context where such methods have seldom been used. Third, the findings generate actionable policy insights on the unintended consequences of wage-setting institutions, labour regulation, and immigration controls. Taken collectively, the evidence illustrates how labour market rules interact with demographic structures to shape employment, wages, and household financial behaviour in a high-income, migrant-dependent economy. The thesis therefore contributes to both academic understanding and policy design in Kuwait and the broader GCC region.

1.5 Structure of the Thesis

The thesis is organised into five chapters. Following this introductory chapter, the remaining chapters are structured as follows.

Chapter 2 presents the first empirical study, which examines wage differentials in Kuwait's private sector. The chapter quantifies wage gaps between Kuwaiti nationals and immigrant workers, as well as among immigrants of different nationalities and skill levels. Using the Blinder–Oaxaca Blinder 1973; Ronald Oaxaca 1973 and Brown–Montgomery–Zafiris Brown, Moon, and Zoloth 1980 decomposition methods, together with the non-parametric matching approach of Nöpo 2008, the analysis identifies the relative contributions of worker characteristics, occupational sorting, and structural factors to observed wage inequality.

Chapter 3 evaluates the causal effect of the 2015 Employment Protection Legislation (EPL) on the labour market outcomes of immigrant workers in the private sector. Employing a Difference-in-Differences (DiD) strategy, the chapter estimates the impact of the reform on real monthly wages and employment probabilities. This study provides the first causal evidence on how strengthened job-security regulation affects foreign workers in Kuwait's segmented labour market.

Chapter 4 investigates the behavioural response of low-skilled immigrant workers to the 2019 revision of the family reunification income threshold. Using a Regression Discontinuity Design (RDD) and a Difference-in-Discontinuity (Diff-in-Disc) framework, the chapter estimates the

policy's impact on the share of income remitted abroad. The analysis offers new evidence on how immigration policy shapes household financial decisions in a context of constrained family presence.

Finally, Chapter 5 summarises the main findings from the three empirical studies, discusses their broader policy implications, and outlines avenues for future research in the areas of labour regulation, wage inequality, and migration governance in Kuwait and the wider GCC region.

Chapter 2

Wage differentials between immigrants and natives in the Kuwaiti private sector

2.1 Abstract

This paper aims to provide the first set of evidence on the wage differentials between natives and immigrants, as well as by nationalities, using the latest Kuwait Labour Force Survey (KLFS) data from 2015 and 2017. The paper addresses the problem of different earnings between natives and immigrants. It also illustrates that different nationalities receive different wages. This paper uses the Blinder 1973 and Ronald Oaxaca 1973 (BO) decomposition method along with the Brown, Moon, and Zoloth 1980 (BMZ) model and the Nöpo 2008 no-parametric matching method. The results show that most of the wage differentials are unexplained. The Nöpo 2008 matching approach serves as a robustness check. It produces almost identical results that corroborate the findings of the main analysis. These results identify potential wage disparities not explained by observable factors and provide robust evidence through consistent findings across different methodological approaches. This can promote efforts to address wage inequalities and fair labour practices.

Keywords:

Wage Differential – Wage Discrimination – Native – Immigrant – BO Decomposition – BMZ model – Nopo Matching Approach.

2.2 Introduction

In recent years, labour economics literature has increasingly focused on wage differentials between immigrants and native workers Abdullah, Theodossiou, and Zangelidis 2020, Christl, Köppl-Turyna, and Gnan 2020, Wang 2020, Dostie et al. 2023. Many of these studies employ the Blinder-Oaxaca (BO) decomposition (1973) to analyse wage disparities, finding that observable characteristics largely explain these differences. However, less attention has been given to the income gap between immigrants from different countries within a host country. This paper addresses this gap by examining whether wages are influenced by the country of origin of immigrant workers rather than simply by their individual characteristics, such as gender, educational level, or years of experience.

This study investigates why two immigrant workers with similar observable characteristics may earn different wages, focusing on the Kuwaiti private sector which is a crucial sector and yet under-explored segment regarding wage disparities. Although the private sector in Kuwait is relatively smaller than the public sector, its role in the economy is expanding. The increasing number of native and foreign workers highlights the potential consequences of wage inequalities, which could impact labour supply decisions and economic efficiency.

Wage inequality in Kuwait cannot be understood without jointly considering both nationality and skill level. As discussed in Chapter 1, Kuwait's labour market is strongly segmented by nationality, with foreign workers largely concentrated in the private sector and subject to distinct institutional arrangements, including the sponsorship system and restricted mobility. Within this segmented structure, the foreign workforce is further stratified by skill: low-skilled migrants are predominantly recruited into elementary and manually intensive occupations, while higher-skilled migrants are hired into professional and technical roles. Because nationality groups are distributed very differently across skill levels, and because skill and nationality interact to shape opportunities, contract conditions, and wage progression, analysing either dimension in isolation would mask important drivers of inequality. This chapter therefore examines wage disparities simultaneously by nationality and skill level to capture the structure of wage inequality in Kuwait's private sector.

Building on this understanding of Kuwait's segmented labour market, the primary objective of this research is to examine the extent to which nationality affects wages. Using microdata from the Kuwait Labour Force Survey (KLFS) for the years 2015 and 2017, the empirical analysis assesses the role of nationality in wage determination after conditioning on workers' observable characteristics. The working hypothesis is that, once education, experience, occupation, and demographic characteristics are controlled for, wages should not differ systematically across nationalities. Any remaining wage differentials are therefore interpreted as reflecting institutional segmentation, differential access to occupations, or nationality-based discrimination.

This chapter also contributes to the literature by providing novel empirical evidence on wage disparities within the immigrant workforce, a dimension seldom explored in the Gulf context. In addition, the analysis offers policy-relevant insights into how wage-setting, recruitment mechanisms, and labour market institutions shape earnings in a migrant-dependent economy such as Kuwait.

This research follows a structured approach. Initially, it compares wages between native and foreign workers in line with existing literature Canal-Domínguez and Rodríguez-Gutiérrez 2008, Hofer et al. 2017, Christl, Köppl-Turyna, and Gnan 2020, Abdullah, Theodossiou, and Zangelidis 2020, and Wang 2020. The analysis then differentiates between immigrants based on their countries of origin. Furthermore, it examines the causal factors behind wage disparities among immigrants with similar personal characteristics. The study employs the Blinder 1973 and Ronald Oaxaca 1973 (BO) decomposition together with the Brown, Moon, and Zoloth 1980 (BMZ) model to distinguish between the explained portion of wage differences—attributable to observable characteristics—and the unexplained portion, which may stem from unobservable factors such as discrimination. Additionally, the study applies the Nopo (2008) non-parametric matching approach as a robustness check to further decompose wage differentials between immigrant groups and account for differences in their distributions of worker characteristics. The results shows that most of the wage gap is unexplained even after taking into account the problem of common support. The robustness check confirms the main results with most of the wage gap can not be explained.

The paper is structured as follows: Section 2.2 provides an overview of the study and includes four subsections—2.2.2 on the Kuwaiti labour market background, 2.2.2.1 on occupational choices,

2.2.2.2 on the distribution of different nationalities across occupational categories in the Kuwaiti private sector, and 2.2.2.3 on Kuwait's shadow labour market. Section 2.3 reviews the relevant literature on wage gaps between natives and non-natives. Section 2.4 outlines the research methodology. The dataset is described in Section 2.5. Sections 2.6 and 2.7 present the empirical findings and robustness checks, respectively. Finally, Section 2.8 concludes the paper with key insights and policy recommendations.

2.2.1 Theoretical Motivation and Expected Effects

The existence of wage differentials across nationality groups can be understood through several strands of economic theory. Human capital models predict that wages reflect differences in education, skills, and experience; however, in segmented labour markets such as Kuwait's, wage gaps may persist even after controlling for observable characteristics. Labour market segmentation theory suggests that institutional and legal constraints such as the sponsorship system, occupational quotas, and restricted mobility create separate labour market channels for nationals and non-nationals, resulting in systematic differences in wages and job conditions. Additionally, theories of discrimination provide further explanations: statistical discrimination may arise if employers use nationality as a proxy for unobserved productivity, while taste-based discrimination implies that employers may be willing to pay a premium to avoid hiring certain groups. These frameworks suggest that wage differentials are likely driven both by differences in worker characteristics and by structural or institutional factors. Accordingly, the empirical analysis in this chapter tests the expectation that a substantial share of the observed wage gaps particularly among different immigrant nationalities, cannot be explained by endowments alone but reflect segmentation and discriminatory practices embedded in Kuwait's labour market.

2.2.2 Kuwait Labour Market Background

As outlined in Chapter 1, Kuwait's labour market is segmented along nationality and sectoral lines, with foreign workers concentrated in private-sector employment and nationals predominantly working in the public sector Baldwin-Edwards 2011; Shah et al. 2002. For the purposes of this chapter, two features are particularly relevant. First, private and public employment are

governed by different wage-setting institutions and benefit structures, which reinforces earnings differentials between nationals and non-nationals. Second, a separate "family sector", overseen by the Ministry of Interior and consisting largely of domestic workers, operates under a distinct regulatory framework and is therefore excluded from the analysis. The empirical work in this chapter focuses on formal public- and private-sector workers, where wage differentials between nationals and immigrants can be meaningfully compared using survey data from the Kuwait Labour Force Survey (KLFS).

2.2.2.1 Occupational Choice and Skill Allocation

Occupational outcomes for immigrants in Kuwait are shaped by structural constraints related to visa type, recruitment channels, and employer demand. Economic motivations including wage differentials and income maximisation drive migration decisions Stark and Stark 1991; Borjas 2014; Massey et al. 1993. However, once in Kuwait, workers face limitations in matching their skills to available jobs. High-skilled migrants may experience skill underutilisation or "brain waste" Chiswick and Miller 1994; S. Kerr and W. Kerr 2011, while low-skilled migrants often accept any available employment Duleep and Regets 1999.

Language proficiency and cultural barriers also influence employment outcomes and promotion opportunities Chiswick and Miller 2009; Ferrer and Riddell 2008. These factors interact with nationality and skill level to shape allocation across occupations and, ultimately, wage inequality.

2.2.2.2 Occupation Classifications and the Distribution of Workers

This paper applies the International Standard Classification of Occupations (ISCO-08) to group workers into skill levels that align with the empirical analysis of wage inequality. ISCO defines occupations based on similarity of tasks and required qualifications, and its skill-level framework provides a structured way to compare workers with different job profiles.[1] Table 2.1 summarises the ISCO-08 classification used throughout the chapter.

[1] Source: International Labour Organization (ILO) https://ilostat.ilo.org/methods/concepts-and-definitions/classification-occupation/.

TABLE 2.1: Occupation Classifications by Skill Levels

Broad skill level	ISCO-08	ISCO-88
Skill levels 3 and 4	1. Managers 2. Professionals 3. Technicians and associate professionals	1. Legislators, senior officials and managers 2. Professionals 3. Technicians and associate professionals
Skill level 2	4. Clerical support workers 5. Service and sales workers 6. Skilled agricultural, forestry and fishery workers 7. Craft and related trades workers 8. Plant and machine operators, and assemblers	4. Clerks 5. Service workers and shop and market sales workers 6. Skilled agricultural and fishery workers 7. Craft and related trades workers 8. Plant and machine operators, and assemblers
Skill level 1	9. Elementary occupations	9. Elementary occupations

- Note: The International Standard Classification of Occupations (ISCO) is a tool for organizing all jobs in the world into a clearly defined set of groups according to the tasks and duties undertaken in the job. ISCO is developed by the Department of Statistics of the International Labour Organization (ILO) and is one of the main international classifications for which the ILO is responsible. It belongs to the International family of economic and social classifications.

In Kuwait's private sector, workers' distribution across skill levels varies substantially by nationality. Figures 2.1, 2.2, and 2.3 show that nationals are heavily concentrated in high-skill occupations (skill levels 3–4), while immigrants account for nearly all employment in the lowest skill level (elementary occupations). Immigrant workers also represent a large share of mid-skill categories (skill level 2). These patterns highlight the importance of analysing wage inequality jointly by nationality and skill level, as wage gaps cannot be understood without accounting for the distinct occupational and skill distributions across worker groups.[2]

[2]Figures source: PACI Labour Force Bulletin, Dec 2010–Dec 2017.

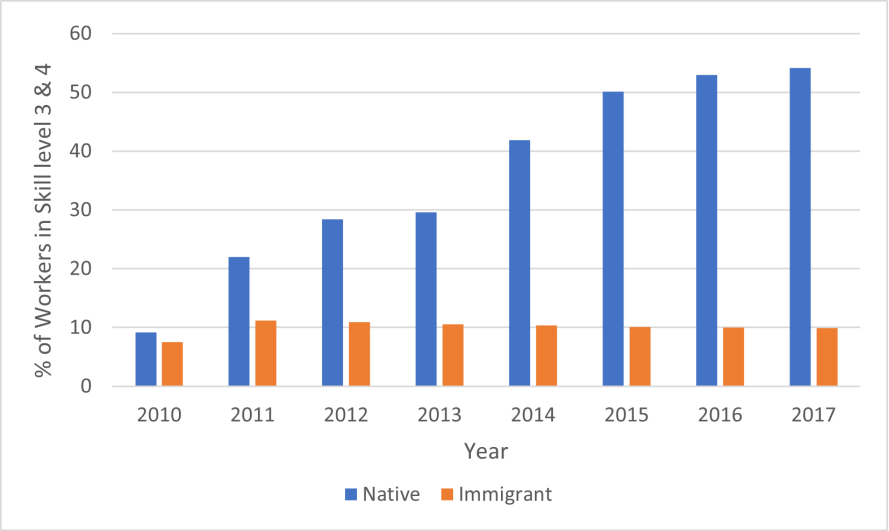


FIGURE 2.1: Percentage of Natives and Immigrants in Skill Level 3 & 4

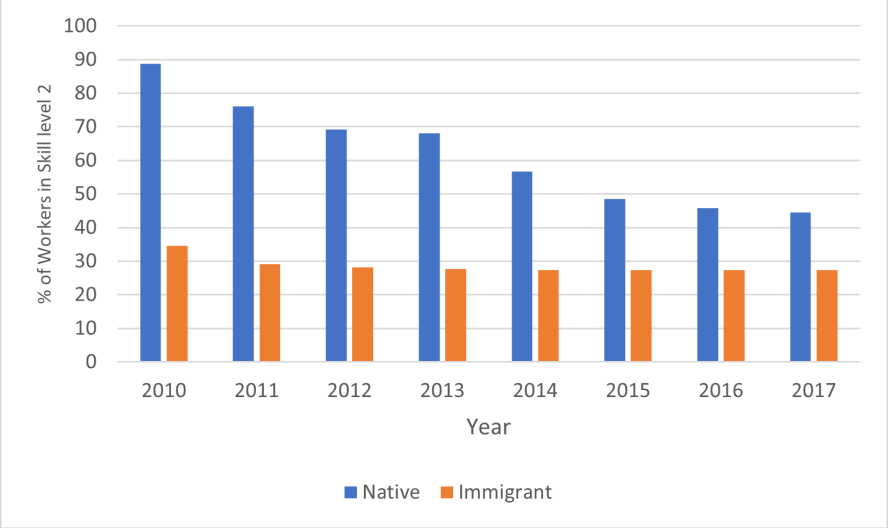


FIGURE 2.2: Percentage of Natives and Immigrants in Skill Level 2

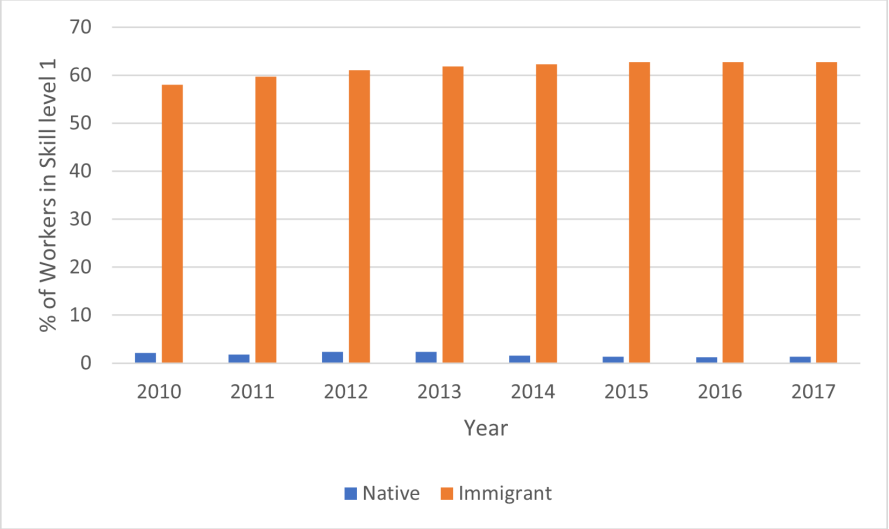


FIGURE 2.3: Percentage of Natives and Immigrants in Skill Level 1

2.2.2.3 The Shadow Market in Kuwait

A portion of Kuwait's labour market operates informally, particularly among low-skilled expatriates who may work without formal contracts or in secondary jobs outside official regulation Medina and Schneider 2018; Baldwin-Edwards 2011. Although the shadow economy is estimated to be sizeable, the Kuwait Labour Force Survey does not capture informal employment Chen, Harvey, and Network 2017. For this reason, the analysis in this paper is restricted to formal sector workers, and wage differentials are interpreted within the boundaries of the documented labour market.

2.2.2.4 Contribution of This Chapter

Although this chapter is primarily descriptive in nature, it offers several important contributions to the understanding of wage structures in Kuwait. First, it provides the most detailed empirical evidence to date on wage differentials between immigrants by nationality and skill level in the Kuwaiti private sector, a labour market characterised by an unusually high dependence on foreign labour and a strong segmentation between nationals and expatriates. Second, it documents the extent to which observable characteristics explain wage gaps across nationalities and how this varies across different skill groups, offering insights about the role of labour market institutions, recruitment channels, and occupational sorting in shaping earnings. Third, by demonstrating substantial common support challenges when using Kuwaiti nationals as the reference category and proposing a methodologically sound alternative based on GCC workers, the chapter contributes to the empirical literature on wage decomposition in segmented labour markets. These findings generate new stylised facts about the structure of wages in Kuwait and provide a foundation for future research on discrimination, labour regulation, and the dynamics of a migrant-majority workforce.

The remainder of the chapter is organised as follows. Section 2.3 reviews the related literature. Section 2.4 describes the methodology. Section 2.5 presents the data description. Section 2.6 reports the findings. Section 2.7 provides robustness checks. Section 2.8 concludes.

2.3 Literature Review

This section reviews the international and regional literature on native–migrant wage gaps, with particular attention to the magnitude and decomposition of these gaps and their relevance for the Kuwaiti labour market. The discussion highlights both methodological developments and empirical findings, situating the contribution of this chapter within the broader comparative context.

The economic analysis of wage differentials between natives and immigrants originates from the seminal works of Blinder 1973 and Ronald Oaxaca 1973, whose decomposition framework separates the portion of the wage gap explained by observable characteristics from the unexplained component, often attributed to discrimination, labour market frictions, or unmeasured productivity differences. Subsequent refinements including matching-based methods Nöpo 2008, unconditional quantile regressions Firpo, Nicole M Fortin, and Lemieux 2009, and extensions to occupational sorting models, have expanded the empirical toolkit available to assess nativity-based wage inequality across the distribution rather than only at the mean.

Empirically, wage gaps between natives and immigrants are a persistent feature of labour markets worldwide, though their size varies substantially across countries and institutional environments. In advanced economies, raw native–migrant wage gaps typically range between 10% and 30%, with unexplained components often accounting for 20–50% of the difference. For example, studies for Austria and Germany show sizeable unexplained penalties even after conditioning on human capital and occupational characteristics Hofer et al. 2017; Christl, Köppl-Turyna, and Gnan 2020. Similarly, Grandner and Gstach 2015 find that immigrant wage disadvantages widen at higher quantiles of the wage distribution. Evidence from emerging economies, such as Malaysia, reveals larger unexplained gaps, consistent with weaker enforcement of labour regulations and more pronounced labour market duality Abdullah, Theodossiou, and Zangelidis 2020.

The literature consistently highlights occupational segregation as a key mechanism driving wage disparities. Immigrants are disproportionately concentrated in low-status or low-paying occupations, which restricts wage progression and reduces returns to skill Demoussis, Giannakopoulos, and Zografakis 2010. Gender also intersects with nativity to widen wage gaps, with female immigrants often facing double disadvantages Orraca, Cabrera, and Iriarte 2016. Institutional factors including labour market regulations, social protection systems, and employer wage setting

practices shape the magnitude and persistence of wage inequality across contexts. For instance, Adsera and Chiswick 2007 link wage assimilation to host country labour institutions, while Aydemir and Skuterud 2008 show that changing immigrant composition alters wage structures even in flexible labour markets.

Within the Gulf region, native–migrant wage disparities are amplified by structural segmentation, visa-linked employment, and the dominance of foreign labour. Nationalisation policies such as Saudization, Emiratization, and Kuwaitisation contribute to systematic wage premium for natives over otherwise similar immigrants Chletsos and Roupakias 2017. Earlier studies on Kuwait document large native wage advantages and limited returns to human capital for immigrants AlQudsi 1985; AlQudsi 1989, as well as widening gaps across the income distribution Alansari 2018. Recent work highlights how firm-specific pay policies and hierarchical structures reinforce nationality-based stratification in earnings Dostie et al. 2023; Brinatti and Morales 2025. Gender–nativity intersections further exacerbate labour market inequalities Sprengholz and Hamjediers 2024.

Overall, the literature shows that native–migrant wage gaps arise from a combination of human capital differences, occupational sorting, labour market segmentation, and institutional constraints. However, very few studies examine these processes in the highly segmented labour markets of the GCC, where migrants constitute the overwhelming majority of the private-sector workforce, visa sponsorship restricts mobility, and wage setting differs fundamentally from OECD contexts. This chapter contributes to this literature by providing the first detailed decomposition of wage gaps by both nationality and skill level in Kuwait's private sector, and by comparing the magnitude of these gaps to international benchmarks. The results therefore shed new light on the structure of wage inequality in an institutional environment where immigrants dominate employment yet face systematically lower wages and more limited bargaining power than native workers.

2.4 Research Methodology

This section explains in detail the research methodology used in this study. The objective of this paper is to analyse the effect of workers' countries of origin on wages. Thus, in order to find the

differences in wages between natives and immigrants, the paper estimates the natural log of the monthly wage for each group separately using the following Mincer 1974 wage equation:

$$\text{Ln Wage }_i = \beta X_i + \epsilon_i \tag{2.1}$$

where:

$LnWage_i$: is the natural log of monthly real wage for group i.

X_i: productivity-related characteristics of group i such as gender, experience, experience squared, working sector, educational level, marital status, geographical area, and economic activity.

β: the coefficient, which represents the return on the productivity-related characteristics.

ϵ_i: the error term.

The paper implements the Ordinary Least Square (OLS) regression for workers by skill levels for each country of origin separately as follows:

$$\text{ln Real Wage }_{it} = \alpha_0 + \alpha_1 \text{Immigrant}_i + X_i'\beta + \sigma_t + \epsilon_i \tag{2.2}$$

where:

ln Real Wage $_{it}$ the natural logarithm of monthly real wage level for individual i at time t.

$Immigrant_i$ is a dummy variable that is =1 if the individual's country of origin and =0 otherwise.

X_i is a set of dummies that represent the socio-demographic characteristics of individual i, including gender, working sector, three levels of education and experience[3], experience-squared, two marital statuses (married and single[4]), six geographical areas[5], and we collapse the 21 economic activities according to International Standard Industrial Classification of all economic activities revision 4 (ISIC)[6] into 8 categories as in table A.1 in appendix A.1.

[3]The calculation of experience is continuous and follows the formula in the literature: age - years of education - 6, with 6 being the starting age for primary school in Kuwait. Primary school in Kuwait is from 1^{st} to 5^{th} grade, secondary is from 6^{th} to 9^{th} grade, and high schools start from 10^{th} to 12^{th} grade. A diploma is usually two years after high school, whereas a university takes four years. In Kuwait, a master's degree typically takes two years, while a Ph.D. requires four years.

[4]The single variable includes those who have never been married, divorced, widowed, or separated for non-Muslims.

[5]Geographical areas are classified as the Kuwaiti governorates which are: Al-Ahmadi, Al-Asima, Al-Farwaniya, Hawally, Al-Jahra, and Mubarak Al-Kabeer.

[6]International Standard Industrial Classification of all Economic Activities (ISIC) Revision 4: (https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf).

σ_t is the year-fixed effect.

ϵ_i is the error term.

The study uses within-group estimation, also known as the fixed effect model, to investigate the effect on wages. We employ this approach to compare the monthly real wages of natives to immigrants by skill levels, while controlling for observable characteristics. This to attributed wage differences to immigration. Controlling for the time-invariant unobserved characteristics, specific to each group in the data and potentially correlated with the explanatory variables, is the key to this approach. The paper eliminates these fixed effects by transforming the data through a time-demeaning process that subtracts the means of each group from each observation. We then estimate the transformed model using OLS regression, which yields a consistent estimate of the coefficients.

Based on the Ordinary Least Square (OLS) regression model and following Y. Lee and Sun 2023, the paper implements the Blinder-Oaxaca (BO) decomposition Blinder 1973 and R. Oaxaca 1973, hereafter referred to as the BO decomposition, to measure the wage discrimination between different skill levels workers and by different nationalities. BO decomposition measures the differences between the groups as follow:

$$\Delta = E(Y_N) - E(Y_I) = \underbrace{\left(\overline{X_N} - \overline{X_I}\right)\hat{\beta}_N}_{Explained} + \underbrace{\overline{X_I}\left(\hat{\beta}_N - \hat{\beta}_I\right)}_{Unexplained} \tag{2.3}$$

where $E(Y_N)$ is the estimated average natural log of real monthly wage of native group, (X_N) denotes a vector of the mean values of the explanatory covariates that determine the natural log of real monthly wage of native group, β_N is the estimated coefficient for the wage equation of native group and the same for immigrant group. The first term in the equation 2.3 explains the difference between the characteristics of native and immigrant groups, while the second part represents the differences in the estimated coefficients of the explanatory variables, which usually reflect the unexplained part and are interpreted as a measure of discrimination.

The paper implements this decomposition for immigrants against natives first, then it takes each of India, Bangladesh, Egypt, Nepal, Pakistan, the Philippines, other Asian countries, other Arab countries, African countries, and Westerns and implements the decomposition on them versus

natives. Workers from those separated countries are chosen because they represent the largest number of immigrants.

However, the BO model offers a broad assessment of whether there is discrimination or not, and it does not consider the differences in occupational distribution. One primary issue with the BO decomposition is its potential to produce inaccurate results due to variations in the empirical distribution of characteristics between natives and immigrants, either overall or by nationality. BO decomposition does not recognize the differences between workers as it estimates wage equations for all employees without limiting the comparison to those with comparable features. Therefore, the paper uses BO decomposition to compare skilled workers where there is considerable common support.

Following Chakraborty 2020 the paper uses Brown, Moon, and Zoloth 1980 or what's known as the BMZ model. The model specifically assesses discrimination and determines whether it primarily affects wages or employment. The paper uses multinomial logit analysis to predict occupational attainment for natives based on a set of observable characteristics, then simulates the occupational distribution of immigrants. We estimate the wages of different skill levels workers based on the educational levels and years of experience both natives and immigrants. Although some studies deal with occupational differences by adding dummy variables for occupations in the earning regression, Brown, Moon, and Zoloth 1980 proposed a model that incorporates a separate measurement of occupational attainment into the analysis of wage differentials. The model includes explicitly the probability of attaining a certain job in the earning equation $\overline{W} = \alpha + \beta\overline{X}$ as follows:

$$\begin{aligned}
&\overline{\ln\text{Wage}}_N - \overline{\ln\text{Wage}}_I = \sum_j \left(p_N^j \overline{W_N^j} - p_I^j \overline{W_I^j} \right) \\
&= \sum_j \left(p_N^j \alpha_N^j - p_I^j \alpha_I^j \right) + \sum_j \left(p_N^j \overline{X_N^j} \beta_N^j - p_I^j \overline{X_I^j} \beta_I^j \right) \\
&= \underbrace{\sum_j p_I^j \left(\alpha_N^j - \alpha_I^j \right)}_{Intercept} + \underbrace{\sum_j p_I^j \left(\overline{X_I^j} \beta_N^j - \overline{X_N^j} \beta_I^j \right)}_{WAGES} + \underbrace{\sum_j \left(p_N^j - p_I^j \right) \left(\overline{X_N^j} \beta_N^j + \alpha_N^j \right)}_{OCC}
\end{aligned} \tag{2.4}$$

With this equation, each is given for the j^{th} occupation. The subscripts N and I are for natives and immigrants, respectively. $\overline{W_N^j}$ and $\overline{W_I^j}$ are the mean wages for natives in occupation j and immigrants in occupation j, respectively, and the sample proportions for natives and immigrants

in occupation j are given by p_N^j and p_I^j. WAGES represent the explained part in BO decomposition, and it includes both the coefficient differences (WD) and endowment differences (PD), while OCC captures the effect of occupational differences on wage differentials, and it captures both the portion attributed to differences in the structure of occupational attainment (OD) and the differences in occupational qualifications (QD). Therefore, the full model will be as follows:

$$\begin{aligned} \bar{W}_N - \bar{W}_I = & \underbrace{\sum_j p_I^j \left(\alpha_N^j - \alpha_I^j\right)}_{Intercept} + \underbrace{\sum_j p_I^j \bar{X}_I^j \left(\beta_N^j - \beta_I^j\right)}_{WD} \\ & + \underbrace{\sum_j p_I^j \left(\bar{X}_N^j - \bar{X}_I^j\right) \beta_N^j}_{PD} + \underbrace{\sum_j \bar{W}_N^j \left(p_N^j - \hat{p}_I^j\right)}_{QD} + \underbrace{\sum_j \bar{W}_N^j \left(\hat{p}_I^j - p_I^j\right)}_{OD} \end{aligned} \tag{2.5}$$

The only new term in the equation is $\hat{p}_I^j$ which measures the proportion of immigrants in the sample who would be in occupation j if they faced the same occupational structure as natives. Since the $\hat{p}_I^j$ are unobserved, we measure them first by estimating an occupational attainment model for natives on the basis of their personal characteristics, then combine them with immigrants' characteristics to estimate immigrants' occupational distribution. Therefore, in this full model:

($Intercept$ & WD): capture unjustified within-occupation wage differences.
(PD): captures the justified within occupation wage differences.
(OD): captures the unjustifiable portion of occupational segregation.
(QD): captures the justifiable portions of occupational segregation.

With this model, we can measure wage differences in terms of occupational distribution. The employer's willingness to hire and the employee's willingness to work determine an individual's occupational attainment. Employer willingness to hire depends on the personal qualifications of workers, such as educational level, training, and experience. The worker's willingness to get the job depends on his utility function, which depends on income, consumption, and his family size. Thus, the interplay of supply and demand factors determines an individual's employment in a specific occupation. Therefore, a reduced form model was created as follows:

$$P_{ij} = f(X_i) \tag{2.6}$$

where P_{ij} is the probability of individual i being in occupation j, and X_i is a vector of explanatory variables that affect supply and demand decisions. We can rewrite this model as follows, assuming that the multinomial logit model could explain this reduced form:

$$P_{ij} = e^{x_i'\gamma_j} / \sum_{k}^{j} e^{x_i'\gamma_k} \quad , i = 1, \ldots, N, j = 1, \ldots, J \tag{2.7}$$

where probabilities are allowed to be measured for each individual in each occupation. γ_k is a vector of coefficients corresponding to k^{th} occupation. This model can be estimated using the maximum likelihood function by first estimating the parameters for natives and substituting immigrants' data into the estimated equation, which will provide a vector of predicted probabilities of belonging to each occupation. These predicted probabilities are then summed over individuals to produce the expected immigrant's distribution over occupational categories.

In addition, the paper implements the non-parametric Nöpo 2008 matching approach as a robustness check that accounts for the disparity between individual feature distributions. Nöpo 2008 observed that the standard Blinder 1973 - R. Oaxaca 1973 decomposition ignores the fact that the empirical distributions of the supports of individual characteristics may differ for the two groups. Thus, an 'out-of-support assumption' is required because Oaxaca-Blinder ignores the differences in supports, i.e., estimates are valid in the absence of common support. In the presence of systematic differences between in-support and out-of-support observations, standard decomposition tends to overestimate the coefficient component of the gap. In contrast, Nöpo 2008 proposed a matching algorithm that neither assumes support nor estimates earnings equations. Decomposition further accounts for differences in the distribution of individuals' characteristics.

Following Nöpo 2008, the paper uses a matching approach to focus on the problem of nationality differences in the supports and provide information about the distribution of the unexplained earning differences. This approach does not require any estimation of wage equations or any validity outside of the support assumption. This approach provides a decomposition for the wage gap that addresses the differences in the distribution of worker characteristics.

The procedure of the Nöpo 2008 decomposition works as follows: selecting the treatment group, which is immigrants from the sample (without replacement), selecting the control group, which is natives with the same characteristics, using the selected natives, constructing a synthetic native whose wage is the average of all the selected natives and matching it to the original immigrant, and then repeating until the treatment group has been exhausted. Therefore, the observations are divided into four groups: matched immigrants, matched natives, unmatched immigrants, and unmatched natives. The overall wage gap can be written as:

$$\Delta = \Delta_I + \Delta_X + \Delta_0 + \Delta_N \tag{2.8}$$

where:

Δ_I : the difference in characteristics between unmatched and matched immigrants.

Δ_X : the difference in characteristics between matched natives and immigrants (explained part as in BO).

Δ_0 : the difference in returns in the matched group (unexplained part as in BO).

Δ_N : the difference between the characteristics of the matched and unmatched natives.

The sum of $(\Delta_I + \Delta_X + \Delta_N)$ reflect the part of the gap that is because of differences in characteristics but allows for differences between matched and unmatched workers to be inferred. However, (Δ_X) shows the explained part of the raw gap.

The combined use of these decomposition's can provide a more nuanced understanding of wage disparities among different nationalities. For example, BO might reveal broad trends, BMZ can show differences across multiple nationalities, and Ñopo can highlight where the most significant and unobservable factors lie. This comprehensive approach can help policymakers design more targeted interventions by understanding not just the extent of wage disparities but also the underlying factors, whether they are related to observable characteristics, group membership, or unobservable influences like discrimination.

The decomposition of wage differentials across many groups is made possible by the BMZ decomposition, which expands upon the BO approach. When comparing more than two groups (such as different nations), it is especially helpful. When analyzing pay differentials involving numerous groups, it allows for a more comprehensive understanding because it takes into consideration the relationship between group membership and other attributes.

A non-parametric technique called Ñopo decomposition fits people to groups according to their observable traits. It offers a breakdown of wage differences independent of the wage equation's functional form. Because it does not rely on the linear assumptions present in BO and BMZ decomposition's, this approach is very beneficial. Additionally, it permits the examination of the pay disparity inside the distribution's common support, which minimizes bias from unobserved heterogeneity by comparing those individuals with similar features.

The primary drawback of the BO decomposition is that it relies on an assumption, which may not always hold true, that there is a linear relationship between earnings and attributes. Additionally, it finds it difficult to deal with circumstances in which the groups under comparison have highly disparate traits (lack of common support). The BMZ's primary limitations are also that, despite enabling multiple group comparisons, it still depends on linear assumptions and might not completely account for variations in the distribution of traits within groups.

As a result, by focusing on matched comparisons and avoiding the assumption of linearity, the Ñopo decomposition approach has the advantage of addressing some of the shortcomings of the BO and BMZ methods. It might, however, eliminate those who do not have equivalents in the other group, which could result in information being lost.

When we combine these three approaches, we can examine wage differentials from various perspectives. BO provides a basic breakdown, BMZ adds depth by managing multiple groups, and Ñopo provides robustness by easing some of the parametric assumptions. By utilizing Ñopo, the paper can take into account the variations in the distribution of characteristics between nationalities, yielding a more accurate picture of the wage differentials. Comparing results across different methodologies allows us to check for consistency in the identified wage gaps and their sources.

When measuring the impact of nationalities on wages, combining the Blinder-Oaxaca (BO), Brown-Moon-Zoloth (BMZ), and Ñopo decompositions can yield a more thorough knowledge of wage disparities and the underlying causes of these discrepancies. Every one of these deconstruction techniques provides distinct perspectives and tackles particular shortcomings of the others. The BO decomposition divides the wage gap into two parts: explained and unexplained. This makes it a popular tool for analyzing wage differentials between groups (such as native and immigrant workers). It is helpful for preliminary analysis since it offers a simple and basic breakdown of salary differentials.

2.5 Data and Descriptive Statistics

This section describes the data used in this research to address the wage differential between natives and non-native workers in the private sector of Kuwait. The Kuwait Labour Force Survey (KLFS) is the representative weighted source of data, where the sample covers 1% of the total population for the years 2015 and 2017. Since 2014 and so on, the KLFS has been implemented using both tablet-based and paper-based questionnaires. The survey was converted into Computer Assisted Personal Interviewing (CAPI) format to collect information from private households, and the information from collective households was collected using paper-based questionnaires. The surveys were implemented over a three-month period (from October to December 2015) and (from December 2016 to February 2017).

The survey covers a representative sample of all natives and foreigners aged 15 and older. It covers all foreign families, whether they are private families or collective families living in apartments, houses, or collective labour buildings owned by companies. The survey does not include residents of hotels or immigrants who temporarily reside with private families for less than six months. It also excludes those who are non-native and live permanently but were out of the country at the time of the survey, even if they were abroad for less than six months. The survey included natives who had been abroad for less than six months. In addition, the paper excluded those who did not declare their nationality or do not have one who are so-called Bedoun (stateless/without nationality).

The paper uses a dataset of two groups of workers (immigrants and natives). It includes data on immigrants, who are foreign workers, and compares them to native workers. They work for wage and are at least 15 years old. Since there is no retirement age limit in the private sector, there is no upper age limit. Table 2.2 views the weighted descriptive statistics for all workers, natives, and all immigrants.

For the years 2015 and 2017, the total number of observations is 46,594 (82% are foreigners). These observations are after those who did not declare their monthly wages, educational level, self employed, work for no wage, domestic workers, and those who did not specify their nationalities in the survey. The personal characteristics include gender, experience, experience squared, social status, educational level and literacy skills, working sector, geographical area, economic activity, and occupational categories.

The immigrant variable is a dummy variable, with a value of 1 for non-native workers and a value of 0 otherwise. The paper chooses the top 5 non-Arab countries plus the top one Arab country to compare each with natives separately. The paper collapses the rest of non-Arab countries together according to their continent and separate all other Arab countries and combine them together in one group. Non-Arab countries include Asian countries[7], African countries[8], and Westerns[9] where as Arab countries include all Gulf Cooperation Council (GCC) countries [10], in addition to all other Arab countries[11]. All those workers are considered immigrants and are compared to native workers. The classification of Arab and non-Arab countries are based on their mother language. Arab countries are countries who speak Arabic as their mother language whereas non-Arab countries are countries who speak other languages as their mother languages other than Arabic. The number of total immigrants is 38,323 while natives reflect 8,271. Total observations of skill level 3 & 4, level 2, and level 1 are 10,504, 24,186, and 11,904 workers respectively.

[7] Asian countries include: Afghanistan, Armenia, China, Georgia, Indonesia, Iran, Japan, Kyrgyzstan, Malaysia, Russia, South Korea, Sri Lanka, Thailand, Turkey, and Uzbekistan.

[8] African counties include: Eritrea, Ethiopia, Senegal, South Africa.

[9] Westerns countries include: Australia, Austria, Canada, Denmark, France, Germany, Italy, Mexico, Moldova, Netherlands, New Zealand, Romania, Scotland, Serbia, Sweden, United Kingdom (UK), and United State of America (USA).

[10] GCC countries are: Bahrain, Oman, Qatar, Kingdom of Saudi Arabia (KSA), and United Arab Emirates (UAE).

[11] Other Arab countries are: Algeria, Iraq, Jordan, Lebanon, Libya, Mauritania, Morocco, Palestine, Somalia, South Yemen, Sudan, Syria, Tunisia, and Yemen.

The available data on monthly wages are the declared wages of participants. Some participants declared their daily, weekly, or even yearly wage. For the daily wage, the paper converts it into a monthly wage by multiplying the daily amount by the number of working days and by 4, which is the number of weeks per month. For the weekly wages, the study multiplies them by 4, and for the yearly wage, it divides them by 12. This gives the full data on monthly wages. The paper exclude those who did not report their monthly wages. They are either student, retired, unable to work, housewives, or working in some sensitive places and can not declare nor their occupations categories neither their wages. After generating the monthly wage, the paper measures the real wage for the analysis. The monthly real wage is the monthly wage adjusted to inflation rates in 2015 and 2017[12] The consumer price index (CPI) was 3.7% in 2015 and 3.5% in 2017. As a result, we generate the monthly real wage and use it in all of the paper's analyses.

The average real monthly wage after taking its natural log is KWD 5.31 for all workers with KWD 6.59 for skilled level 3 & 4, 5.10 for skill level 2, and KWD 4.36 for skill level 1 workers. Natives receives an average of KWD 7.10 if they in skill level 3 & 4, while immigrants in the same skill level receive around KD 6.22 . However, natives in skill levels 2 and 1 are paid KWD 6.77 and KD 6.44 but immigrants are paid only KWD 5.00 and KWD 4.36 respectively.

Gender is a dummy variable equals 1 for male and 0 for females. Males reflect 79% of the total sample. However, native males are 59% while all male immigrants constitute 82%. This reflects that the number of female immigrant workers is very small compared to male immigrants.

The private sector is a dummy variable =1 for the private sector and =0 for the public sector. The paper exclude the family sector where it falls under different regulations. The private sector reflects 78% of the sample while the governmental sector constitute for 22%. Only 9% of natives working in the private sector whereas immigrants are 90%.

The literature calculates the experience variable as (age minus years of education minus 6), where 6 is the starting age for entering primary school in Kuwait. Primary school in Kuwait is from 1^{st} to 5^{th} grade, where students spend 5 years at their primary school. Secondary is from 6^{th} to 9^{th} grade, which takes 4 years to finish. High schools start from 10^{th} to 12^{th} grade for a total of 3 years. A diploma is usually two years after high school, whereas a university takes four years. The master's degree takes 2 years in Kuwait, and the . Ph.D. takes 4 years. The average years of

[12]The real wage = the monthly wage *(1-Inflation Rate).

experience for all workers is 24 years where it is only 15 year for natives compared to 25 year for immigrants.

The social status is divided into two main groups: (1) the first group includes those who are married; (2) the second group is the sum of all other marital statuses, including single (never being married), divorced, widowed, and separated for non-Muslims. Married workers reflect 84% from the whole sample while only 16% who are either single, divorced, widow or separated for non Muslim. Married natives and immigrants are 65% and 87% respectively.

Participants have declared their educational levels. The educational levels were divided into 3 categories: (1) primary and below which includes those who have only primary education and those who have no education at all, (2) secondary educational level, and (3) high school and above, where it includes those who have finished their high school, diploma, master, higher diploma, and Ph.D. holders. 28% of the sample hold primary and below level of education, 38% got their secondary education and 34% hold high school and above. For native, 84% hold high school and above, 15% hold only secondary where as those with primary and below are less than 1%. On the other hand, immigrants with primary and below constitute 32%, secondary education is the highest percentage with 42% and only 26% hold high school and above.

Applicants declared their literacy skills and whether they can read and write in Arabic language, in any language, or can not read or write. Those who can read and write in Arabic constitute of on 23% while 70% can read and write in any other language and only 7% are those who can not read or write.

The geographical areas in Kuwait are divided into 6 governorates which are Al-Ahmadi, Al-Asima, Al-Farwaniya, Hawally, Al-Jahra, and Mubarak Al-Kabeer. Most of the sample live in Al-Ahmadi governorate with 41%. Al-Farwaniya comes in the second position with 30%. Then comes Hawally with 13%. Al-Jahra, Mubarak Al-Kabeer, and Al-Asima have the lowest percentages with 9%, 4% and 4% respectively.

The economic activities are classified according to International Standard Industrial Classification of all Economic Activities (ISIC) Revision 4. It divides the economic activities into 21 categories[13]. Most of the workers work in the economic activities of manufacturing, administrative

[13]International Standard Industrial Classification of all Economic Activities (ISIC) Revision 4: (https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf).

and support activities, and construction. However, natives dominate the public administration, defence, and compulsory social security and education whereas immigrants mostly work in administrative and support activities and manufacturing and construction. The paper joint these economic activity into 8 groups as in table A.1 in appendix A.1.

The occupation classification is according to the International Standard Classification of Occupations (ISCO-08) one-digit job classifications. This is because of the unavailability of some job classifications in ISCO-88 for two-digit job classifications. There are 9 job classifications after excluding the army (category 0), where it is restricted to citizens. Jobs are classified into three categories: skill level 3 & 4[14], skill level 2 [15], and skill 1 [16] jobs. Skill level 3 & 4 employees reflect 26% while skill level 2 and 1 reflect 59% and 25% respectively.

Figure 2.4 presents the density of the distribution of natural log of real monthly wage for all natives versus all immigrants. It demonstrates the significant disparity in wages between those in the common support group. However, figures 2.5, 2.6 and 2.7 show the density of the wage distribution by skill levels. These figures reflect the common supports between natives and non-natives across different skill levels which is decreases as we go for lower skill level. At skill level 1, the common support is almost zero which means that the elementary occupations are occupied by immigrants only. Appendix A.11 presents figures 2.5, 2.6 and 2.7 which show the distribution of the natural log of monthly real wage by skill levels for both natives and immigrant workers.

Table 2.2 displays the weighted descriptive statistics for all workers, natives, and all immigrants. Appendices A.8, A.9, and A.10 shows the weighted descriptive statistics for workers by their nationalities in tables A.8, A.9, and A.10.

Foreign workers constitute the majority of the sample, reflecting Kuwait's labour market structure, where expatriates represent more than 80% of the total labour force and more than 90% of private-sector employment. The largest groups in the sample are Indian and Egyptian workers, followed by Bangladeshi, Filipino, and Pakistani workers. This distribution closely mirrors the official labour force statistics reported by PACI and the Central Statistical Bureau, indicating that the KLFS microdata is broadly representative of the actual composition of Kuwait's workforce.

[14] Managers, Professionals, and Technicians jobs.
[15] Clerks, Sales, Services, Agricultural, Crafts, Operators.
[16] Elementary jobs.

The sample excludes domestic workers (visa 20) and workers in the family sector, sectors not covered by the KLFS. As a result, the analysis focuses on formal sector employment, which is appropriate for wage decompositions because these workers have documented contracts, reportable earnings, and observable characteristics. Overall, the close alignment between the sample and the national labour force composition supports the credibility and external validity of the empirical results.

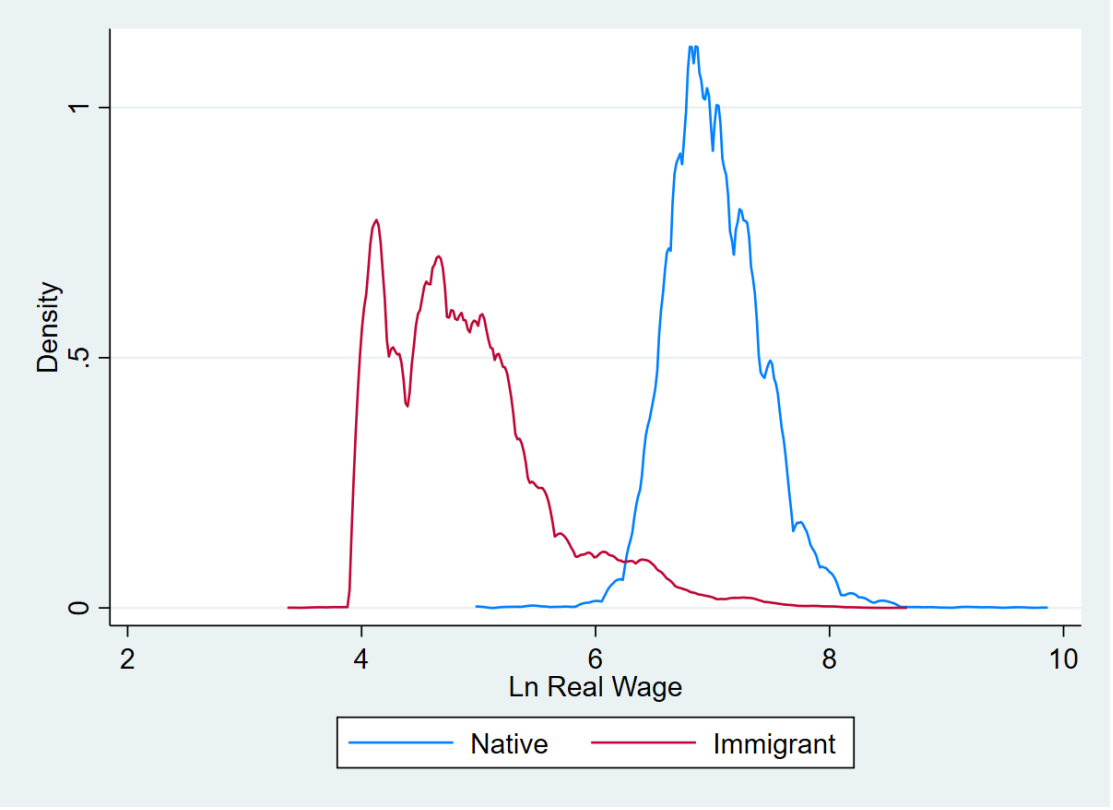


FIGURE 2.4: The Distribution of the Ln Real Wage for natives and immigrants

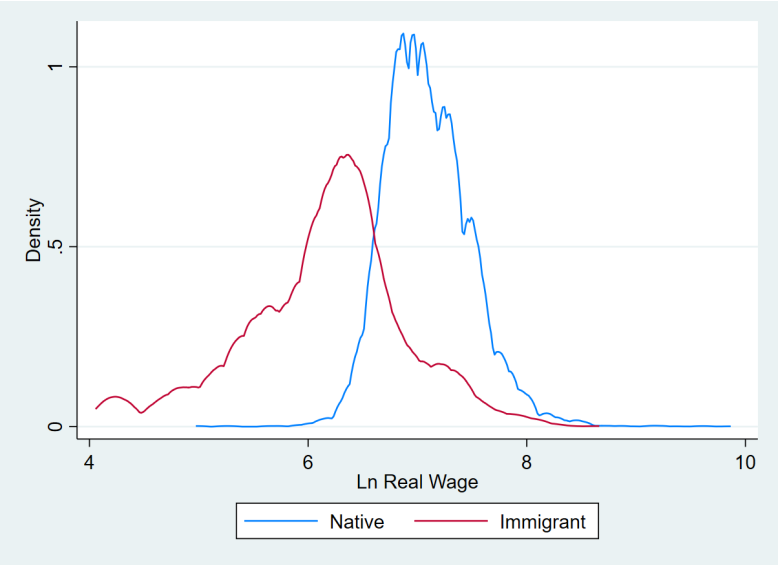


FIGURE 2.5: The Ln Real Wage for Skill Level 3 & 4

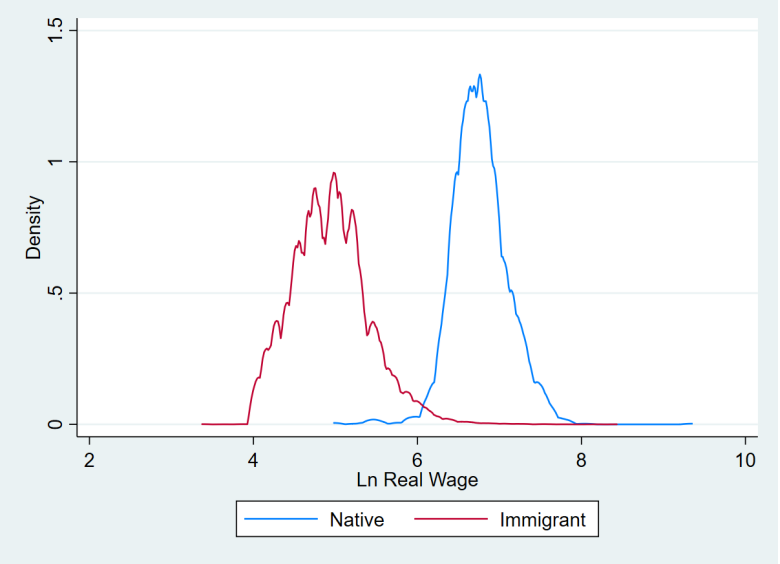


FIGURE 2.6: The Ln Real Wage for Skill Level 2

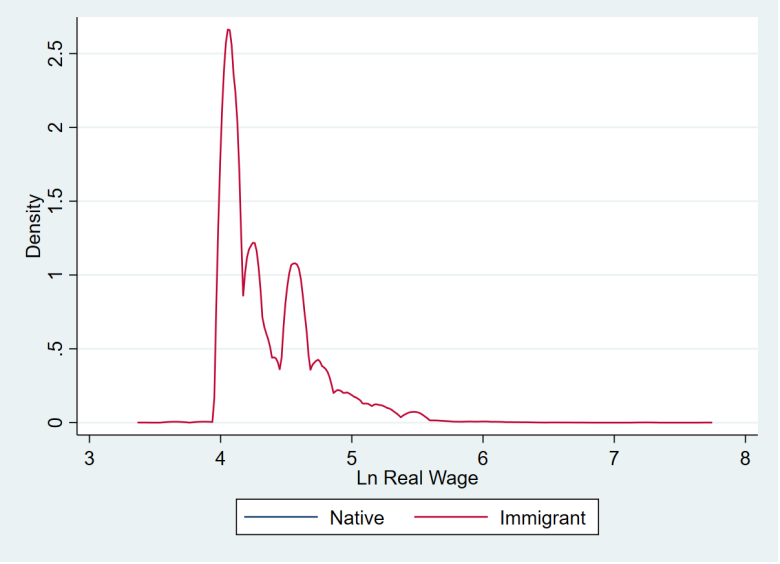


FIGURE 2.7: The Ln Real Wage for Skill Level 1

TABLE 2.2: Descriptive Statistics for the Main Variables

Variables	All	Natives	All immigrants
Dependent Variables:			
Ln Real Wage	5.310***	7.038***	5.035***
Ln Real Wage for Skilled Level 3 & 4	6.590***	7.102***	6.223***
Ln Real Wage for Skilled Level 2	5.100***	6.778***	5.004***
Ln Real Wage for Skilled Level 1	4.365***	6.441***	4.365***
Independent Variables:			
Gender & Sector:			
Male	0.793***	0.591***	0.825***
Private Sector	0.786***	0.093***	0.896***
Year	0.555	0.443	0.572
Educational Level:			
Primary and below	0.281***	0.007***	0.325***
Secondary	0.380***	0.154***	0.416***
High school and above	0.338***	0.838***	0.259***
Literacy Skills:			
Read & Write in Arabic	0.233***	0.667***	0.164***
Read & Write in Any Language	0.698***	0.332***	0.756***
Can't Read or Write	0.069***	0.001***	0.080***
Experience:			
Experience	24.219***	15.425***	25.618***
Experience squared	716.267***	323.544***	778.766***
Social status:			
Married	0.843***	0.649***	0.874***
Single	0.157***	0.351***	0.126***
Occupational classifications:			
Skilled Level 3 & 4	0.261***	0.802***	0.175***
Skilled Level 2	0.493***	0.198***	0.540***
Skilled Level 1	0.246***	0.000***	0.285***
Geographical Areas:			
Al-Ahmadi	0.410 ***	0.187***	0.445***
Al-Asima	0.037***	0.175***	0.015***
Al-Farwaniya	0.299**	0.211**	0.314**
Hawally	0.129***	0.135***	0.128***
Al-Jahra	0.087***	0.106***	0.083***
Mubarak Al-Kabeer	0.039***	0.186***	0.015***
Economic Activities:			
1-Agriculture, forestry ...	0.089***	0.004***	0.102***
2-Manufacturing.	0.158***	0.057***	0.174***
3-Electricity, gas, steam ...	0.153***	0.021***	0.174***
4-Construction, wholesale ...	0.094***	0.027***	0.104***
5-Accommodation and food ...	0.073	0.071	0.074
6-Administrative and support ...	0.173***	0.004***	0.200***
7-Public administration and defence ...	0.201***	0.811***	0.104***
8-Arts, entertainment and recreation ...	0.059***	0.006***	0.068***
No. of Observations	46,594	8,271	38,323
Percent of the total	100.00	17.75	82.25
No. of Observations (skilled level 3 & 4)	10,504	6,478	4,026
No. of Observations (skilled level 2)	24,186	1,791	22,395
No. of Observations (skilled level 1)	11,904	2	11,902

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2015 and 2016/17. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables and they sum to 100. Skill levels are classified according to ISCO-08 and ISCO-88 classifications as in table 2.1.

2.5.1 Sample Composition and Representativeness

The analysis uses microdata from the Kuwait Labour Force Survey (KLFS) for 2015 and 2017, restricted to individuals employed in the private and public sectors. The final sample includes native Kuwaiti workers and foreign workers from the major migrant-sending countries to Kuwait. Table 2.3 compares the nationality composition of the KLFS estimation sample with the official labour-force distribution reported by PACI.

PACI publishes labour-force statistics using broad regional categories (Arab, Asian, African, Western), whereas the KLFS microdata provides detailed nationality identifiers. To enable a meaningful comparison, the KLFS nationalities are aggregated to match PACI's reporting structure. This ensures that the representativeness of the KLFS sample can be assessed using the best available official benchmark. As shown in Table 2.3, the KLFS distribution closely mirrors PACI's regional composition, indicating that the sample is broadly representative of Kuwait's labour force despite differences in classification detail.

TABLE 2.3: Sample Composition by Nationality (KLFS 2015–2017)

Nationality Group	Share in Sample (%)	Share in Labour Force (%)
Kuwait	17.75%	15.01%
Arab	14.35%	23.37%
Asia	67.65%	59.3%
Africa	0.11%	1.51%
Westerians	0.14%	0.81%
Total	100	100

Note: Labour force shares are based on PACI Labour Force Bulletins (2017). Sample shares are calculated from the KLFS microdata.

Limitations Related to Small Nationality Subsamples

A notable limitation of the KLFS microdata is the very small number of observations for certain nationality groups, particularly Western and African workers. These groups represent only a small share of Kuwait's labour force and, consequently, of the KLFS sample. As a result, estimates for these categories are less precise and more sensitive to sampling variability. In some cases, confidence intervals are wide or coefficients are statistically insignificant, not necessarily

because wage differences are absent, but because the available sample does not provide sufficient statistical power to detect them reliably. For this reason, results for small nationality groups should be interpreted with caution and placed in the context of the broader patterns observed for larger groups such as Indian, Egyptian, and Bangladeshi workers. Where appropriate, robustness checks focus on nationalities with adequate sample sizes to ensure that the key findings are not driven by sparsely represented groups.

2.6 Empirical Results

This section presents the empirical results from the Blinder 1973–Ronald Oaxaca 1973 (BO) decomposition and the Brown, Moon, and Zoloth 1980 (BMZ) model. Together, these approaches quantify native–immigrant wage gaps in Kuwait's private sector and disentangle the roles of observable characteristics, returns to those characteristics, and occupational segregation. Throughout, natives are the reference group.

2.6.1 OLS Wage Regressions by Nationality and Skill Level

Several of the descriptive and decomposition tables in this chapter contain substantial detail. To improve readability, the main text reports only the condensed versions of these tables, highlighting the key patterns relevant for the discussion. Full detailed tables, including all categories and subcomponents, are provided in Appendix A.

Tables A.2,A.3, and A.4 report OLS regressions of the log real monthly wage on nationality, estimated separately by skill level (3&4, 2, and 1). Each table shows a baseline specification with only nationality and year effects and a fully specified model that adds controls for human capital characteristics including gender, experience and its square, marital status, education, literacy skills, geography, and economic activity.

For skill levels 3&4 (Table A.2), all immigrant nationalities earn significantly less than natives within the same skill category. Immigrant penalties range from around 0.2–0.3 log points for Western and GCC workers (roughly 20–35% lower wages) to more than 2 log points for some

low-income origin groups such as Nepal and Bangladesh (wages several times lower than those of comparable natives). Once human capital and job characteristics are controlled for, the absolute size of most nationality penalties increases, especially for Bangladesh, Pakistan, and several Asian and Arab groups. This pattern indicates that the initial raw gaps were biased towards zero because the baseline model did not account for the fact that, on average, immigrants possess less favourable observable characteristics than natives. An important exception is India (and, to a lesser extent, Egypt), where the immigrant penalty becomes smaller once controls are added, suggesting that part of the raw native–Indian and native–Egyptian wage gaps reflect differences in education, experience, or sector rather than nationality.

The results for skill level 2 (Table A.3) show a broadly similar structure. Again, all immigrant groups earn less than natives, and the gaps are generally larger at this intermediate skill level than at the top. Penalties for Bangladesh and Nepal workers exceed 2 log points in the baseline, while Western and GCC workers experience smaller, though still sizeable, penalties. After adding controls, wage gaps remain large and highly significant for almost all groups, confirming that nationality effects persist even after conditioning on observed characteristics and job attributes.

For skill level 1 (elementary occupations; Table A.4), the native–immigrant wage gaps are particularly stark. In these jobs, natives are almost absent, yet when they are present they earn substantially more than immigrant workers from all nationalities. Penalties for Nepal and Bangladesh workers remain very large even after controls, while some groups like workers from Pakistan at this skill level exhibit a reduced, though still significant, gap once human capital and job characteristics are taken into account. Taken together, the OLS results show that nationality-based wage differentials are pervasive across the skill distribution and particularly pronounced for low-skilled migrants from low-income countries.

Overall, these regressions demonstrate that wage gaps are not purely a reflection of differences in education, experience, or sector. Controlling for these factors narrows some gaps for workers from India and Egypt at higher skill levels but widens others, revealing that, for many nationalities, substantial wage penalties remain even after conditioning on a rich set of observables. This motivates the use of decomposition methods to quantify how much of the total gap is explained by characteristics versus differences in returns.

2.6.2 Blinder–Oaxaca (BO) Decomposition: Magnitudes and Components of the Gap

Table 2.4 summarises the BO decomposition results for all immigrants combined and for each nationality group, pooling all skill levels and then splitting by skill level 3&4 and skill level 2.[17] The table reports the raw native–immigrant wage gap in log terms, and the shares attributable to the explained (endowments) and unexplained (coefficients) components.

For all immigrants pooled across skill levels, the raw native–immigrant gap is about 2.0 log points, which corresponds to natives earning more than six times the wages of immigrants on average. About 51% of this gap is explained by observable characteristics, while 49% remains unexplained. When focusing on skill levels 3&4, the raw gap is smaller (0.88 log points, roughly 140% higher wages for natives), but only 28% is explained; the remaining 72% is unexplained. For skill level 2, the raw gap is 1.77 log points and the explained component is again around one-quarter, with three-quarters unexplained. Thus, even among higher-skilled workers, a large majority of the native–immigrant wage gap is not accounted for by observable differences in human capital, sector, or location.

Disaggregating by nationality reveals substantial heterogeneity. For all skills combined, explained shares range from about 49–51% for India and Bangladesh to below 10% for GCC and "other Arab countries" workers. For several groups such as other Arab countries, GCC, and Western, the explained component accounts for only a small fraction of the gap, while the unexplained component dominates. Among high-skilled workers (skill levels 3&4), the explained share is generally lower, especially for nationalities with few observations at this level (Nepal, Pakistan, Bangladesh, other Asian countries, other Arab countries), where the unexplained component exceeds 80–90% of the raw gap. At skill level 2, explained shares are somewhat larger for some nationalities (GCC workers, where about 31% of the gap is explained), but the unexplained component still accounts for the majority of the wage differential.

These magnitudes are large when viewed in an international perspective. Studies for European and other advanced economies typically report native–immigrant raw gaps of 0.1–0.4 log points with explained shares of 40–60% e.g. Grandner and Gstach 2015; Abdullah, Theodossiou, and

[17] Skill level 1 is not decomposed for some nationalities due to very small native comparison groups.

TABLE 2.4: The Blinder-Oaxaca Results By Skill Levels.

Ln Real Wage	All Skills			Skill Level 3 & 4			Skill Level 2		
	Raw Gap	Explained	Unexplained	Raw Gap	Explained	Unexplained	Raw Gap	Explained	Unexplained
Immigrants:	2.00***	1.02***	0.98***	0.88***	0.25***	0.63***	1.77***	0.49***	1.28***
%	100%	51%	49%	100%	28%	72%	100%	28%	72%
India	2.05***	1.00***	1.05***	0.93***	0.25***	0.68***	1.83***	0.35***	1.48***
%	100%	49%	51%	100%	27%	73%	100%	19%	81%
Bangladesh	2.70***	0.77***	1.93***	1.41***	0.07***	1.34***	2.03***	0.47***	1.56***
%	100%	28%	72%	100%	5%	95%	100%	23%	77%
Egypt	1.57***	0.48***	1.09***	0.96***	0.15***	0.81***	1.68***	0.28***	1.40***
%	100%	30%	70%	100%	16%	84%	100%	17%	83%
Nepal	2.60***	0.44***	2.17***	N/A	N/A	N/A	2.13***	0.25***	1.88***
%	100%	17%	83%	N/A	N/A	N/A	100%	12%	88%
Pakistan	1.66***	0.28***	1.37***	0.98***	0.04***	0.94***	1.45***	0.32***	1.13***
%	100%	17%	83%	100%	4%	96%	100%	22%	78%
Philippine	1.84***	0.54***	1.31***	0.92***	0.10***	0.82***	1.68***	0.36***	1.32***
%	100%	29%	71%	100%	11%	89%	100%	21%	79%
Other Asian	1.83***	0.45***	1.38***	0.82***	0.03**	0.79**	1.48***	0.25***	1.23***
%	100%	25%	75%	100%	4%	96%	100%	17%	83%
African	1.97***	0.54***	1.43***	1.05***	0.08***	0.97***	1.63***	0.27***	1.35***
%	100%	27%	73%	100%	8%	92%	100%	17%	83%
Westerns	0.32***	0.03***	0.28***	0.25***	0.04***	0.21***	0.96***	0.20***	0.76***
%	100%	10%	90%	100%	16%	84%	100%	21%	79%
GCC	0.34***	0.03***	0.31***	0.20***	0.04***	0.16***	0.71***	0.22***	0.49***
%	100%	7%	93%	100%	20%	80%	100%	31%	69%
Other Arab	0.88***	0.03***	0.88***	0.66***	0.02***	0.64***	1.00***	0.26***	0.74***
%	100%	3%	97%	100%	3%	97%	100%	26%	74%

- Note: This table presents BO regression results. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is native workers. The regressions control for human capital characteristics, including gender, sector, experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.2. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

Zangelidis 2020; Christl, Köppl-Turyna, and Gnan 2020. By contrast, the Kuwaiti gaps are often 1–2.5 log points, and the unexplained portion for many nationalities exceeds 70–80%. This places Kuwait at the upper end of the international distribution of native–migrant wage gaps and underscores the role of strong labour market segmentation, sponsorship rules, and nationality-specific hiring practices in shaping wage outcomes.

2.6.3 BMZ Decomposition: Occupational Segregation and Returns to Characteristics

Table 2.5 presents the results from the BMZ decomposition, which builds on the BO framework by separating the wage differential into an intercept effect, a coefficient (returns) effect, an endowment effect, and two occupational segregation components: unjustified segregation (OD) and justified segregation related to occupation-specific qualifications (QD).

For all immigrants, the raw gap of 2.0 log points is primarily driven by the intercept effect (1.96 log points, or about 98% of the gap), with a small positive endowment effect (0.02 log points), a very small unjustified segregation effect (0.01 log points), and a justified segregation component of (0.17 log points) that is largely offset by a negative part of the coefficient effect. This confirms that differences in occupational structure and observed characteristics explain only a small part of the gap; most of the differential reflects differences in baseline pay and returns to characteristics between natives and immigrants.

Nationality-specific BMZ results show additional nuances. For several nationalities (Bangladesh, Pakistan, other Asian and African countries workers), a sizeable share of the gap is associated with the coefficient effect, indicating markedly lower returns to education, experience, and other characteristics than natives, even when controlling for occupational allocation. For GCC and other Arab countries workers, justified and unjustified occupational segregation components partially cancel out, implying that their occupational structure is not the main driver of the gap; instead, differences in returns and intercepts play the dominant role. Western workers stand out as a small group for whom the intercept and coefficient effects are negative, meaning that conditional on characteristics and occupation they earn higher wages than equally endowed natives and are more concentrated in high-paying occupations. This is consistent with the idea that a subset of expatriates (Western professionals and GCC nationals in managerial roles) enjoy wage premium rather than penalties, even as the majority of immigrant groups face large wage penalties.

Taken together, the BO and BMZ decompositions indicate that first, native–immigrant wage gaps in Kuwait are large in level terms and at the top end of those documented in the international literature. Secondly, only a modest fraction of these gaps can be attributed to differences in observed characteristics or occupational allocation. Moreover, most of the gap reflects differences in returns to characteristics and baseline pay across nationalities, in line with a strongly segmented labour market shaped by nationality, visa status, and employer-specific wage-setting practices. These findings provide the empirical basis for the robustness checks and matching-based decompositions discussed in Section 2.7.

TABLE 2.5: The BMZ Results for all Skill Levels

Variables	Raw Wage Gap	Wage Differential			Occupational Segregation	
		Intercept	(WD) Coefficient Effect	(PD) Endowment Effect	(OD) Unjustified	(QD) Justified
Immigrant	2.00***	1.96***	-0.16***	0.02***	0.01***	0.17***
%	100%	98%	-8%	1%	1%	8%
India	2.05***	1.76***	0.03***	0.05***	0.03***	0.17***
%	100%	86%	1%	3%	1%	9%
Bangladesh	2.70***	1.56***	0.85***	0.02***	0.03***	0.24***
%	100%	58%	32%	1%	1%	8%
Egypt	1.57***	1.39***	0.03***	0.03***	-0.05***	0.16***
%	100%	89%	2%	2%	-3%	11%
Nepal	2.60***	2.06***	0.03***	0.25***	0.04***	0.21***
%	100%	79%	1%	10%	2%	8%
Pakistan	1.66***	0.72***	0.73***	0.03***	0.04***	0.14***
%	100%	44%	44%	2%	2%	8%
Philippine	1.87***	3.36***	-1.81***	0.14***	0.03***	0.15***
%	100%	180%	-97%	7%	2%	8%
Other Asian	1.81***	1.19***	0.39***	0.04***	0.02***	0.17***
%	100%	66%	22%	2%	0%	10%
African	1.96***	1.15***	0.39***	0.22***	0.05***	0.15***
%	100%	59%	20%	11%	3%	7%
Westerns	0.32***	-0.23***	0.77***	-0.20***	-0.09***	0.07***
%	100%	-72%	242%	-63%	-29%	22%
GCC	0.35***	0.22***	0.04***	0.090***	-0.16***	0.16***
%	100%	63%	11%	26%	-45%	45%
Other Arab	0.88***	0.92***	-0.10***	0.00***	-0.09***	0.14***
%	100%	105%	-11%	0%	-10%	16%

- Note: This table presents BMZ regression results. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is native workers. The regressions control for human capital characteristics, including gender, sector, experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.2. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

2.6.4 The problem of common support

2.6.5 Common Support and the Choice of Reference Group

A key methodological challenge in comparing wage outcomes across nationalities arises from the lack of common support between native workers and immigrants, particularly within low-skilled occupations. In Kuwait, nationals rarely work in skill level 1 jobs and are only minimally represented in skill levels 2. As a result, the distribution of observable characteristics and log wages for natives shows almost no overlap with that of immigrants in these occupations. When covariate distributions do not overlap, the counterfactual comparison required for the analysis becomes invalid, since differences in wages risk reflecting structural segmentation rather than

genuine wage gaps. This violates the common support assumption and makes natives an unsuitable reference group for estimating wage differentials by nationality.

To address this issue, the paper adopts workers from the Gulf Cooperation Council (GCC) countries as an alternative reference group. This choice is justified both institutionally and empirically. Institutionally, following the decision of the Supreme Council of the GCC (Riyadh, 1993), GCC citizens working in Kuwait are treated equivalently to Kuwaiti nationals in terms of employment rights, labour mobility, and regulatory treatment in the private sector. Empirically, as shown in Table 2.6, the observable characteristics of GCC workers such as education, age distribution, occupation, and sectoral employment, are closely mirror those of native workers, making them an appropriate proxy group when natives are insufficiently present in key skill categories.

Figures 2.8, 2.9, and 2.10 display kernel density distributions of the log real wage for GCC workers and all other immigrant groups across skill levels 3&4, 2, and 1 respectively. In contrast to the negligible overlap observed between natives and immigrants, these figures demonstrate substantial common support between GCC workers and immigrants at all skill levels. This overlap ensures that meaningful counterfactual comparisons can be constructed and that estimation results are not driven by out-of-support observations.

Based on this evidence, the analysis re-estimates the wage differentials using GCC workers as the reference group. Ordinary Least Squares (OLS) regressions, Blinder–Oaxaca (BO) decompositions, and BMZ occupational segregation models are implemented with this revised comparison group. Across all methods, the findings remain consistent with the main results: substantial wage gaps persist across nationalities, with the largest gaps observed for workers from Nepal and Bangladesh. The BO decomposition confirms that a sizeable portion of these gaps remains unexplained for most nationalities, while the BMZ model indicates that justified occupational segregation accounts for an important share of the observed differences. The robustness of these results when using GCC workers, a group exhibiting strong common support with other immigrants, strengthens the credibility of the empirical findings.

Table 2.7 reports the percentage differences in monthly real wages between each nationality and native workers, both before and after controlling for individual characteristics, geographical factors, and economic activity. These OLS estimates provide an initial indication of which groups exhibit the smallest and largest raw wage gaps relative to natives. Although Western and other

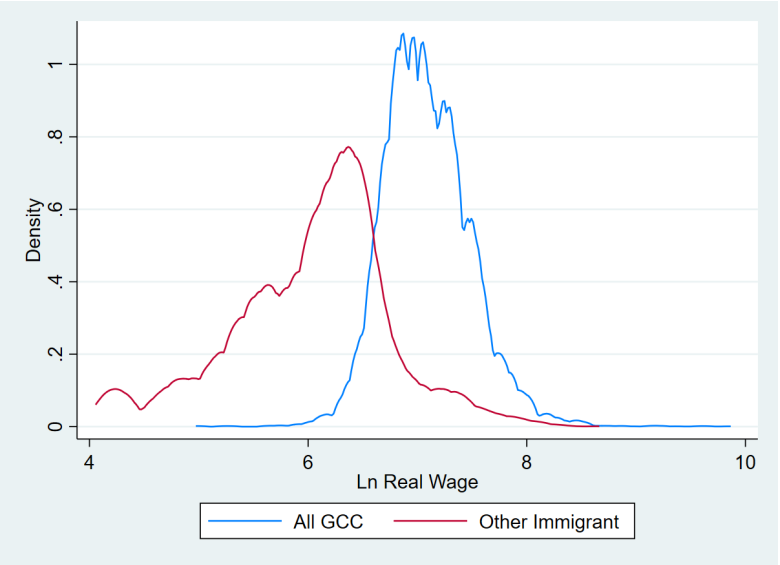


FIGURE 2.8: The Density Distribution of Ln Real Wage for Other Immigrants and All GCC for skill Level 3 & 4

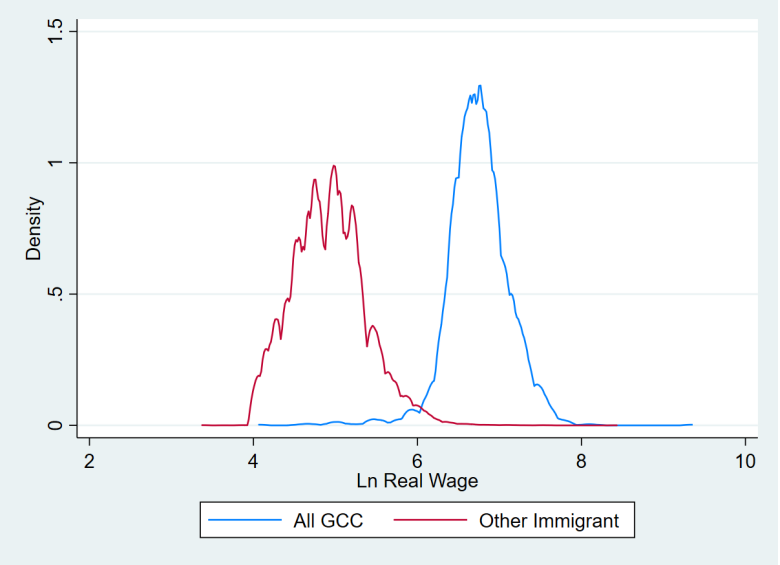


FIGURE 2.9: The Density Distribution of Ln Real Wage for Other Immigrants and All GCC for skill Level 2

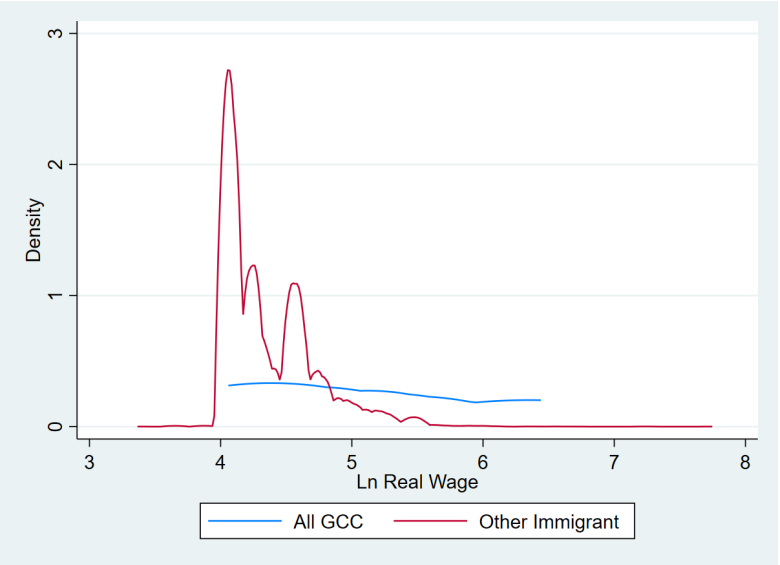


FIGURE 2.10: The Density Distribution of Ln Real Wage for Other Immigrants and All GCC for skill Level 1

Arab countries workers appear closest to natives in terms of wage levels, the limited overlap in their wage and covariate distributions with several other nationalities particularly within skill level 1 makes them unsuitable as alternative reference groups.

The decision to replace Kuwaiti nationals with GCC workers as the reference group is motivated by a clear common support problem in the wage distributions of nationals versus immigrants. Kuwaitis earn substantially higher wages, are disproportionately concentrated in high-skilled public-sector occupations, and possess markedly different educational and experience profiles. As a result, there is very limited overlap in the distribution of ln real wages between Kuwaitis and most immigrant nationalities, especially in lower skill levels. This lack of overlap violates the common support assumption required for decomposition methods such as Blinder–Oaxaca and BMZ, because the estimated counterfactual wages for immigrants would rely on extrapolation rather than comparison within a shared support region.

In contrast, GCC nationals exhibit observable characteristics much closer to those of immigrants, as confirmed by the formal tests of mean differences in the descriptive statistics and by the wage density plots. These density plots show substantial overlap between GCC workers and the various immigrant groups across all skill levels, indicating a valid region of common support. Because GCC nationals are treated as equivalent to Kuwaiti citizens under Gulf labour market rules, they serve as a conceptually appropriate "native-equivalent" reference category. Thus, replacing Kuwaitis with GCC nationals restores sufficient overlap between the treatment and comparison groups, ensuring that the decomposition estimates are based on valid counterfactual comparisons and are not driven by extrapolation outside the support of the data.

Appendix A.11 formally demonstrates that GCC workers display much stronger common support with all other nationalities across all skill levels.

Using GCC workers as the reference category, the analysis re-estimates wage differentials across nationalities. The OLS results in Tables A.5, A.6, and A.7 confirm that the substantive findings remain unchanged, wage gaps are sizeable and statistically significant for most nationalities, with the largest penalties observed for workers from Nepal and Bangladesh. This demonstrates that the core results are not driven by the initial choice of reference group.

TABLE 2.6: The Descriptive Statistics of Natives and GCC

Variables	Natives	GCC
Dependent Variables:		
Ln Real Wage	7.038***	6.698***
Ln Real Wage for Skilled Level 3 & 4	7.102***	6.899***
Ln Real Wage for Skilled Level 2	6.778***	6.063***
Ln Real Wage for Skilled Level 1	6.441***	4.586**
Independent Variables:		
Gender & Sector:		
Male	0.591***	0.683***
Private Sector	0.093***	0.193***
Year	0.443	0.470***
Educational Level		
Primary and below	0.007***	0.081***
Secondary	0.154***	0.351***
High school and above	0.838***	0.568***
Literacy Skill:		
Read & Write in Arabic	0.667***	0.664***
Read & Write in Any Language	0.332***	0.336***
Can't Read or Write	0.001***	0.000
Experience:		
Experience	15.425***	21.808***
Experience squared	323.544***	678.751***
Social status:		
Married	0.649***	0.671
Single	0.351***	0.329
Occupational classifications:		
Skilled Level 3 & 4	0.802***	0.810
Skilled Level 2	0.198***	0.162
Skilled Level 1	0.000***	0.028***
Geographical Areas:		
Al-Ahmadi	0.187***	0.124***
Al-Asima	0.175***	0.039***
Al-Farwaniya	0.211**	0.143***
Hawally	0.135***	0.034***
Al-Jahra	0.106***	0.635***
Mubarak Al-Kabeer	0.186***	0.024***
Economic Activities:		
1-Agriculture, forestry ...	0.004***	0.014***
2-Manufacturing.	0.057***	0.038
3-Electricity, gas, steam ...	0.021***	0.012
4-Construction, wholesale ...	0.027***	0.063***
5-Accommodation and food ...	0.071	0.058
6-Administrative and support ...	0.004***	0.030***
7-Public administration and defence ...	0.811***	0.785*
8-Arts, entertainment and recreation ...	0.006***	0.002
No. of Observations	8,271	323
Percent of the total	17.75%	0.84%
No. of Observations (skilled level 3 & 4)	6,478	258
No. of Observations (skilled level 2)	1,791	59
No. of Observations (skilled level 1)	2	6

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2015 and 2016/17. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables and they sum to 100. Skill levels are classified according to ISCO-08 and ISCO-88 classifications as in table 2.1.

TABLE 2.7: The Percentage Wage Differences Relative to Natives

Variables	For Skill Level 3		For Skill Level 2		For Skill Level 1	
India	-61%	-54%	-84%	-80%	-87%	-82%
Bangladesh	-77%	-73%	-87%	-83%	-90%	-83%
Egypt	-62%	-58%	-81%	-77%	-80%	-77%
Nepal	-92%	-89%	-88%	-84%	-88%	-83%
Pakistan	-64%	-58%	-77%	-73%	-81%	-76%
Philippines	-61%	-56%	-82%	-77%	-86%	-81%
Other Asian	-58%	-52%	-77%	-75%	-87%	-81%
African	-65%	-54%	-80%	-71%	-85%	-75%
Westerns	-23%	-16%	-61%	-62%	-89%	-84%
GCC	-19%	-13%	-51%	-42%	-85%	-79%
Other Arab	-50%	-45%	-64%	-61%	-67%	-65%
Year	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes
No. of Observations						
India	1,383		14,192		4,906	
Bangladesh	42		1,929		4,405	
Egypt	1,388		2,929		977	
Nepal	5		682		1,102	
Pakistan	112		746		153	
Philippines	188		987		135	
Other Asian	63		356		135	
African	7		19		27	
Westerns	54		9		1	
GCC	258		59		6	
Other Arab	526		478		55	

- Note: These are the calculated exponential of the OLS regression results of the effect of different nationalities on natural log of the real monthly wage.

The Blinder–Oaxaca (BO) decompositions in Table 2.8 illustrate how much of each nationality's wage gap relative to GCC workers is due to observable characteristics versus unexplained factors. For the pooled sample, the explained and unexplained components contribute roughly equally to the total wage gap. When examined by nationality, the share of the explained component varies considerably, it is small for nationalities such as other Arab countries workers but larger for Indian and Western workers. Across skill levels, the explained share is lowest in skill levels 3&4 and increases in lower-skilled occupations, consistent with greater heterogeneity in observable characteristics among low-skilled workers.

TABLE 2.8: The BO Decomposition using All GCC countries as the reference group

Ln Real Wage	All Skills			Skill Level 3 & 4			Skill Level 2			Skill Level 1		
	Raw Wage Gap	Explained	Unexplained	Raw Wage Gap	Explained	Unexplained	Raw Wage Gap	Explained	Unexplained	Raw Wage Gap	Explained	Unexplained
Other Immigrants	2.05***	1.02***	1.03***	0.93***	0.11***	0.82***	1.78***	0.35***	1.43***	0.50***	0.07***	0.43***
%	100%	50%	50%	100%	12%	88%	100%	20%	80%	100%	14%	86%
India	2.04***	1.01***	1.03***	0.92***	0.19***	0.73***	1.81***	0.29***	1.52***	0.43***	0.09***	0.34***
%	100%	49%	51%	100%	21%	79%	100%	16%	84%	100%	21%	79%
Bangladesh	2.69***	0.82***	1.87***	1.41***	0.02**	1.39***	2.02***	0.28***	1.74***	0.68***	0.10***	0.58***
%	100%	30%	70%	100%	1%	99%	100%	14%	86%	100%	15%	85%
Egypt	1.56***	0.48***	1.08***	0.96***	0.06***	0.90***	1.67***	0.17***	1.50***	0.02	0.01	0.01
%	100%	31%	69%	100%	6%	94%	100%	10%	90%	100%	50%	50%
Nepal	2.59***	0.53***	2.06***	N/A	N/A	N/A	2.12***	0.22***	1.89***	0.56***	0.19***	0.37***
%	100%	20%	80%	N/A	N/A	N/A	100%	10%	89%	100%	34%	66%
Pakistan	1.64***	0.33***	1.31***	0.98***	0.04	0.94***	1.44***	0.17***	1.27***	0.05	0.04***	0.01
%	100%	20%	80%	100%	4%	96%	100%	12%	88%	100%	80%	20%
Philippine	1.83***	0.57***	1.26***	0.92***	0.02	0.90***	1.67***	0.32***	1.35***	0.36***	0.12***	0.24***
%	100%	31%	69%	100%	2%	98%	100%	19%	81%	100%	33%	67%
Other Asian	1.81***	0.50***	1.31***	0.82***	0.01	0.81***	1.47***	0.17***	1.30***	0.42***	0.26***	0.15***
%	100%	28%	72%	100%	1%	99%	100%	12%	88%	100%	62%	36%
African	1.96***	0.74***	1.22***	N/A	N/A	N/A	1.61***	0.33***	1.28***	0.31***	0.25***	0.06***
%	100%	38%	62%	N/A	N/A	N/A	100%	20%	80%	100%	81%	19%
Westerns	0.31***	0.05***	0.26***	0.25***	0.04**	0.21***	N/A	N/A	N/A	N/A	N/A	N/A
%	100%	16%	84%	100%	16%	84%	N/A	N/A	N/A	N/A	N/A	N/A
Other Arab	0.87***	0.04***	0.83***	0.66***	0.06***	0.60***	0.99***	0.15***	0.84***	-0.50***	-0.30***	-0.20***
%	100%	5%	95%	100%	9%	91%	100%	15%	85%	100%	60%	40%

- Note: This table presents BO regression results. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is All GCC workers. The regressions control for human capital characteristics, including gender, sector, experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.6. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

TABLE 2.9: The BMZ model using All GCC countries as the reference group

Variables	Raw Wage Gap	Wage Differential			Occupational Segregation	
		Intercept	(WD) Coefficient Effect	(PD) Endowment Effect	(OD) Unjustified	(QD) Justified
Immigrant	2.05***	1.37***	-0.14***	0.11***	0.07***	0.64***
%	100%	67%	-7%	5%	3%	31%
India	2.04***	1.45***	-0.05***	0.06***	-0.05***	0.64***
%	100%	71%	-2%	3%	-2%	31%
Bangladesh	2.69***	0.98***	0.16***	0.04***	0.52***	0.99***
%	100%	37%	6%	1%	19%	37%
Egypt	1.56***	1.11***	-0.19***	0.25***	-0.17***	0.55***
%	100%	72%	-12%	16%	-11%	36%
Nepal	2.59***	1.54***	-0.47***	0.22***	0.23***	1.07***
%	100%	59%	-18%	8%	9%	41%
Pakistan	1.63***	0.45***	0.22***	0.54***	0.13***	0.29***
%	100%	28%	13%	33%	8%	18%
Philippine	1.84***	2.92***	-0.84***	-0.61***	-0.11***	0.48***
%	100%	159%	-46%	-33%	-6%	26%
Other Asian	1.81***	0.85***	0.26***	0.05***	0.12***	0.53***
%	100%	47%	14%	3%	7%	29%
African	1.95***	0.76***	-0.98***	1.35***	0.02***	0.80***
%	100%	39%	-50%	69%	1%	41%
Westerns	0.30***	-0.41***	0.73***	-0.01***	-0.23***	0.22***
%	100%	-135%	242%	-3%	-76%	73%
Other Arab	0.87***	0.71***	-0.13***	-0.11***	0.01***	0.39***
%	100%	82%	-15%	-13%	1%	45%

- Note: This table presents BMZ regression results. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is All GCC workers. The regressions control for human capital characteristics, including gender, sector, experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.6. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

Finally, Table 2.9 provides the BMZ occupational segregation decomposition using GCC workers as the reference group. The justified segregation component reflecting differences in occupational sorting accounts for a substantial share of the overall wage gap for some nationalities, while negative endowment effects indicate that certain groups possess higher average observable characteristics than the reference category. The intercept and coefficient effects highlight the contribution of unobservable factors. These patterns closely mirror the BO results and reinforce the robustness of the findings after adopting GCC workers as the reference group.

Collectively, these tables confirm that substituting GCC workers for natives resolves the common support problem without altering the key empirical conclusions.

2.7 Robustness Check

This section contains the robustness checks of the main analysis results by using another approach, which is the Nöpo 2008 matching approach as explained in detail in section 2.4. It is a non-parametric type of test, and it does not require the estimation of the earning equation as in the Blinder-Oaxaca (BO) decomposition. It emphasizes the wage differences in support of the distribution of the observable characteristics and provides insights into the unexplained wage gap distribution. The paper applies first the Nopo non-parametric approach for immigrants and by nationalities in reference to natives and then for each nationality versus workers from other GCC countries.

2.7.1 Comparing Natives to Immigrants

Tables 2.10 and 2.11 address the Nöpo 2008 matching approach results for skill levels 3 & 4 and skill level 2 respectively[18]. These tables review the total raw wage gap between the matched group of natives and immigrants (Δ), the explained part (ΔX) and unexplained part ($\Delta 0$) similar to BO decomposition, together with the wage difference due to characteristics differences between unmatched and matched immigrants (ΔIM) and the wage differences between matched and unmatched natives (ΔN) as explained in section 2.4.

Table 2.10 shows that the average wage gap between native and immigrants is lower by 13% where 9% is not explained. This means that most of the wage gap is unexplained and that confirms the main results of BO and BMZ decompositions.

Most of the wage gap is not explained can be related to the fact that natives as mentioned before are following the National Labour Support Law No. 19 for the year 2000. Also, immigrants are following a minimum wage law No. 185 for the year 2010 where workers in the private sector should not receive a wage that is less than KW 60 Dinar per month (around £ 155 / monthly). These two different laws incorporate for the most of the wage gap other than the observable factor accounted for in the analysis.

[18] Skill level 1 could not be generated because of unavailability of natives at this skill level.

The highest wage gap at skill level 3 & 4 is between natives and workers from Bangladesh and India with 23% and 17% lower wage gap respectively. On the other hand, the lowest wage gap at the same skill level is between natives and workers from GCC countries and Westerns where natives generate higher wage by 3% and 2% respectively. These results confirms the main results that are generated by using BO and BMZ decompositions.

On the other hand, table 2.11 shows the average real wage gap for skill level 2 workers to be 27% lower for total immigrants compared to natives. The negative sign of the explained part can be interpreted as that the observable characteristics of natives are higher than those of immigrants. However, the unexplained part still dominate the wage gap with lower wage gap of all immigrants by 16%. The table confirms the main result of this skill level where the highest wage gaps are for workers from Nepal, Africa and Bangladesh while the lowest are for workers from GCC countries with most of the wage gaps are not explained even when comparing between the matched groups using Nopo matching approach.

2.7.2 Changing the Reference Group

The paper implements the Nöpo 2008 matching approach for immigrant workers by nationalities with workers from al GCC countries as another reference group. Tables 2.12, 2.13, and 2.14 show the the average wage gap between skill level 3 & 4, skill level 2, and skill level 1 for immigrant workers by nationalities versus workers from other GCC countries respectively. Most of the wage gap of all other immigrant workers is unexplained. For skill level 3& 4 and for skill level 2, we can see that the proportion of the unexplained part of their wage differentials are unexplained which are 11% and 19% respectively. However, the wage gap is totally explained for workers at skill level 1 with the change in the unexplained part equals 0%. Furthermore, these percentages differ when we go by nationalities.

By comparing the main results with the results after changing the reference, we see that the results are more or less the same at skill level 3 and skill level 2, but it gives us an inspiration about the wage differential at skill level 1 if natives where available at this skill level.

TABLE 2.10: The Nopo Matching Approach Result for Skill Level 3 & 4

Variables	Nopo Components				
	Δ	Δ0	ΔIM	ΔN	ΔX
Immigrants:	-13%	-9%	-4%	0%	0%
India	-17%	-9%	-6%	-1%	0%
Bangladesh	-23%	-17%	-13%	8%	-1%
Egypt	-16%	-12%	-5%	1%	0%
Nepal	N/A	N/A	N/A	N/A	N/A
Pakistan	-15%	-12%	-6%	3%	0%
Philippine	-15%	-10%	-6%	1%	0%
Other Asian	-12%	-10%	-1%	-1%	0%
African	-14%	-12%	1%	-1%	-1%
Westerns	-2%	1%	-5%	2%	0%
GCC	-3%	-4%	1%	-1%	1%
Other Arab	-8%	-11%	2%	1%	0%

TABLE 2.11: The Nopo Matching Approach Result for Skill Level 2

Variables	Nopo Components				
	Δ	Δ0	ΔIM	ΔN	ΔX
Immigrants:	-27%	-16%	-5%	-1%	-4%
India	-29%	-20%	-8%	0%	-1%
Bangladesh	-45%	-24%	-22%	0%	-1%
Egypt	-25%	-24%	1%	-1%	-2%
Nepal	-74%	-22%	-48%	-4%	0%
Pakistan	-37%	-21%	-19%	1%	2%
Philippine	-23%	-18%	3%	-8%	0%
Other Asian	-46%	-21%	-28%	4%	-1%
African	-58%	-26%	-26%	-6%	0%
Westerns	-24%	-3%	-19%	-2%	0%
GCC	-12%	-6%	-5%	-1%	0%
Other Arab	-16%	-14%	0%	-2%	0%

- Note: Not available (N/A) results are because of lack of common support. This table presents Nopo matching approach. All results are weighted. The reference group is native workers. The regressions control for human capital characteristics, including gender, sector, experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.2.

TABLE 2.12: The Nopo Matching Approach Result for Skill Level 3 & 4 with all GCC as the reference group

Variables	Nopo Components				
	Δ	Δ0	ΔIM	ΔN	ΔX
Other Immigrants	-15%	-11%	0%	-4%	0%
India	-16%	-9%	-1%	-6%	0%
Bangladesh	-23%	-16%	4%	-7%	-4%
Egypt	-15%	-11%	1%	-4%	-1%
Nepal	N/A	N/A	N/A	N/A	N/A
Pakistan	-15%	-12%	3%	-6%	0%
Philippine	-15%	-9%	1%	-6%	-1%
Other Asian	-12%	-10%	-1%	-1%	0%
African	-13%	-12%	-1%	1%	-1%
Westerns	-2%	1%	2%	-5%	0%
Other Arab	-8%	-11%	1%	2%	0%

TABLE 2.13: The Nopo Matching Approach Result for Skill Level 2 with all GCC as the reference group

Variables	Nopo Components				
	Δ	Δ0	ΔIM	ΔN	ΔX
Other Immigrants	-27%	-19%	-3%	-2%	-3%
India	-29%	-17%	-5%	-4%	-3%
Bangladesh	-32%	-18%	-8%	-2%	-4%
Egypt	-24%	-22%	-1%	0%	-1%
Nepal	-56%	-14%	-14%	-28%	0%
Pakistan	-21%	-19%	-3%	0%	0%
Philippine	-33%	-14%	-11%	-9%	1%
Other Asian	-30%	-17%	-3%	-10%	0%
African	-37%	-23%	0%	-14%	0%
Westerns	-25%	-3%	-3%	-19%	0%
Other Arab	-17%	-13%	-2%	-2%	0%

TABLE 2.14: The Nopo Matching Approach Result for Skill Level 1 with all GCC as the reference group

Variables	Nopo Components				
	Δ	Δ0	ΔIM	ΔN	ΔX
Other Immigrants	-15%	0%	-14%	1%	-2%
India	-12%	0%	-14%	1%	1%
Bangladesh	-64%	-1%	-61%	-1%	-1%
Egypt	-19%	-5%	-15%	1%	0%
Nepal	-38%	-1%	-34%	-3%	0%
Pakistan	-76%	-4%	20%	-92%	0%
Philippine	-12%	-8%	-4%	0%	0%
Other Asian	-86%	-7%	-18%	-61%	0%
African	-99%	-4%	-231%	136%	0%
Westerns	N/A	N/A	N/A	N/A	N/A
Other Arab	-48%	-4%	-125%	81%	0%

- Note: Not available (N/A) results are because of lack of common support. This table presents Nopo matching approach. All results are weighted. The reference group is native workers. The regressions control for human capital characteristics, including gender, sector, experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.2.

2.8 Conclusions

Immigrants dominate Kuwait labour market, with the private sector serving as their primary workplace. The main aim of this paper is to examine the wage disparities between natives and immigrants (among nationalities) in the Kuwaiti private sector. This paper is the first to measure the wage gap between natives and immigrants, using data from the latest Kuwait Labour Force Survey (KLFS) for the years 2015 and 2017. The main contribution of this paper is that it is empirically measuring the impact of nationalities on wages in the private sector and building some concrete recommendations for the policymakers which may foster more inclusive labour market that leverages the potential of immigrant workers and contribute to economic growth and social cohesion.

Using the Blinder 1973-R. Oaxaca 1973 (BO) decomposition shows that most wage discrimination is caused by things that can't be seen. The explained parts for workers by different skill levels reflect the effect of gender, educational level, marital status, years of experience, working sector, geographical area, and economic activities on monthly real wages. However, the unexplained parts show that there is some amount of the wage that doesn't relate to any of these observable characteristics.

On the other hand, implementing Brown, Moon, and Zoloth 1980 (BMZ) model reflects that by accounting for the occupational differences, the explained part although it accounted for occupational qualifications together with workers endowments, it still reflected a small amount of the wage gap while the unexplained part increased compared to the results of BO decomposition.

Nöpo 2008 non-parametric matching approach is used as a robustness check test. It confirms that some of the wage gap can be explained because of observed characteristics but most of the gap comes from other unobserved factors. These results of the BO decomposition, BMZ model and Nopo matching approach address that the main reasons for most of the wage differentials are occupations segregation, discrimination and some other unobserved factors.

A more comprehensive and rigorous investigation of the effect of nationalities on wages is possible when combining the BO, BMZ, and Ñopo decomposition's. Because it addresses particular limitations, each approach enhances the others and gives a more comprehensive view of wage

disparities. Using this method can result in more sensible and useful policy recommendations while also improving the validity and dependability of our findings.

Several challenges are encountered during the study. The main challenge is the lack of a follow-up type of survey. This survey would enhance the research because it captures the flow of wages, the accumulation of experience and education, and how it might affect wage levels. An additional challenge is the lack of data regarding the source of experience, such as whether an employee acquired it in their home country or the host country, and whether it was in the same field of work or a different one. Furthermore, the quality of education is another challenge, as is whether a foreign worker received his level of education at home or in the host country or even abroad. This information could enrich the analysis and make it more robust. The use of longitudinal or panel data to study the wage patterns of immigrants over time and account for potential changes in their skill levels, experience, and labour market integration might be a good future extension of the research. Also, using instrumental variable to address the potential endogeneity in the analysis could provide a more robust cause estimate.

These results might be viewed as a clear warning for the Kuwaiti labour market authority and suggest the need to build integrated labour policies that make it possible to face the problem of wage discrimination. Although building such policies is not an easy job, working with the wage gap between natives and immigrants requires adopting comprehensive policy reforms that enhance the labour productivity of both national and foreign workers. In addition, policymakers should ensure fair and equitable treatment of foreigners by regularly reviewing and updating labour laws such as the minimum wage law, the working conditions law, and the protection against exploitation law.

Chapter 3

The Employment Protection Legislation Effect on Wages in Kuwait

3.1 Abstract

This paper is the first to study the impact of employment protection legislation (EPL) imposed by the Public Authority of Manpower (PAM) in Kuwait on private sector employees, who are predominantly foreigners. The Public Authority of Manpower (PAM) in Kuwait is implementing this legislation to regulate the hiring process and protect the rights of foreign workers. The paper examines hypotheses that predict a negative impact on employment levels, but a positive impact on the monthly real wages of foreign workers. The paper assesses the effectiveness of the PAM's administrative decision by comparing the employment levels and monthly real wages of foreign workers in the private sector with those in the public sector before and after the intervention using a difference-in-difference (DiD) approach. The results indicate that increased protection of labour rights leads to greater labour supply but a decrease in wages. Therefore, these results highlight the potential trade-off between labour rights, labour supply, and wages. Policymakers would need to balance these factors in order to achieve desired outcomes, such as encouraging labour force participation while ensuring decent compensation levels and employee protections.

Key words:
Labour – EPL - Private Sector - Employment - Wage – Difference-in-Difference (DiD).

3.2 Introduction

Employment Protection Legislation (EPL) regulates hiring and firing practices and can influence labour demand, job security, and wage-setting through changes in labour adjustment costs.[1] In Kuwait, where the private sector is overwhelmingly staffed by foreign workers, the effects of such regulation may differ substantially from those documented in OECD economies.

On 31 March 2015, the Public Authority of Manpower (PAM) introduced Administrative Decision No. 719, requiring private-sector employers to deposit a financial guarantee of KWD 250 for each foreign worker hired. Although intended to strengthen compliance with contractual obligations, the decision effectively increased the upfront cost of hiring foreign labour and operates on the hiring margin rather than through dismissal protection. This feature distinguishes it from conventional EPL reforms and creates a unique setting for evaluating its labour market effects.

The central research question of this chapter is What was the effect of Administrative Decision No. 719 on the employment levels and monthly real wages of foreign workers in Kuwait's private sector?. Nevertheless, the direction of these effects is ambiguous. Higher hiring costs may reduce labour demand or exert downward pressure on wages, while enhanced formalisation and enforcement of rights could increase the attractiveness of private-sector employment for foreign workers.

3.2.1 Administrative Decision No. 719 (2015): Content and Relation to Standard EPL

Administrative Decision No. 719, issued in 2015, introduced a new enforcement mechanism requiring employers to deposit a financial guarantee of KWD 250 for each foreign worker. This deposit, held by the Public Authority of Manpower (PAM), can be accessed only in cases where employers fail to pay wages or to cover repatriation costs. The reform therefore strengthens workers' rights by improving the enforcement of existing contractual obligations, particularly wage payment and the right to safe repatriation.

[1] See Lazear 1990; Cazes and Nesporova 2003; Boeri and Jimeno 2005; Skedinger 2011.

Importantly, the reform does not amend dismissal regulations, severance pay rules, or job-security provisions. There is no evidence that the policy changed firing procedures or the legal costs associated with terminating employment. As such, the 2015 measure should not be interpreted as a dismissal-protection reform in the standard OECD-style EPL sense.

The reform is "EPL-like" only in that it increases employer obligations and the administrative costs associated with hiring foreign workers and strengthens the enforcement of labour contracts. However, it differs fundamentally from conventional EPL reforms, which primarily operate through restrictions on dismissals or increases in firing costs. In the Kuwaiti context, the reform is better understood as a contract-formalisation and hiring-cost measure rather than a job-security reform.

3.2.2 Theoretical Expectations

The expected effects of Decision No. 719 can be understood through theories of labour demand, hiring costs, and labour market segmentation. Increasing the upfront cost of hiring foreign workers raises firms' marginal cost of labour, which standard labour demand theory predicts will place downward pressure on wages as employers adjust compensation to offset part of the new cost burden. Because the reform does not alter dismissal procedures or severance obligations, it does not trigger the classic firing-cost channel present in traditional EPL settings. In migrant-dependent labour markets such as Kuwait's, limited worker mobility and weak bargaining power may further increase the likelihood that firms pass hiring-related costs onto workers.

Overall, these considerations suggest that the policy is likely to reduce wages, while the effect on employment is ambiguous and may even be positive if the reform improves contractual compliance or reduces uncertainty for employers.

3.2.3 Empirical Contribution

This chapter provides the first causal evaluation of an EPL-type reform in Kuwait and contributes to the EPL literature by examining a highly segmented labour market dominated by foreign labour. Unlike standard EPL reforms, decision No. 719 functions as a hiring-cost shock, offering

a novel context for studying how firms adjust employment and wages when contract formalisation is strengthened without restricting dismissals.

The empirical analysis exploits a Difference-in-Differences (DiD) framework using individual-level data from the Kuwait Labour Force Survey (KLFS) for 2014 and 2016. Foreign workers in the private sector constitute the treated group, while foreign workers in the public sector serve as a comparison group. By comparing outcomes before and after the reform across these groups, the chapter identifies the causal effect of the policy on employment probabilities and real monthly wages.

The remainder of the chapter is organised as follows. Section 3.3 reviews the related literature. Section 3.4 describes the empirical strategy. Section 3.5 presents the data and institutional background. Section 3.6 reports the findings. Section 3.7 provides robustness checks. Section 3.8 concludes.

3.3 Literature Review

This section situates the analysis within the international literature on Employment Protection Legislation (EPL), highlighting both the cross-country evidence on conventional EPL reforms and the more recent strand of work focusing on enforcement, contract formalisation, and hiring-cost regulations. This distinction is essential because Kuwait's 2015 reform differs from standard EPL reforms commonly studied in OECD economies. While most EPL research examines dismissal protection and job security provisions, Administrative Decision No. 719 centres instead on hiring costs, formalisation of employment relationships, and enforcement of employer obligations. The literature review therefore draws on both strands to contextualise the Kuwaiti experience.

3.3.1 Theoretical Framework: Conceptual Channels Linking EPL to Employment and Wages

Employment Protection Legislation (EPL) alters the conditions under which firms hire and dismiss workers, and influences workers' willingness to accept employment. As a result, EPL can

generate theoretically ambiguous effects on both employment and wages. This section provides a concise conceptual framework for understanding the possible channels through which an EPL-type reform such as Kuwait's Administrative Decision No. 719, can affect labour market outcomes. Although the Kuwaiti reform primarily operates through the hiring margin rather than dismissal protection, the theoretical mechanisms discussed here help clarify why employment and wages may respond differently, and even in opposite directions.

3.3.1.1 Labour Demand and Labour Cost Channels

In standard labour demand models, firms choose employment by equating the marginal product of labour to the marginal cost of labour Hamermesh 2004. An EPL reform that raises the cost of hiring workers, for example, through financial guarantees, administrative requirements, or additional compliance costs, shifts the marginal cost of labour upward. This shift tends to reduce firms' desired employment level and discourage vacancy creation.

However, the overall effect on employment depends not only on hiring costs but also on how workers respond to the reform. If EPL increases workers' perceived job security or contract enforceability, labour supply may become more elastic: more workers may be willing to enter or remain in the labour market at a given wage. In such cases, higher labour supply can offset the increase in labour costs, potentially leading to higher total employment even when wages fall.

3.3.1.2 Search Frictions and Job Creation in Matching Models

Search and matching models Mortensen and Pissarides 1994 and Pissarides 2000, offer further insight into the ambiguous effects of EPL. In these models, labour market outcomes depend on the rate of job creation, the rate of job destruction, and the matching process between firms and workers. EPL typically affects both margins: a higher hiring costs reduce job creation, as firms become more cautious in posting vacancies and a stronger enforcement of employment contracts or higher firing costs can reduce job destruction by making terminations more costly. The net employment effect depends on which margin dominates. If job destruction falls more than job creation, employment may rise, even when hiring becomes more expensive.

3.3.1.3 Wage Determination and Bargaining

Wages in many labour markets are determined through bargaining between firms and workers Cahuc, Carcillo, and Zylberberg 2014. In matching and bargaining models, EPL influences wages by altering the relative bargaining position of workers and firms. The standard EPL that restricts dismissals strengthens worker bargaining power because firms face higher costs of replacing workers Lazear 1990. On the other hand, EPL that primarily affects hiring costs, without enhancing dismissal protection, may improve firms' bargaining position if labour supply increases or if compliance reduces the risk of worker turnover.

In the Kuwaiti context, the 2015 reform strengthened contract enforceability but did not make dismissal more costly. As a result, foreign workers may have gained greater contractual security but not additional bargaining power.

3.3.1.4 Efficiency Wage and Contract Enforcement Considerations

Efficiency wage models also offer a channel through which EPL-type reforms can influence wages. When contracts become more enforceable and workers face a lower risk of unpaid wages or contract violations, firms may need to offer lower wage premium to attract or retain workers Shapiro and Stiglitz 1984; Akerlof and Yellen 1986. A reform that strengthens enforcement therefore reduces the need for efficiency wages. In addition, stronger compliance reduces the probability of costly disputes, lowering the effective wage firms must pay to motivate workers.

In the Kuwaiti setting, stronger contract enforcement through the financial guarantee may have reduced uncertainty for workers, increasing their willingness to accept lower wages. This channel again predicts a possible combination of higher employment and lower wages.

3.3.1.5 Summary and Implications for the Kuwaiti Reform

Overall, these conceptual frameworks demonstrate that EPL can have ambiguous effects on employment and wages, and that opposite movements in the two outcomes are theoretically plausible. When an EPL-type reform strengthens contract enforcement and increases labour supply without tightening dismissal protection, the expected pattern is higher employment and lower

wages. This theoretical mechanism aligns closely with the specific features of Administrative Decision No. 719 and helps interpret the empirical results of this paper, where employment among foreign workers increased while their real wages declined.

3.3.2 EPL Reforms Across Countries: Design Features and Labour Market Effects

A large body of international research evaluates EPL reforms that modify dismissal rules, severance pay, and job security provisions. These reforms are most common in OECD countries, where EPL primarily operates through the firing margin. Early cross-country analyses such as Lazear 1990 and Bertola 1990 showed that stricter dismissal regulations reduce employment flows and job reallocation. Subsequent evidence from the United States, Italy, and Latin America confirms that higher dismissal costs can lower vacancy creation and reduce labour market dynamism Autor, W. R. Kerr, and A. D. Kugler 2007; A. Kugler and M. Kugler 2002; Micco and Pagés 2004. Cross-national evidence further shows that stringent dismissal protection tends to reduce job turnover and amplify labour market dualism, particularly affecting temporary workers and youth Cahuc, Charlot, and Malherbet 2016; Bergh 2014; Bentolila, Dolado, and Jimeno 2020. Studies from Italy's Jobs Act illustrate how easing dismissal rules for permanent contracts can increase transitions from temporary to permanent jobs, although overall employment effects remain modest Hijzen, Mondauto, and Scarpetta 2017; Ardito, Berton, and Pacelli 2023.

Despite this extensive evidence, the results are far from uniform. Several studies find weak or statistically insignificant effects of dismissal-protection EPL on aggregate employment Nickell and Layard 1999; Bassanini and Duval 2006. Meta-analyses and cross-country OECD research highlight that the employment effects of conventional EPL reforms depend heavily on enforcement, firm size, workforce composition, and the degree of labour market duality Gal and Theising 2015. Overall, the international evidence suggests that dismissal protection influences worker turnover and job stability more than total employment.

3.3.3 Contract Formalisation, Enforcement, and Hiring-Cost Reforms

Unlike conventional EPL reforms, Kuwait's Administrative Decision No. 719 increases the cost of hiring foreign workers and strengthens contract enforcement, without tightening dismissal rules. A growing literature examines similar reforms in developing and emerging economies, where labour market institutions often target informality, non-compliance, and weak enforcement rather than firing costs.

A central strand of this literature focuses on improvements in labour inspections and enforcement capacity. Ronconi 2010 shows that stronger enforcement in Argentina increases formal employment and compliance with labour regulations. Similarly, Almeida and Carneiro 2009 document that enhanced labour inspections in Brazil raise formalisation rates and reduce non-payment of wages. Piore and Schrank 2008 highlight the role of enforcement-oriented institutions in improving contract compliance, especially in settings with large migrant or informal workforces.

Another related strand examines reforms that alter hiring costs or administrative burdens. In Colombia, payroll tax reductions and hiring subsidies significantly increased employment among targeted groups A. Kugler and M. Kugler 2009. Conversely, payroll tax increases reduced formal employment and pushed firms toward informality A. Kugler and M. Kugler 2002. In Italy, hiring incentives combined with EPL reforms increased net job creation, particularly for young workers Ardito, Berton, and Pacelli 2023. These studies show that hiring-cost reforms can meaningfully affect employment and wage-setting by altering firms' marginal cost of labour.

Research on informality also offers relevant insights. Studies from Latin America show that reforms aimed at reducing informality through better enforcement or simplified procedures increase formal employment but often exert downward pressure on wages as more workers enter regulated employment Levy 2010; Bosch, Melguizo, and Pagés 2013. This mechanism parallels the Kuwaiti context, where stronger enforcement of contractual obligations may encourage more workers to join or remain in the private sector, increasing labour supply and contributing to wage compression.

Finally, the literature on migrant labour governance in the Gulf emphasises the centrality of administrative controls, contract monitoring, and employer obligations Shah 2013; Kapiszewski 2017. These studies show that reforms in the GCC often target hiring procedures, recruitment

processes, and enforcement rather than dismissal protections making them closely aligned with Kuwait's 2015 decision.

3.3.4 EPL and Wage Outcomes

The relationship between EPL and wages is similarly complex. In OECD settings, stricter dismissal protection often benefits insiders, reducing wage inequality but lowering labour's overall share of income Boeri and Cahuc 2022. Wage effects depend heavily on worker bargaining power and the degree of labour market segmentation. Heywood et al. 2018 find that stricter EPL reduces wages for low-skilled workers but may allow organised or unionised workers to sustain higher wages.

In developing economies, enforcement reforms and contract formalisation can generate different effects. Stronger enforcement improves compliance but may reduce efficiency-wage premium if workers face lower risks of non-payment Ronconi 2010. Evidence from Latin America suggests that formalisation reforms may compress wages, especially when accompanied by increases in labour supply to the formal sector Levy 2010. These mechanisms resonate with the Kuwaiti context, where improved contract enforcement and increasing labour supply among foreign workers may exert downward pressure on wages.

3.3.5 Positioning This Study in the Literature

This paper contributes to the international literature in three main ways. First, it examines an EPL-type reform in a Gulf labour market dominated by migrant workers, a context rarely studied in the EPL literature. Second, it focuses on a reform centred on hiring costs and contract enforcement rather than dismissal regulations, filling a gap in the literature that remains underexplored relative to the large body of work on firing-cost EPL. Third, it brings evidence from an institutional setting where enforcement, administrative controls, and recruitment costs play a more prominent role than job-security provisions. By linking these international insights to the Kuwaiti case, the paper extends the scope of EPL research to a new policy environment with distinct institutional and demographic characteristics.

3.4 Research Methodology

This section outlines the research methodology that examined the impact of employment protection legislation (EPL) on the employment and wages of foreign workers in Kuwait's private sector. Following the most influential paper of Card and Krueger 1993, the research implements a difference-in-difference (DiD) approach to measure the causal effect of the labour protection legislation imposed in Kuwait in 2015 over the private sector foreign employees. The DiD approach is the most famous econometric technique to measure the causal effect of a policy intervention in observational data. The paper chose this approach because data for the period before and after the intervention was available. Some seminal studies use this method to measure the effect of different labour legislation on wages and employment, such as (Card and Krueger 1993, Autor, W. R. Kerr, and A. D. Kugler 2007, Card 1992 and Angrist 1991).

The basic DiD model can be written as follows and implemented using the Ordinary Lease Square (OLS) regression method Lechner, Rodriguez-Planas, and Fernández Kranz 2016:

$$Wage_{it} = \alpha + \beta Treated_{it} + \gamma Post_i + \tau Treated_{it} * Post_i + X_{it} + \epsilon_{it} \tag{3.1}$$

where:

$Wage_{it}$ is the outcome of interest reflecting the monthly real wages (or natural log of the monthly real wage) for individual i at time t.

$Treated_{it}$ is a dummy variable =1 for individual i in the treatment group (foreign workers in the private sector) at time t and =0 for individual i in the control group (foreign workers in the public sector) at time t.

$Post_i$ is a dummy variable =1 for individual i in the post-period of the intervention (year 2016) and =0 for individual i in the period before intervention (year 2014).

X_{it} represents individual characteristics such as gender, age groups, educational levels, literacy skills, geographical area, economic activities, and occupation classifications.

ϵ_{it} represents the error term.

The coefficient of interest is τ, which measures the average treatment (policy intervention) effect on monthly real wages (or the natural log of the monthly real wage) for foreign workers in the Kuwaiti private sector.

The comparison group consists of foreign workers employed in the public sector. This group provides the closest possible counterfactual for private-sector foreign workers because both groups share similar nationality composition, demographic structure, and exposure to the same macroeconomic conditions, while only the treated group is subject to Administrative Decision No. 719. Importantly, Kuwait's labour market is characterised by strict segmentation between sectors: public-sector workers enter under visa type 17, private-sector workers under visa type 18, and mobility across sectors requires explicit employer consent and formal approval from the Public Authority of Manpower (PAM). These institutional barriers substantially limit spillovers, ensuring that public-sector foreign workers remain unaffected by the hiring-deposit requirement. Furthermore, although descriptive statistics show some compositional changes over time in the public sector, particularly in education and occupation structure, the inclusion of detailed individual-level controls helps mitigate concerns that these shifts drive the results. Additional robustness checks using private-sector nationals as an alternative control group further confirm that the estimated effects are not because of the chosen comparison group. Taken together, these features support the validity of the public-sector foreign workforce as a credible and appropriate control group for the empirical design.

The difference-in-difference (DiD) method compares changes over time in a group that is unaffected by the policy intervention, which is called the control group (foreign workers in the public sector), to the changes over time in a group that is affected by the policy intervention, which is called the treatment group (foreign private sector workers), and attributes the "difference-in-differences" to the effect of the policy. The DiD method provides unbiased effect estimates if the parallel assumption is valid. The assumption means that the trend over time would have been the same between the treated and comparison groups in the absence of the intervention.

As for the parallel trend assumption, the paper evaluates it separately for new workers, current workers, and those who were laid off, fired, or whose visas ended, since the underlying data sources differ. The Kuwait Labour Force Survey (KLFS) covers both new and current employees, while information on lay-offs, dismissals, and expired visas is drawn from the Migration

Statistics Bulletin (MSB). Importantly, data prior to 2014 was collected under a different methodology and lacks several key variables; hence, it cannot be reliably used to test the parallel trend assumption. For new and current workers, we apply a balancing chi-square (χ^2) test Campbell and Bernatchez 2004 to examine whether covariates differ between treated and control groups in the pre-intervention period. If no significant differences are detected, the groups are considered balanced, thereby supporting the assumption. For laid-off, dismissed, and visa-ended workers, we assess the common trend assumption by inspecting their pre-law trajectories using the MSB data. Further details are provided in subsection 3.6.1.

The paper implements two types of validation tests (a robustness check and a heterogeneity test). In the robustness check, the study uses another control group, which are native workers in the private sector. We use them as an additional comparison group because they operate within the same industry but are not subject to the imposed laws. The paper uses and implements the difference-in-difference (DiD) method for the level of employment and real monthly wages for both new and existing workers.

Conversely, the paper applies the heterogeneity test to a subgroup of the primary data. Specifically, it focuses on foreign private sector workers employed in selected economic activities, namely section 4 (Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage) and section 7 (Public administration and defence; compulsory social security, education, human health and social work activities). The system then generates results separately for new and current employees, using their employment levels, monthly real wages, and the natural logarithm of wages. These results are discussed in detail in section 3.7.

3.5 Data and Descriptive Statistics

This section provides a detailed explanation of the study, detailing all the data and variables utilized. It separately reviews the statistical analysis for new, current, and lay-off/fired/ended visa workers. The paper uses the Kuwait Labour Force Survey (KLFS), published by the Labour Market Information System (LMIS) in the Central Statistical Bureau (CSB) in Kuwait for the years 2014 and 2016, which includes a representative individual data set for labour in the economy. Both of these surveys have similar content and specifications, and they are both based on

the 2011 census. These surveys include information on a sample of Kuwaiti households, which includes individual characteristics such as age, gender, area of living, working condition, sector, monthly wage, and number of working hours. They refer to the entire population inside Kuwait and are thus representative of the whole economy. We exclude natives and domestic workers and only include foreign workers who work for wages in both the private and public sectors.

The Kuwait Labour Force Survey (KLFS) of 2014 consisted of 27,223 national and foreign individuals' observations of working age (15 years old and older), with 12,516 of them being foreigners. The number of foreign workers in the private sector is 11,204, compared to 1,312 for those who work in the public sector and publicly owned establishments. The 2016 KLFS included observations of 40,197 working-age native and foreign individuals, as well as 21,149 foreigners. 19,215 people work in the private sector, while 1,934 are in the public sector. The KLFS of 2014 had a response rate of 80.4%, which increased to 92.4% in the 2016 survey. However, they are both representative of the whole population in Kuwait. Each survey took a 3-month period to complete. The 2014 survey ran from October to December 2014, while the 2016 survey ran from December to February 2017. Table 3.1 shows the sample design and response rates.

The paper uses the monthly real wage as the outcome variable. The available data on monthly wages are the declared wages of participants. Some participants declared their daily, weekly, or even yearly wage. For the daily wage, the paper converts it into a monthly wage by multiplying the daily amount by the number of working days and by 4, which is the number of weeks per month. For the weekly wages, the study multiplies them by 4, and for the yearly wage, it divides them by 12. This gives the full data on monthly wages, with only 292 missing. The monthly wage ranges between around KW 30 dinar (less than £100) and KW 5,790 dinar (around £15,000). After generating the monthly wage, the paper measures the real wage for the analysis. The monthly real wage is the monthly wage adjusted to inflation rates in 2014 and 2016 The consumer price index (CPI) was 3.1% in 2014 and 3.5% in 2016 [2]. As a result, we generate the monthly real wage and use it in all of the paper's analyses.

Table 3.2 shows the descriptive statistics of the employment status of foreign workers by sectors and periods. It displays the number of the lay-off, fired, or ended visas workers, the new workers, and the current workers in both sectors during the pre-intervention and post-intervention periods,

[2]The real wage = the monthly wage *(1-Inflation Rate).

along with a breakdown by gender. The percentage of males is calculated from the total number of employees in each group (lay-off, fired, and visa-ended, new, and current). All other visa types are excluded. Most of the foreign workers work in the private sector, with more than 90 percent of them being male.

Table 3.3 shows the descriptive statistics of the main variables, which differentiate between new and existing employees. New workers are those who started their first year of work in the same year as the survey. Current workers, on the other hand, are those who began before the survey year. The table shows that males reflect 85% and 82% for new and current employees, respectively. The treatment of new employees affects 94% of the population, while the treatment of current employees affects 87% of the population. Most of the new and existing employees have secondary education, whereas those in high school and above get the lowest percentage for both. New workers with primary school or below accumulate for 27% while current workers with the same educational level accumulate for 31%.

48% of new employees are young adults between the ages of 25 and 34, while current employees tend to be older, with the majority falling within the 35 to 44 age group. Most of those who are aged between 15 and 24 are new workers, and they reflect 19%, whereas current young workers in the same age group are only 3%. New workers in the age groups of 45 to 54 and 55 years old and above represent a very small percentage of 6% and 2%, respectively. However, current workers in the age group of 45–54 represent 21%, while those in the oldest age group are only 9%.

New workers who can read and write in Arabic language reflect only 7% while those who can read and write in any other language reflect 82% and those who can not read or write are only 4%. However, current employees who can read and write in Arabic language are about 11% while those who can read and write in any other language are about 71% and 5% who can not read or write.

Kuwait constitutes of 6 governorates where each governorate has a collection of cities different than the other. As from the data, most foreigners are located in the Al-Ahmadi governorate. It contains 65% of new employees and 48% current workers. Al-Farwaniya governorate comes in the second position with 16% new employees living their and 29% current workers. Hawally governorate comes in the third position for new workers with 12% and 11% for current workers,

however, Al-Jahra governorate comes in the forth position with 4% and 6% for new and current workers respectively. Mubarak Al-Kabeer and Al-Asima governorates are the least number of new and current employees with new workers of 2% and 1% respectively and 3% for current workers in each governorate.

The economic activities are coded according to the International Standard Industrial Classification (ISIC) Revision 4[3]. The individual categories have been aggregated into 21 sections. The paper collapses these 21 categories into only 8 section as in table 3.4. The reason behind the change in number of observations is missing declaration of some of the applicants. Some applicants did specify their monthly salaries but unfortunately they did not specify either their job description nor their working economic sector. Therefore, the number of those who declared their economic activity sector and occupations are only 2,978 new workers and 20,619 existing workers.

According to the available number of observation, it shows that most of new workers are in sections 3; (Electricity, gas, steam and air conditioning supply, water supply; sewerage, waste management and remediation activities), 2; (Manufacturing), and 4; (Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage), with 34%, 23% and 11% respectively. Those who work in section 4; (Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage), are 11%. Sections 6; (Administrative and support service activities), and 7; (Public administration and defence; compulsory social security, education, human health and social work activities), have the same percentage of new workers with 9% each. The rest which are sections 5; (Accommodation and food service, information and communication, financial and insurance, real estate, professional, scientific and technical activities), 8; (Arts, entertainment and recreation, other service, activities of households as employers; undifferentiated goods- and services-producing activities of households for own use, & activities of extraterritorial organizations and bodies), and 1; (Agriculture, forestry, fishing, mining & quarrying), are the least number of new workers with 7%, 5% and 2% respectively.

However, current workers are mostly in sections 2; (Manufacturing), 6; (Administrative and support service activities), and 3; (Electricity, gas, steam and air conditioning supply, water supply;

[3] https://unstats.un.org/unsd/publication/seriesm/seriesm_4rev4e.pdf

sewerage, waste management and remediation activities), with 18%, 17% and 16% respectively. Section 7; (Public administration and defence; compulsory social security, education, human health and social work activities), comes after with 14% of current workers while sections 4; (Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage), and 8; (Arts, entertainment and recreation, other service, activities of households as employers; undifferentiated goods- and services-producing activities of households for own use, & activities of extraterritorial organizations and bodies), contains the same level of current labour with 11% each. Sections 5; (Accommodation and food service, information and communication, financial and insurance, real estate, professional, scientific and technical activities), and 1, (Agriculture, forestry, fishing, mining & quarrying), are the least number of current workers with 8% and 5% respectively.

The occupation classifications are aggregated into 9 sections according to the International Standard Classification o Occupations (ISCO) which is known as ISCO-08[4]. It shows that most new employees are working in the craft and related trade occupations and elementary occupations with 40% and 22% respectively whereas current workers reflect 25% in each. 10% and 11% of new and current employees are working in services and sales respectively. New professional employees are only 9% while current professional workers are 12%. New workers in plants and machine operators are 9%, technicians are 5%, clerks are 4% and managers and skilled agriculture are 1% each. However, current workers in plants and machine operators are 11%, technicians are 8%, clerks are only 3%, whereas skilled agriculture and managers are 3% and 2% respectively.

The analysis separates workers into "new" entrants and "current" employees to capture potentially different channels through which Administrative Decision No. 719 may operate. The reform increases the cost of hiring foreign workers and strengthens contract enforcement, so its effects on those entering employment after 2015 may differ substantially from its effects on current workers with pre-existing contracts. New hires are directly exposed to the higher hiring costs and administrative requirements imposed on employers, which may influence both their probability of employment and the wages at which they are hired. In contrast, current workers are subject to the reform primarily through enforcement mechanisms, contractual compliance, and

[4] https://ilostat.ilo.org/methods/concepts-and-definitions/classification-occupation/

potential adjustments to wage structures within firms. Descriptive statistics and t-tests confirm that new and current workers differ significantly across several characteristics including education, occupation type, wage levels, and demographic attributes, both before and after the reform. These differences justify analysing the two groups separately, as aggregating them would hide meaningful heterogeneity in how the policy affects entry into employment versus conditions for existing workers. This distinction also clarifies why the estimated wage effects differ between new and current workers in the empirical results.

Tables 3.5 and 3.6 show the descriptive statistics for new and current workers by treatment groups and period, respectively. Table 3.5 presents descriptive statistics for newly hired workers before and after the 2015 administrative decision, with statistical significance indicated for differences between the treatment (private sector) and control (public sector) groups. Several compositional differences emerge. In 2014, most characteristics were already significantly different across groups, reflecting initial segmentation between public- and private-sector foreign workers. In 2016, these differences widen further. Notably, the control group becomes significantly more educated especially in the share with high-school and above while the treatment group remains concentrated in lower-skill categories. Significant differences also appear in age structure, geographic distribution, literacy, and occupation classifications. These post-reform divergences suggest that the composition of new hires entering each sector changed over time. Such compositional shifts may influence raw differences in employment and wages independently of the reform itself. Including individual covariates in the DiD regressions therefore helps to net out these systematic characteristic differences and isolate the causal effect of Administrative Decision No. 719.

Table 3.6 shows the characteristics of current employees in 2014 and 2016, again with significance tests for differences between the treatment and control groups. Similar to new hires, substantial and statistically significant compositional differences are observed. In 2016, the control group exhibits markedly higher real wages, a significantly larger share of workers with high-school or above education, and higher concentration in administrative and professional occupations. Meanwhile, treated private-sector workers are disproportionately represented in craft, service, and elementary occupations. These patterns indicate that the public-sector foreign workforce shifted toward more educated and higher-skilled workers over time, while the private-sector

TABLE 3.1: The sample design and response rates

The Sample Design	KLFS (2014)	KLFS (2016)
Number of households in the sample	5,148	5,507
Number of native households in the sample	2,812	3,064
Number of Foreign households in the sample	2,336	2,443
Response rate	80.4%	92.4%
Total Working Age Individuals (Natives & Foreigners)	27,233	40,197
Foreigners Working Age Individuals	12,516	21,149
Foreigners Private Sector Workers	11,204	19,215
Foreigners Public Sector Workers	1,312	1,934

- Note: The data in the second panel are after excluding native workers, missing data on wages, domestic workers, self employed and workers in non-profit organizations.

composition remained relatively stable or shifted toward lower-skilled roles. These divergences, if unaccounted for, may confound the raw differences in employment and wages observed after the reform. The regression analysis therefore controls for observed worker characteristics to ensure that the DiD estimates reflect the effect of the policy rather than underlying differences in workforce composition.

On the other hand, the paper uses the yearly issued Migration Statistics Bulletin (MSB)[5] which is issued by the Central Statistical Bureau (CSB), alongside KLFS, and that in coordination with the General Department of Residency in the Ministry of Interior (MOI) to publish it. The paper generates the necessary information about employment by sector and gender using bulletins from the years 2014 and 2016. As we can see, foreign workers can enter the country only if they have a working visa. Therefore, the KLFS would have information about those who are employed, whereas those who have been fired, laid off, or ended their visas would not have any information about them since the KLFS covered only households living inside Kuwait at the time of the survey. As a result, the paper relies on the MSB to collect data on those who left the country.

3.6 Empirical Results and Discussion

In this section, the research presents the results obtained after implementing the difference-in-difference approach to measure the causal effect of the employment protection legislation

[5]Central Statistical Bureau of Kuwait 2016(https://csb.gov.kw/Pages/Statistics?ID=56&ParentCatID=1).

TABLE 3.2: Descriptive statistics of Foreigner workers Employment status

Variable	2014		2016	
	Treated	Control	Treated	Control
lay-off/fired/ended visa Employees	45,312	1,032	16,413	2,440
Male	91%	67%	79%	61%
Arab Countries	30%	61%	35%	67%
Non-Arab Asian Countries	64%	33%	59%	25%
Other non-Arab Countries	6%	6%	6%	8%

- Note: Data are from MSB for the years 2014 and 2016. It includes the employment data for fired, lay-off, and/or ended visa. They no more have a job in Kuwait and have been deported to their home countries.

(EPL) on the employment levels and real monthly wages of non-national workers in Kuwait's private sector. The section is divided into four sections. The first section has a parallel trend assumption. It separately reviews the results of the parallel assumption for new, current, and lay-off/fired/ended visa workers. Then, in the second section, the paper displays the results of the difference-in-difference (DiD) approach for lay-off/fired/ended visa employees. In the third and fourth sections, the results of the difference-in-difference analysis for new and current workers, respectively, are presented.

Foreign employees cannot enter Kuwait unless they have a working visa. Only employed foreign workers make up the sample, with those who lost their jobs or were unemployed returning to their home countries. As a result, the paper cannot regress the probability of employment at the individual level because the data in KLFS does not include information on unemployment, firings, and/or lay-offs. Furthermore, the survey does not follow up on the same individuals over time, unlike other types of surveys. Each survey collects data from different households, but all surveys are representative of the whole economy. Therefore, the paper relies on the Migration Statistics Bulletin (MSB)[6] which reviews the information about fired, lay-offs, and ended visa workers.

3.6.1 Parallel Trends Assumption

This section presents the findings from testing the parallel trend assumption among employees who have experienced lay-offs, terminations, or ended their visas, as well as new hires and

[6]Central Statistical Bureau of Kuwait 2016(https://csb.gov.kw/Pages/Statistics?ID=56&ParentCatID=1),

TABLE 3.3: Descriptive Statistics for the Main Variables

Variable	All New Employee		All Current Employee	
	Mean	S. dev.	Mean	S. dev.
Dependent Variable:				
Real monthly wage	162.93	201.14	225.80	278.74
Ln Real monthly wage	4.80***	0.64	5.05***	0.78
Independent Variables:				
Treated	0.94***	0.25	0.87***	0.33
Year	0.51	0.50	0.63	0.48
Individual Characteristics:				
Gender:				
Male	0.85***	0.36	0.82**	0.38
Educational Level:				
Primary and below	0.27	0.45	0.31	0.46
Secondary	0.51	0.50	0.42	0.49
High school and above	0.22	0.41	0.26	0.44
Age Groups:				
Age group (15-24)	0.19	0.39	0.03	0.16
Age group (25-34)	0.48	0.50	0.29	0.46
Age group (35-44)	0.25	0.43	0.39	0.49
Age group (45-54)	0.06	0.23	0.21	0.40
Age group (55+)	0.02	0.15	0.09	0.28
Literacy Skill:				
Read & Write Arabic	0.07	0.26	0.14	0.31
Read & Write Any language	0.89**	0.39	0.81*	0.45
Can't Read or Write	0.04	0.20	0.05	0.22
Geographical Area:				
1-Al-Ahmadi	0.65	0.47	0.48	0.50
2-Al-Asima	0.01	0.09	0.03	0.16
3-Al-Farwaniya	0.16	0.36	0.29	0.45
4-Hawally	0.12	0.32	0.11	0.31
5-Al-Jahra	0.04	0.19	0.06	0.25
6-Mubarak Al-Kabeer	0.02	0.15	0.03	0.18
Economic Activity:				
1-Agriculture, forestry, ...	0.02	0.13	0.05	0.21
2-Manufacturing.	0.23	0.42	0.18	0.39
3-Electricity, gas, steam ...	0.34	0.48	0.16	0.36
4-Construction, wholesale ...	0.11	0.31	0.11	0.32
5-Accommodation & food ...	0.07	0.25	0.08	0.27
6-Administrative ...	0.09	0.29	0.17	0.38
7-Public administration ...	0.09	0.28	0.14	0.34
8-Arts, entertainment ...	0.05	0.22	0.11	0.31
Occupation Classifications:				
1- Managers ...	0.01	0.11	0.02	0.16
2- Professionals.	0.09	0.28	0.12	0.32
3- Technicians ...	0.05	0.21	0.08	0.27
4- Clerks.	0.04	0.20	0.03	0.17
5- Service & sales ...	0.10	0.31	0.11	0.31
6- Skilled agricultural...	0.01	0.10	0.03	0.18
7- Craft & related trades...	0.40	0.49	0.25	0.44
8- Plant & machine ...	0.09	0.28	0.11	0.31
9- Elementary occupations.	0.22	0.41	0.25	0.43
Total No of Obs.	4,670		28,993	
No of Obs. with Econ. Act	2,978		20,619	

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise. All individual characteristics are dummy variables and they sum to 100. Data on economic activity were available for only some workers.

TABLE 3.4: The Economic Activities Sections according to ISIC Categories

Section	ISIC	Economic Activity:
1	01-03	Agriculture, forestry and fishing
	05-09	Mining and quarrying
2	10-33	Manufacturing
3	35	Electricity, gas, steam and air conditioning supply
	36-39	Water supply; sewerage, waste management and remediation activities
4	41-43	Construction
	45-47	Wholesale and retail trade; repair of motor vehicles and motorcycles
	49-53	Transportation and storage
5	55-56	Accommodation and food service activities
	58-63	Information and communication
	64-66	Financial and insurance activities
	68	Real estate activities
	69-75	Professional, scientific and technical activities
6	77-82	Administrative and support service activities
7	84	Public administration and defence; compulsory social security
	85	Education
	86-88	Human health and social work activities
8	90-93	Arts, entertainment and recreation
	94-96	Other service activities
	97-98	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
	99	Activities of extraterritorial organizations and bodies

- Note: The International Standard Industrial Classification of All Economic Activities (ISIC) is the international reference classification of productive activities. Its main purpose is to provide a set of activity categories that can be utilized for the collection and reporting of statistics according to such activities.

existing employees. Figure 3.1 plots the indexed number of employment separations including lay-offs, dismissals, contract terminations, and visa expirations for private-sector foreign workers (treated, blue) and public-sector foreign workers (control, orange), normalised to 100 in 2013. The treated group remains relatively stable between 2013 and 2015, but experiences a sharp decline in separations in 2016. By contrast, separations among the control group steadily increase over the same period. This pattern suggests that, following the introduction of Administrative Decision No. 719 in 2015, private-sector foreign workers were less likely to exit employment, while separations among public-sector foreign workers continued to rise. Normalising both series allows these underlying trends to be clearly compared despite differences in group size.

Thereafter, to check the parallel trend for the employment of new and current workers and the monthly real wage for each in both periods, the paper uses the Kuwait Labour Force Survey

TABLE 3.5: Descriptive Statistics for the New Employees

Variable	Before (2014)					After (2016)				
	Treated		Control			Treated		Control		
	Mean	S. dev.	Mean	S. dev.	Diff.	Mean	S. dev.	Mean	S. dev.	Diff.
Dependent Variable:										
Real Monthly Wage	127.92	129.09	270.46	280.57	-142.54***	159.04	181.97	353.64	325.39	-194.60***
Ln Real Monthly Wage	4.66	0.53	5.31	0.67	-0.65***	4.81	0.61	5.51	0.83	-0.70***
Independent Variable:										
Treated	1.00	0.00	0.00	0.00		1.00	0.00	0.00	0.00	
Year	2014	0.00	2014	0.00		2016	0.00	2016	0.00	
Individual Characteristics:										
Gender:										
Male	0.82	0.39	0.81	0.39	0.01	0.91	0.29	0.46	0.50	0.45***
Educational Level:										
Primary and Below	0.28	0.45	0.23	0.42	0.05	0.29	0.45	0.02	0.15	0.27***
Secondary	0.48	0.50	0.37	0.48	0.11***	0.56	0.50	0.18	0.39	0.38***
High School and Above	0.23	0.42	0.39	0.49	-0.16***	0.15	0.35	0.79	0.41	-0.64***
Age Group										
Age Group (15-24)	0.25	0.43	0.20	0.40	0.05	0.13	0.34	0.09	0.29	0.04
Age Group (25-34)	0.54	0.50	0.61	0.49	-0.08*	0.42	0.49	0.57	0.49	-0.15**
Age Group (35-44)	0.17	0.37	0.16	0.37	0.00	0.33	0.47	0.28	0.45	0.05**
Age Group (45-54)	0.04	0.19	0.02	0.15	0.01	0.09	0.28	0.01	0.12	0.08*
Age Group (55+)	0.01	0.10	0.00	0.00	0.01	0.03	0.18	0.04	0.19	-0.01
Literacy Skill:										
Read & Write Arabic	0.08	0.27	0.14	0.35	-0.06*	0.05	0.21	0.22	0.46	-0.17***
Read & Write Any Language	0.82	0.38	0.61	0.48	0.21***	0.84	0.36	0.69	0.49	0.15***
Can't Read or Write	0.04	0.18	0.00	0.00	0.04**	0.05	0.23	0.00	0.00	0.05***
Geographical Area:										
Al-Ahmadi	0.69	0.46	0.22	0.42	0.47***	0.69	0.46	0.00	0.06	0.69***
Al-Asima	0.01	0.11	0.01	0.08	0.00	0.01	0.08	0.00	0.00	0.01
Hawally	0.16	0.37	0.02	0.15	0.14***	0.08	0.27	0.20	0.40	-0.12
Al-Farwaniya	0.09	0.29	0.28	0.45	-0.19***	0.20	0.40	0.42	0.49	-0.22
Al-Jahra	0.04	0.19	0.17	0.38	-0.13***	0.03	0.16	0.05	0.22	-0.02***
Mubarak Al-Kabeer	0.00	0.07	0.29	0.46	-0.29***	0.00	0.02	0.33	0.47	-0.33***
Economic Activity:										
1-Agriculture, forestry, ...	0.08	0.28	0.03	0.18	0.05	0.01	0.11	0.00	0.00	0.01
2-Manufacturing	0.03	0.18	0.01	0.12	0.02	0.27	0.45	0.00	0.00	0.27***
3-Electricity, gas, steam ...	0.21	0.41	0.00	0.00	0.21***	0.39	0.49	0.00	0.00	0.39***
4-Construction, wholesale ...	0.25	0.43	0.03	0.18	0.22***	0.07	0.26	0.35	0.48	-0.28***
5-Accommodation & food ...	0.21	0.41	0.03	0.18	0.18***	0.06	0.24	0.00	0.03	0.06**
6-Administrative ...	0.06	0.24	0.00	0.00	0.06*	0.11	0.31	0.00	0.00	0.11***
7-Public administration ..	0.14	0.34	0.78	0.41	-0.64***	0.03	0.16	0.61	0.49	-0.58***
8-Arts, entertainment ..	0.01	0.10	0.10	0.30	-0.09***	0.05	0.22	0.04	0.21	0.01**
Occupation Classification:										
1- Managers...	0.03	0.17	0.00	0.00	0.03	0.01	0.09	0.03	0.18	-0.02***
2- Professionals	0.16	0.37	0.44	0.50	-0.28***	0.03	0.18	0.51	0.50	-0.48***
3- Technicians ...	0.13	0.33	0.10	0.30	0.03	0.03	0.17	0.13	0.34	-0.10***
4- Clerks.	0.08	0.27	0.40	0.49	-0.32***	0.02	0.15	0.09	0.28	-0.07***
5- Service and sales...	0.26	0.43	0.02	0.14	0.24***	0.10	0.30	0.01	0.08	0.09***
6- Skilled agricultural...	0.05	0.22	0.00	0.00	0.05	0.01	0.08	0.00	0.00	0.01
7- Craft & related trades...	0.13	0.33	0.00	0.00	0.13***	0.46	0.50	0.08	0.28	0.38***
8- Plant & machine...	0.08	0.28	0.03	0.18	0.05	0.08	0.28	0.14	0.35	-0.06***
9- Elementary occupations.	0.07	0.26	0.00	0.00	0.07*	0.25	0.43	0.00	0.05	0.25***
Total No. of Obs.	1,787		116			2,626		141		
No. of Obs. with Econ. Act.	175		36			2,626		141		

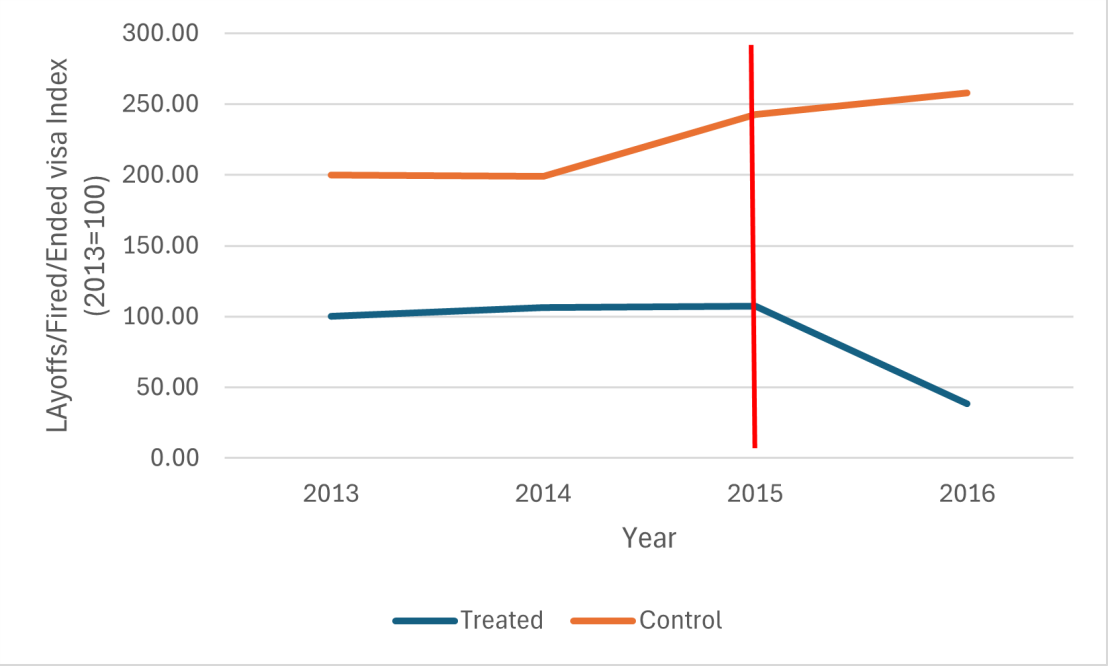
- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise. All individual characteristics are dummy variables and they sum to 100. Data on economic activity were available for only some workers.

TABLE 3.6: Descriptive Statistics for the Current Employees

Variable	Before (2014)					After (2016)				
	Treated		Control			Treated		Control		
	Mean	S. dev.	Mean	S. dev.	Diff.	Mean	S. dev.	Mean	S. dev.	Diff.
Dependent Variable:										
Real Monthly Wage	174.40	204.13	357.10	336.95	-182.70***	196.98	248.04	555.27	422.33	-358.29***
Ln Real Monthly Wage	4.89	0.66	5.56	0.76	-0.67***	4.95	0.73	6.06	0.74	-1.11***
Independent Variable:										
Treated	1.00	0.00	0.00	0.00		1.00	0.00	0.00	0.00	
Year	2014	0.00	2014	0.00		2016	0.00	2016	0.00	
Individual Characteristics:										
Gender:										
Male	0.87	0.34	0.69	0.46	0.18***	0.85	0.36	0.55	0.50	0.30***
Educational Level:										
Primary and Below	0.38	0.49	0.19	0.40	0.19***	0.32	0.47	0.06	0.24	0.26***
Secondary	0.36	0.48	0.33	0.47	0.03***	0.50	0.50	0.20	0.40	0.30***
High School and Above	0.26	0.44	0.28	0.50	-0.02***	0.18	0.38	0.74	0.44	-0.56***
Age Group:										
Age Group (15-24)	0.05	0.22	0.02	0.15	0.03***	0.02	0.13	0.01	0.09	0.01
Age Group (25-34)	0.41	0.49	0.33	0.47	0.08***	0.23	0.42	0.27	0.44	-0.04
Age Group (35-44)	0.33	0.47	0.37	0.48	-0.04	0.43	0.49	0.35	0.48	0.08***
Age Group (45-54)	0.16	0.37	0.19	0.39	-0.03***	0.23	0.42	0.21	0.41	0.02
Age Group (55+)	0.05	0.22	0.08	0.27	-0.03***	0.10	0.29	0.16	0.36	-0.06***
Literacy Skill:										
Read & Write Arabic	0.10	0.30	0.14	0.34	-0.04***	0.10	0.30	0.21	0.40	-0.11***
Read & Write Any Language	0.73	0.44	0.54	0.49	0.19***	0.75	0.43	0.44	0.50	0.31***
Can't Read or Write	0.04	0.20	0.00	0.06	0.04***	0.07	0.25	0.01	0.08	0.06***
Geographical Area:										
Al-Ahmadi	0.65	0.48	0.19	0.39	0.46***	0.46	0.50	0.09	0.29	0.37***
Al-Asima	0.05	0.22	0.04	0.19	0.01**	0.01	0.11	0.02	0.14	-0.01***
Hawally	0.08	0.27	0.07	0.25	0.01**	0.12	0.33	0.18	0.38	-0.06
Al-Farwaniya	0.15	0.36	0.32	0.47	-0.17***	0.35	0.48	0.37	0.48	-0.02***
Al-Jahra	0.05	0.23	0.08	0.27	-0.03***	0.59	0.24	0.14	0.35	0.45***
Mubarak Al-Kabeer	0.01	0.09	0.31	0.46	-0.30***	0.00	0.02	0.20	0.39	-0.20***
Economic Activity:										
1-Agriculture, forestry, ...	0.05	0.22	0.01	0.11	0.04***	0.05	0.23	0.01	0.07	0.04***
2-Manufacturing	0.09	0.29	0.01	0.11	0.08***	0.22	0.41	0.02	0.15	0.20***
3-Electricity, gas, steam ...	0.21	0.40	0.01	0.10	0.20***	0.17	0.38	0.00	0.05	0.17***
4-Construction, wholesale ...	0.29	0.45	0.03	0.17	0.26***	0.08	0.28	0.21	0.41	-0.13***
5-Accommodation & food ...	0.14	0.35	0.04	0.20	0.10***	0.09	0.28	0.01	0.12	0.08***
6-Administrative ...	0.04	0.20	0.01	0.09	0.03***	0.22	0.41	0.00	0.02	0.22***
7-Public administration ..	0.12	0.33	0.82	0.38	-0.70***	0.03	0.17	0.72	0.45	-0.69***
8-Arts, entertainment ..	0.05	0.22	0.06	0.24	-0.01***	0.13	0.34	0.03	0.17	0.10***
Occupation Classification:										
1- Managers...	0.07	0.25	0.03	0.18	0.04***	0.02	0.15	0.01	0.08	0.01***
2- Professionals	0.20	0.40	0.57	0.50	-0.37***	0.04	0.21	0.42	0.49	-0.38***
3- Technicians ...	0.13	0.34	0.19	0.39	-0.06**	0.04	0.21	0.26	0.44	-0.22***
4- Clerks.	0.05	0.22	0.08	0.28	-0.03***	0.02	0.15	0.06	0.24	-0.04***
5- Service and sales...	0.20	0.40	0.03	0.18	0.17***	0.11	0.31	0.04	0.20	0.07***
6- Skilled agricultural...	0.03	0.17	0.00	0.04	0.03***	0.04	0.19	0.00	0.02	0.04***
7- Craft & related trades...	0.14	0.35	0.02	0.15	0.12***	0.30	0.46	0.07	0.25	0.23***
8- Plant & machine...	0.07	0.26	0.02	0.15	0.05***	0.11	0.32	0.11	0.31	0.00***
9- Elementary occupations.	0.10	0.30	0.05	0.21	0.05***	0.30	0.46	0.03	0.18	0.27***
Total No. of Obs.	9,415		1,196			16,589		1,793		
No. of Obs. with Econ. Act.	1,777		460			16,589		1,793		

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise. All individual characteristics are dummy variables and they sum to 100. Data on economic activity were available for only some workers.

(KLFS) data for the year before the intervention in 2014. It applies the balancing test to check the parallel trend assumption for each variable separately. Thus, the paper implements a chi-square (χ^2) balancing test Campbell and Bernatchez 2004, and table B.1; in the appendix B.1, shows the results for both new and current employees. The results show that covariates for new employees are mostly balanced, which means that new workers have almost the same characteristics and that any effect on them could be caused by the intervention. However, it is not balanced for current workers, which is normal since their characteristics are significantly different.



- Source: Migration Statistics Bulletin (MSB), Central Statistical Bureau (CSB), (2016).

FIGURE 3.1: The Parallel Trend for lay-off/fired/ended visa Employees

3.6.2 Fired/lay-off/Ended Visa Employees

The data used comes from the Migration Statistics Bulletin (MSB) [7]. Table 3.7 displays the difference-in-difference for fired/lay-off/ended visa workers in the two time periods for the treated (private sector) and control (public sector) groups. It suggests that the percentage of those who are fired, laid off, and/or end their visas decreased, which means that the intervention might help in lowering their number and, as a result, make them offer and supply more labour.

[7] Central Statistical Bureau of Kuwait 2016 (https://csb.gov.kw/Pages/Statistics?ID=56&ParentCatID=1)

3.6.3 New and Current Employees

Regarding new and current employees, the study used the Kuwait Labour Force Survey (KLFS) data and implemented the difference-in-difference approach. The first sub-section describes the results for new employees, and the second sub-section presents the results for current workers.

1.*NewEmployees*

Using the KLFS data, the study implements the difference-in-difference approach and generates a table for the employment of new workers, their monthly real wage, and their natural log. Table 3.8 displays the difference-in-difference of employment of new employees. It shows that the effect of the law on the employment of new workers is positive and that the number of newly employed workers has increased. However, tables 3.9 and 3.10 illustrate the difference-in-difference of monthly real wages and its natural log, respectively. They demonstrate that the intervention had a negative effect on wages.

The paper implements an Ordinary Least Square (OLS) regression method Lechner, Rodriguez-Planas, and Fernández Kranz 2016, as mentioned in section 3.4, for the difference-in-difference approach. Table 3.11 shows the regression results using weighted data of monthly real wage and natural log of monthly real wage as dependent variables. The results demonstrate that the administrative decision has a highly significant negative effect at 1% on both the monthly real wage and its natural log for with and without controls which are gender, human capital (age groups, educational levels, literacy skills), and geographical areas. Tables in appendices B.2, B.3, and B.4 show the difference in difference and the OLS results for a subgroup where data is available for economic activities and occupational classifications. The results of the subgroup confirm the main results even after adding economic activities and occupations into the analysis.

The results reveal a decrease of KW 269 dinar (more than £660) in monthly real wages for new workers in the private sector. The natural log of the monthly real wage showed a decrease of 54%. After taking controls (gender, age groups, educational levels, literacy skills, geographical areas, economic activities, and occupation classifications), the effect is still negative and highly significant.

TABLE 3.7: Difference-in-Difference for Fired/lay-off/Ended Visa Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	45,312	16,413	-28,899
Control	1,032	2,440	1,408
Diff	44,280	13,973	-29,947

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Migration Statistics Bulletin (MSB) of 2014 and 2016. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise.

TABLE 3.8: Difference-in-Difference for Employment of New Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	1,787	2,626	839
Control	116	141	25
Diff	1,671	2,485	+814

TABLE 3.9: Difference-in-Difference for Real Wages of New Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	127.92	159.04	31.12
Control	270.46	570.94	300.48
Diff	-142.54	-411.90	-269.36***

TABLE 3.10: Difference-in-Difference for Ln Real Wages of New Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	4.66	4.81	0.15
Control	5.31	6.00	0.69
Diff	-0.65	-1.19	-0.54***

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise.

2.*CurrentEmployees*

The study employs the difference-in-difference methodology on current workers, as illustrated in table 3.12. The findings suggest that the law positively affects current employees, potentially facilitating contract extensions or renewals, thereby enabling them to maintain employment within the country and the same sector or employer. Furthermore, tables 3.13 and 3.14 present the difference-in-difference analysis for monthly real wages and their natural logarithm for current workers, respectively. The tables indicate that the administrative decision had a negative impact on both the level and natural logarithm of wages for current workers.

However, table 3.15 displays the Ordinary Least Square (OLS) regression results. The monthly real wage of current employees shows a negative regression result, which is highly significant at

TABLE 3.11: The Regression Result for Real Wages of New Employees

VARIABLES	New Employee			
	Real Wage		Ln Real Wage	
Treated	-142.541***	-211.873***	-0.654***	-0.760***
	(1.819)	(1.577)	(0.006)	(0.005)
Post	300.475***	228.009***	0.687***	0.472***
	(2.334)	(1.908)	(0.008)	(0.006)
Treated*Post	-269.356***	-191.305***	-0.536***	-0.291***
	(2.412)	(1.976)	(0.008)	(0.006)
Male		98.207***		0.229***
		(0.817)		(0.003)
Constant	270.460***	12.344***	5.312***	4.917***
	(1.767)	(2.554)	(0.006)	(0.008)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Observations	387,083	387,083	387,083	387,083
R-squared	0.175	0.484	0.168	0.527

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.5. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise).

a confidence level of 1%. The adjusted R-square indicates that the analysis accounts for 42% of the variations in the monthly real wage. The table presents the results of the natural logarithm of monthly real wages, indicating a negative impact. The adjusted R-square indicates that 56% of the variation in the natural log of the monthly real wage is explained. The tables in appendices B.5, B.6, and B.7 presents the DiD and OLS results for a subgroup of current workers for whom data on economic activities and occupations are available. The results corroborate the primary findings, demonstrating high significance at the 1% level, with an adjusted R-squared increase from 52% for real monthly wage to 76% for its natural logarithm.

The study rejects the null hypotheses, which assert that the administrative decision negatively impacts employment levels and positively affects the monthly real wage of foreign workers in the private sector. The paper posits that employment levels will decline, while the average monthly real wage for the periods preceding and following the implementation of the administrative law will increase. The results indicate a significant positive difference in employment levels and a significant negative difference in monthly real wage means between the two periods. The administrative decision adversely affects workers who have been dismissed, laid off, or terminated

TABLE 3.12: difference-in-difference for Employment of Current Workers

Variable	Before (2014)	After (2016)	Diff
Treated	9,415	16,589	7,174
Control	1,196	1,793	597
Diff	8,219	14,796	+6,577

TABLE 3.13: difference-in-difference for Real Wages of Current Workers

Variable	Before (2014)	After (2016)	Diff
Treated	174.40	196.97	22.57
Control	357.10	555.27	198.17
Diff	-182.70	-358.30	-175.60***

TABLE 3.14: Difference-in-difference for Ln Real Wages of Current Workers

Variable	Before (2014)	After (2016)	Diff
Treated	4.89	4.95	0.06
Control	5.56	6.06	0.50
Diff	-0.67	-1.11	-0.44***

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise.

as a result of visa complications. The reduction in the number of dismissed, laid-off, or terminated visa workers can be attributed to the presence of such Employment Protection Legislation, which fosters a sense of security and comfort among them. Consequently, employers have become more cautious in their hiring and termination procedures due to this EPL. The existence of such an Employment Protection Legislation complicates the processes for employers in hiring new employees and terminating existing ones. This regulation governs employer hiring and firing practices while ensuring a safe environment for employees. Reduced termination rates contribute to enhanced job security, with the primary objective of the administrative decision being the provision of more secure and safer employment for foreign workers.

TABLE 3.15: The Regression Result for Real Wages of Current Employees

VARIABLES	Current Employee			
	Real Wage		Ln Real Wage	
Treated	-182.703***	-192.473***	-0.677***	-0.665***
	(0.761)	(0.694)	(0.002)	(0.002)
Post	198.163***	95.165***	0.500***	0.169***
	(0.895)	(0.748)	(0.002)	(0.002)
Treated*Post	-175.593***	-60.010***	-0.440***	-0.033***
	(0.957)	(0.801)	(0.003)	(0.002)
Male		84.555***		0.152***
		(0.378)		(0.001)
Constant	357.104***	513.269***	5.565***	6.058***
	(0.711)	(1.195)	(0.002)	(0.003)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Observations	2,847,899	2,847,899	2,847,899	2,847,899
R-squared	0.139	0.418	0.177	0.562

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.6. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise).

3.7 Validation Tests

This section examines the robustness check and heterogeneity test employed to validate the primary findings of the paper. Section 3.7.1 presents a robustness check that first substitutes the comparison group of foreign workers in the public sector with native workers in the private sector. Then, it performs another type of methodology which the Recentered Influence Function (RIF) methodology following Firpo, Nicole M Fortin, and Lemieux 2009 and Nicole M. Fortin and Lemieux 2015 to validate the main results.

Section 3.7.2 presents a heterogeneity test that utilizes a subgroup of the main data, focusing on two key economic activities for which data is accessible for both treated and control groups across the two periods. Both sections confirm that the primary results of the study are robust.

3.7.1 Robustness Check

The study conducts a robustness check to validate the primary findings. First, we utilize the same hypothesis, substituting the comparison group to encompass native workers in the private sector. This control group was selected due to their employment in the same sector and their lack of exposure to administrative decision imposition. Second, we use the Recentered Influence Function (RIF) methodology to measure the EPL effect on wage quantiles.

3.7.1.1 Changing the Comparison Group

Tables 3.16, 3.17, 3.18, and 3.19 show the difference-in-difference results for employment levels for new and current workers and monthly real wages for new and current workers of foreign workers (treated) and native workers (control) in the private sector before (2014) and after (2016). The tables 3.16 and 3.17 show that the number of new jobs and current jobs both went up. The tables 3.18 and 3.19 indicate an increase in the monthly real wages of new workers, while current workers experienced a decrease. The administrative decision positively affects the monthly real wage of newly employed workers, primarily due to new native workers receiving lower wages in the private sector following the law's implementation. This may be attributed to various factors, including a decline in desirability within the private sector or a tendency to demand significantly higher wages compared to non-natives Salih 2010, Al-Hamoud 1996, and Al-Dehany 2005. Consequently, the disparity in native wages pre- and post-intervention turns negative, which explains the positive outcomes observed in the difference-in-difference analysis. The law evidently adversely affects existing employees. This indicates that the administrative decision has a positive impact on employee employment while negatively affecting the monthly real wage of current employees.

Tables 3.20 and 3.21 present the regression results for the monthly real wages of new and current workers, both with and without controls. The results are statistically significant at the 1% level for both the regression without controls and the regression with controls, which account for gender, age, educational levels, literacy skills, and geographical regions. The intervention has a positive effect on the monthly real wage of new employees and a negative effect on current workers, thereby confirming its differential impact on foreign workers in the private sector. The adjusted

R-square, when controls are applied, accounts for 51% of the variance in monthly real wages for new employees and 54% for current employees.

Table 3.16: The difference-in-difference results Employment of New Employees

Variable	Before (2014)	After (2016)	Diff
Treated	1,787	2,626	839
Control	34	38	4
Diff	1,753	2,588	+835

Table 3.17: The difference-in-difference results Employment of Current Employees

Variable	Before (2014)	After (2016)	Diff
Treated	9,415	16,589	7,174
Control	238	279	41
Diff	9,177	16,310	+7,113

Table 3.18: The difference-in-difference results of Real Wage of New Employees

Variable	Before (2014)	After (2016)	Diff
Treated	127.92	159.04	31.12
Control	994.81	946.25	-48.56
Diff	-866.89	-787.21	+79.68***

Table 3.19: The difference-in-difference results of Real Wage of Current Employees

Variable	Before (2014)	After (2016)	Diff
Treated	174.40	196.96	22.56
Control	1157.15	1282.31	125.16
Diff	-982.75	-1085.35	-102.60***

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise.

Overall, the robustness checks reinforce the credibility of the main findings and provide insight into the mechanisms driving the results. Using native workers in the private sector as an alternative control group produces results consistent in sign and significance with the main specification, suggesting that the estimated effects are not driven by the particular comparison group used in the baseline model. The fact that some treatment effects particularly for wages become stronger or only appear once covariates are included reflects the compositional differences observed in the descriptive statistics. For example, new native private-sector workers experienced substantial wage declines in the period after the imposition of the law, whereas foreign private-sector workers had different skill profiles and salary structures.

Table 3.20: The Regression Result for New Employees

VARIABLES	Real Wage		Ln Real Wage	
Treated	-866.886***	-689.331***	-2.063***	-1.325***
	(3.049)	(2.636)	(0.010)	(0.008)
Post	-48.559***	-94.153***	0.037**	-0.091***
	(4.946)	(4.025)	(0.017)	(0.013)
Treated*Post	79.679***	131.573***	0.114***	0.274***
	(4.978)	(4.055)	(0.017)	(0.013)
Male		117.603***		0.291***
		(0.809)		(0.003)
Constant	994.805***	987.105***	6.721***	6.858***
	(3.022)	(3.957)	(0.010)	(0.013)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Observations	367,097	367,097	367,097	367,097
R-squared	0.251	0.509	0.156	0.51

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.5. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise).

Table 3.21: The Regression Result for Real Monthly Wage of Current Employees

VARIABLES	Real Wage		Ln Real Wage	
Treated	-982.746***	-723.933***	-1.990***	-1.173***
	(1.741)	(1.504)	(0.005)	(0.004)
Post	125.161***	136.164***	0.151***	0.170***
	(2.488)	(2.039)	(0.007)	(0.005)
Treated*Post	-102.591***	-94.901***	-0.091***	-0.016***
	(2.509)	(2.059)	(0.007)	(0.005)
Male		106.775***		0.237***
		(0.395)		(0.001)
Constant	1,157.146***	1,306.194***	6.878***	7.435***
	(1.722)	(1.648)	(0.005)	(0.004)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Observations	2,527,894	2,527,894	2,527,894	2,527,894
R-squared	0.212	0.474	0.115	0.54

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.6. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise).

Without controls, these underlying differences hide the policy effect; once demographic, educational, literacy, and geographical factors are accounted for, the true impact of the administrative decision becomes clearer. The robustness results therefore suggest that the mechanism is consistent with the interpretation that the reform increased foreign labour supply to the private sector while enabling firms to pass on part of the higher hiring costs in the form of reduced wages for existing employees. The consistency of the DiD estimates across the alternative control group, combined with tighter standard errors and improved explanatory power when covariates are added, strengthens the credibility of the identification strategy and supports the view that the main results reflect a genuine policy effect rather than specification-driven.

3.7.1.2 Distributional Effects: A RIF-Based Quantile Decomposition

This section presents a brief distributional assessment of the impact of the 2015 Employment Protection Legislation (EPL) reform on wages. Following the approach of Firpo, Nicole M Fortin, and Lemieux 2009 and Nicole M. Fortin and Lemieux 2015, we estimate Recentered Influence Function (RIF) regressions for selected unconditional quantiles of the wage distribution.

The RIF method allows us to examine whether the EPL reform had heterogeneous effects across the wage distribution, rather than only on the mean wage. We focus on three quantiles ($\tau = 0.10$, 0.50, and 0.90) which provide a clear representation of the lower, middle, and upper segments of the distribution.

The results from the RIF-based quantile regressions reported in Table 3.22 reveal substantial heterogeneity in the wage effects of the EPL reform across the unconditional wage distribution of new employees. At the lower end of the distribution (Q10), the coefficient *Treated* × *Post* on the interaction is negative and statistically significant, indicating that the 10th percentile of real monthly wages for new workers declined by approximately KWD 4.5 following the introduction of the EPL. The effect is considerably larger at the median, where the estimated decline is around KWD 34, suggesting that the reform exerted its strongest downward pressure on typical new hires. In contrast, the coefficient at the upper end of the distribution (Q90) is positive but statistically insignificant, implying that high-wage new employees were largely unaffected by the reform. Taken together, these results show that the wage adjustments induced by the EPL reform were

concentrated among low- and middle-wage new entrants, while higher-wage employees remained insulated. This distributional pattern is consistent with employers adjusting wages downward for low paid new workers in response to stricter employment protection.

Table 3.23 presents the RIF-based quantile estimates of the EPL reform on the unconditional wage distribution of current employees. The results reveal strong and highly heterogeneous effects across the distribution. At the lower end (Q10), the *Treated* × *Post* coefficient is negative but statistically insignificant in the specification without controls, whereas the inclusion of controls yields a significant decline of approximately KWD 27.5. This indicates that, once observable characteristics are accounted for, the 10th percentile wages of current workers fell following the reform. The negative effect becomes dramatically larger at the median (Q50), where wages decline by nearly KWD 299 without controls and by KWD 43.6 with controls, suggesting that mid-wage existing workers experienced substantial downward wage adjustments. The most pronounced effects appear at the upper end of the distribution (Q90), with highly significant declines ranging from approximately KWD 530 to 626 depending on the specification. These large reductions at the top of the distribution imply that the EPL reform exerted its strongest downward pressure on high-wage current employees. Overall, the results indicate that, for current employees, the reform led to substantial wage compression from the top and middle of the distribution, contrasting with the pattern observed for new employees. This suggests that employers may have adjusted the wages of existing workers particularly higher-paid workers as part of their response to the increased rigidity introduced by the EPL.

Taken together, the RIF estimates reinforce the main conclusions of the chapter. While the EPL reform increased employment, its wage effects were substantively different for new versus current workers: entry wages were moderately compressed at the lower and middle parts of the distribution, whereas existing workers experienced sharp and pervasive wage reductions. This pattern aligns closely with the institutional features of the reform and the theoretical mechanisms discussed in Section 3.3.

TABLE 3.22: RIF-Based Quantile Estimates of the 2015 EPL Reform on New Employees Real Monthly Wages

Variable	Q10		Q50		Q90	
Treated*Post	-4.63***	-4.56***	9.85	-33.76***	40.62	11.91
	(1.52)	(1.82)	(8.44)	(12.48)	(43.97)	(25.92)
Controls	No.	Yes.	No.	Yes.	No.	Yes.
Observations	4,670					

Notes: RIF regressions estimated following Firpo, Nicole M Fortin, and Lemieux 2009. Standard errors clustered at the appropriate level. * p<0.10, ** p<0.05, *** p<0.01.

TABLE 3.23: RIF-Based Quantile Estimates of the 2015 EPL Reform on Current Employees Real Monthly Wages

Variable	Q10		Q50		Q90	
Treated*Post	-4.63	-27.50***	-298.87***	-43.58***	-625.73***	-530.23***
	(0.02)	(1.96)	(4.69)	(3.84)	(19.42)	(16.61)
Controls	No.	Yes.	No.	Yes.	No.	Yes.
Observations	28,995					

Notes: RIF regressions estimated following Firpo, Nicole M Fortin, and Lemieux 2009. Standard errors clustered at the appropriate level. * p<0.10, ** p<0.05, *** p<0.01.

3.7.2 Heterogeneity Test

The analysis employs sensitivity testing on a subset derived from the primary model. The research focuses on a subset of foreign private sector workers engaged in economic activities categorized under section 4 (Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage) and section 7 (Public administration and defence; compulsory social security, education, human health and social work activities). Regression analysis is conducted using their monthly real wages and the natural logarithms of these wages. This is conducted separately for both new and current employees.

The study categorizes these subgroups based on the data availability for each group across both years. Certain economic activities may lack new employees in one or both years, or may not have

new employees for one of the two years. Consequently, this study selects economic activities for which data on both new and existing employees are accessible.

1. Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage:

Section No. 4 of the occupation classifications encompasses all activities related to building, wholesale and retail commerce, motor vehicle and motorcycle repair, as well as transportation and storage operations. The impact of EPL on employment levels is favourable for both new and existing employees engaged in this economic activity.

Tables 3.24 and 3.25 show the difference-in-difference results for the employment levels of both new and existing employees, while tables 3.26 and 3.27 show the difference-in-difference results for monthly real wages of new and current employees.

The tables validate the primary analysis results for both new and current employees engaged in this type of economic activity. The study also conducts regression tests for the monthly real wages of both new and current workers. Tables 3.28 and 3.29 present the regression results for new and current workers in the sectors of construction, wholesale and retail trade, repair of motor vehicles and motorcycles, and transportation and storage. The findings corroborate the primary outcomes for new workers, indicating a negative effect on real wages and their natural logarithm. The impact on the real wage of current workers and its natural logarithm is positive. EPL primarily impacts new workers rather than those already employed.

TABLE 3.24: The difference-in-difference Results for the Employment level of New Employees in Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage

Variable	Before (2014)	After (2016)	Diff
Treated	47	202	155
Control	2	79	77
Diff	45	123	+78

TABLE 3.25: The difference-in-difference Results for the Employment level of Current Employees in Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage

Variable	Before (2014)	After (2016)	Diff
Treated	543	1,262	719
Control	21	571	550
Diff	522	691	+169

TABLE 3.26: The difference-in-difference Results for the Real Wage of New Employees in Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage

Variable	Before (2014)	After (2016)	Diff
Treated	244.24	140.11	-104.12
Control	190.51	190.65	0.14
Diff	53.73	-50.54	-104.27***

TABLE 3.27: The difference-in-difference Results for the Real Wage of Current Employees in Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage

Variable	Before (2014)	After (2016)	Diff
Treated	315.48	327.26	11.78
Control	387.90	175.88	-212.02
Diff	-72.42	151.38	223.80***

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise.

2. Public administration and defence; compulsory social security, education, human health and social work activities:

Public administration and defence, compulsory social security, education, human health, and social work (section 7 in occupations classifications) encompass various administrative functions and activities related to education and health. It also encompasses all other forms of defence, social security, and social work. The impact of EPL on the employment of both new and existing workers is negative, as demonstrated in tables 3.30 and 3.31. The public sector predominates in this type of economic activity, resulting in a higher employment rate compared to the private sector. However, the impact on real monthly wages for new employees confirms the primary

TABLE 3.28: The Regression Results for the Real Wage of New Employees in Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage

VARIABLES	Real Wage		Ln Real Wage	
Treated	53.731***	-51.906***	0.078	-0.232***
	(14.126)	(5.158)	(0.050)	(0.031)
Post	0.143	289.023***	-0.255***	0.499***
	(14.130)	(5.889)	(0.050)	(0.035)
Treated*Post	-104.268***	-347.879***	-0.386***	-0.896***
	(14.419)	(6.039)	(0.051)	(0.036)
Male		82.107***		0.134***
		(1.888)		(0.011)
Constant	190.508***	172.929***	5.249***	5.297***
	(13.913)	(8.081)	(0.049)	(0.048)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Occupational Classifications	No	Yes	No	Yes
Observations	23,524	23,524	23,524	23,524
R-squared	0.055	0.891	0.153	0.717

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.5. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise). The occupation classifications are classified into 9 categories according to ISCO-08.

TABLE 3.29: The Regression Results for the Real Wage of Current Employees in Construction, wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage

VARIABLES	Real Wage		Ln Real Wage	
Treated	-72.419***	8.380*	-0.230***	0.081***
	(6.185)	(4.369)	(0.015)	(0.010)
Post	-212.022***	60.629***	-0.752***	0.048***
	(6.197)	(5.156)	(0.015)	(0.012)
Treated*Post	223.797***	-35.260***	0.727***	-0.025**
	(6.339)	(5.212)	(0.015)	(0.012)
Male		37.553***		0.078***
		(1.329)		(0.003)
Constant	387.899***	1,440.382***	5.794***	6.598***
	(6.082)	(7.000)	(0.014)	(0.016)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Occupational Classifications	No	Yes	No	Yes
Observations	234,880	234,880	234,880	234,880
R-squared	0.051	0.556	0.100	0.627

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.6. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise). The occupation classifications are classified into 9 categories according to ISCO-08.

TABLE 3.30: The difference-in-difference Results for the Employment level of New Employees in Public administration and defence; compulsory social security, education, human health and social work activities

Variable	Before (2014)	After (2016)	Diff
Treated	16	23	7
Control	27	60	33
Diff	-11	-37	-26

TABLE 3.31: The difference-in-difference Results for the Employment level of Current Employees in Public administration and defence; compulsory social security, education, human health and social work activities

Variable	Before (2014)	After (2016)	Diff
Treated	167	220	53
Control	360	1,098	738
Diff	-193	-878	-685

TABLE 3.32: The difference-in-difference Results for the Real Wage of New Employees in Public administration and defence; compulsory social security, education, human health and social work activities

Variable	Before (2014)	After (2016)	Diff
Treated	284.37	420.11	135.74
Control	386.80	787.74	400.95
Diff	-102.43	-367.63	-265.21***

TABLE 3.33: The difference-in-difference Results for the Real Wage of Current Employees in Public administration and defence; compulsory social security, education, human health and social work activities

Variable	Before (2014)	After (2016)	Diff
Treated	376.16	468.24	92.08
Control	584.61	646.33	61.72
Diff	-208.45	-178.09	30.36***

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2014 and 2016. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise.

findings, indicating a negative effect as shown in Table 3.32. Conversely, the effect on current employees is positive, as illustrated in Table 3.33, likely due to the fact that existing workers in the public sector typically earn higher wages in this economic activity.

Tables 3.34 and 3.35 present the OLS regression results for new and current workers, respectively. All results demonstrate high significance at the 1% level. The adjusted R-square exhibits a significant increase upon controlling for human capital characteristics, including age groups, education, literacy skills, geographical areas, and occupational classifications.

TABLE 3.34: The Regression Results for the Real Wage of New Employees in Public administration and defence; compulsory social security, education, human health and social work activities

VARIABLES	Real Wage	Real Wage	Ln Real Wage	Ln Real Wage
Treated	-102.428***	-78.379***	-0.184***	-0.275***
	(9.445)	(6.424)	(0.013)	(0.008)
Post	400.948***	118.293***	0.795***	0.354***
	(7.436)	(5.439)	(0.010)	(0.007)
Treated*Post	-265.207***	-303.075***	-0.486***	-0.271***
	(11.484)	(8.261)	(0.015)	(0.010)
Male		242.502***		0.253***
		(6.041)		(0.007)
Constant	386.796***	-754.176***	5.753***	3.704***
	(6.314)	(36.845)	(0.008)	(0.045)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Occupational Classifications	No	Yes	No	Yes
Observations	19,771	19,771	19,771	19,771
R-squared	0.244	0.816	0.401	0.878

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.5. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise). The occupation classifications are classified into 9 categories according to ISCO-08.

TABLE 3.35: The Regression Results for the Real Wage of Current Employees in Public administration and defence; compulsory social security, education, human health and social work activities

VARIABLES	Real Wage		Ln Real Wage	
Treated	-208.448***	-174.891***	-0.571***	-0.492***
	(3.261)	(2.781)	(0.004)	(0.003)
Post	61.720***	57.185***	0.146***	0.100***
	(2.091)	(1.790)	(0.003)	(0.002)
Treated*Post	30.357***	45.824***	0.157***	0.129***
	(3.895)	(3.227)	(0.005)	(0.004)
Male		164.965***		0.197***
		(1.565)		(0.002)
Constant	584.612***	1,679.821***	6.199***	7.073***
	(1.832)	(36.301)	(0.002)	(0.044)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Occupational Classifications	No	Yes	No	Yes
Observations	281,828	281,828	281,828	281,828
R-squared	0.046	0.408	0.145	0.564

- Note: *** p<0.01, ** p<0.05, * p<0.1. This table reports the results from OLS regressions controlling for individual and household characteristics. Definitions of control variables such as gender, age groups, education levels, and literacy skill can be found in Table 3.6. Geographical area variables represent governorate-level dummy variables (a dummy for each governorate equal to 1 if the individual resides there, 0 otherwise). The occupation classifications are classified into 9 categories according to ISCO-08.

3.8 Conclusion

Kuwait is a small country with a small Kuwaiti population. It depends heavily on foreign labour especially in the private sector. The Public Authority for Manpower (PAM) imposed an administrative decision in 2015 to safeguard the rights of a significant number of foreign workers in the private sector. The ruling imposed a hiring restriction, requiring employers to pay KWD 250 dinar (£ 650) for each foreign worker they wish to hire. PAM required that this amount be paid as financial insurance. It increases the hiring costs for employers; however, it is a type of employment protection legislation (EPL) that protects the rights of foreign employees and ensures that they receive their entitlements.

The aim of this study is to measure the effect of this administrative decision on the employment level and monthly real wage of foreign workers in the private sector. It shows that in the period after the imposition of the law, the level of private sector employment increased. This is to say that the intervention has a positive impact on the employment level of foreign workers in the private sector, which is the opposite of what the literature says.

The paper supports the institutionalist view that EPL enhances employment levels. The paper reveals that the more protection given to labours, the more they would supply labour. However, because of the inelastic labour demand for the private sector in Kuwait, the high supply of foreign labour pushes the wage down.

The paper uses a difference-in-difference approach to compare the treatment group, which is the foreign workers in the private sector, to the control group, which is the foreign workers in the public sector, in the periods before (2014) and after (2016) the intervention. The paper uses individual data from the Kuwait Labour Force Survey (KLFS), published by the Central Statistical Bureau (CSB) in Kuwait. This survey does not follow a single individual over time. Moreover, the country prohibits foreigners from entering without a working visa, implying that all the surveyed individuals hold employment. This is the reason we cannot study the probability of employment at the individual level, as we lack data on unemployment. The paper solely utilizes survey data on employed individuals, making a distinction between new and current workers across all analyses.

In addition, it uses the information about the monthly real wages of both new and current workers in both sectors in the two periods to check the impact of the law. Conversely, the paper utilizes data from the Migration Statistical Bulletin (MSB) to examine the impact of the law on individuals facing termination, lay-offs, or visa termination.

The study uses the difference-in-difference (DiD) tables to compare the employment levels before and after for the two groups (treated and control), including new, current, and lay-off/fired/ended visa workers. The results display a positive impact on employment levels for new and existing employees, which means that new and current employees are supplying more labour. However, the effect on employment of those who are lay-off/fired/ended visa is negative meaning that the number of termination and lay-offs has decreased. In addition, the study compares their monthly real wages separately and does some regression analyses. The results show a highly significant negative effect, especially when controlling for age groups, gender, educational levels, ability to read and write, geographical area, where it adds a separate analysis using a subgroup where data on economic activities, and occupation classifications are available. This additional analysis confirms the main one.

The primary challenges included the absence or incompleteness of certain relevant factors in the survey. These factors encompassed economic activity and occupation classifications, where some applicants failed to specify their job descriptions or working sectors. Additionally, firm characteristics such as size, location, technology, and capital intensity, as well as productivity measures like labour productivity growth and bargaining power, were also inadequately addressed. These factors may have facilitated a comprehensive visualization of the impact on employment and wages.

A further challenge is the absence of follow-up types in the surveys, which would enable the tracking of the same individuals over time. The surveys employed distinct individuals; however, they are representative of the entire economy. The lack of complete information regarding the date of entrance for certain workers, along with the absence of data on previous sectors and jobs, complicates the accurate measurement of both new and current employees. Their current job start date was measured; however, there was no data available regarding their previous employment or relevant working sector, if applicable. Some workers may have been employed in another

sector or position prior to the date they reported in the survey as the start date of their current job, complicating the distinction between new and existing workers.

The inability to verify the parallel trend of real wages can be attributed to variations in survey implementation before 2014. Consequently, the research could be expanded by utilizing participant-completed surveys that encompass all essential information, as well as by employing longitudinal or panel data to track the same individuals over time, thereby allowing for the monitoring of their employment status, wage fluctuations, and other relevant factors. The integration of qualitative methods with quantitative analysis via interviews and case studies may yield enhanced insights into the mechanisms of EPL and its impact on foreign employees.

Finally, the paper includes two validation tests: the heterogeneity test and the robustness check analysis. The primary analysis' findings are validated by all tests, suggesting that the intervention is the cause of the observed effect. Consequently, further regulations and laws are required to increase the level of employment among private sector workers. This, in turn, would increase the private sector's proportion of the economy and would allow the private sector to become more involved in the realization of the Kuwait 2035 vision.

Chapter 4

The effect of migrant's family reunion law in Kuwait on remittances

4.1 Abstract

This paper is the first to study the effect of the minimum income required for low-skilled immigrant worker to bring in his family dependents imposed by the Ministry of Interior (MOI) in Kuwait on the level and share of remittances sent back home. This law was imposed to restrict and regulate family reunion to those receiving a minimum income of KWD 500. The paper examines the hypothesis of positive effect on remittances for those who are just below and just above the threshold using Regression Discontinuity Design (RDD) methodology and for those in the period before and after the imposition of the law using Difference-in-Discontinuity (Diff-in-Disc) methodology. The results of both post-treatment (local average treatment effect (LATE)) and causal effect using two periods (before and after) indicate positive effect of the law on remittances level and its share of real income. Therefore, these results emphasize on the need for continuous monitoring of the law's broader effects on household welfare, labour market dynamics, and migrant integration outcomes is essential to ensure that the policy achieves its intended goals without exacerbating inequality or exclusion.

Key words:

Family Dependents – Family Reunion - Immigrant Worker – Remittances - Regression Discontinuity Design (RDD) - Difference-in-Discontinuity (Diff-in-Disc).

4.2 Introduction

This chapter examines the effect of Kuwait's 2019 income-based family reunification reform on the remittance behaviour of low-skilled migrant workers. In that year, the Ministry of Interior (MOI) increased the minimum income required to sponsor dependents from KWD 450 to KWD 500, exempting high-skilled workers. Although modest in absolute terms, the change substantially altered eligibility for a large share of low-wage private-sector migrants, many of whom earn salaries clustered around the previous threshold. By reducing the feasibility of co-residence with family members, the reform is expected to influence household structure, financial obligations, and the allocation of income between consumption and transfers abroad.

Remittances play a central role in migrant household strategies, operating through altruistic motives, insurance-sharing arrangements, and exchange-based mechanisms Funkhouser 1995; Cox and Stark 1996; Rapoport and Docquier 2006. Policies that constrain family co-residence can reinforce household separation and intensify migrants' financial responsibilities toward dependents abroad. Despite the prominence of these mechanisms in theoretical models, there is limited empirical evidence on how immigration rules affect remittance behaviour in Gulf labour markets, where sponsorship regulations and income thresholds tightly govern family formation.

The 2019 reform provides a useful setting for causal identification. Because many low-skilled migrants earn wages concentrated just below and just above the KWD 500 threshold, the updated rule creates a sharp and policy-determined discontinuity in eligibility. This feature motivates the use of a Regression Discontinuity Design (RDD) to estimate the local effect of the reform on remittances, complemented by a Difference-in-Discontinuity (Diff-in-Disc) framework to assess broader changes over time. The central research question is therefore: *How did tightening the income requirement for family sponsorship affect the monthly remittances sent by low-skilled migrant workers in Kuwait?*. Economic theory predicts that restricting family reunification will increase remittances among workers who face heightened separation from dependents. Under altruistic and insurance frameworks, higher remittances help support household members abroad and serve as a co-insurance mechanism when families cannot join the migrant in the host country. Exchange-based models similarly imply larger transfers when families remain in the origin country and continue to provide household services. These considerations lead to the hypothesis

tested in this chapter: the 2019 reform increased the share and level of income remitted among workers near the eligibility threshold.

This chapter makes four key contributions. First, it provides the first empirical evaluation of Kuwait's 2019 family-reunification reform. Second, it contributes to the remittances literature by showing how host-country institutional constraints shape cross-border transfer behaviour. Third, it applies two complementary causal identification strategies, RDD and Diff-in-Disc, to estimate both local and aggregate policy effects. Finally, it offers new evidence from a Gulf labour market characterised by high dependence on foreign labour and tightly regulated family policies.

The remainder of the chapter is organised as follows. Section 4.3 reviews the related literature. Section 4.4 outlines the empirical strategy. Section 4.5 describes the data and institutional context. Section 4.6 presents the empirical findings. Sections 4.7 and 4.8 report robustness checks and heterogeneity analysis. Section 4.9 concludes.

4.3 Literature Review

The determinants of remittances and the way migration policies shape migrant behaviour have been extensively studied across several strands of the literature. This section provides a thematic review of three main areas: (i) the theoretical motives for remittances and the role of household structures, (ii) the effects of income shocks, uncertainty, and family separation on remittance behaviour, and (iii) the influence of migration and family-reunification policies on household decisions. Together, these themes provide the conceptual foundation for examining how Kuwait's income-based family sponsorship requirement may influence the remittances of low-skilled migrant workers.

4.3.1 Theoretical Motives for Remittances and Household Decision-Making

A large body of research views remittances not as isolated transfers but as part of broader household strategies. The New Economics of Labour Migration (NELM) posits that migration decisions are made collectively within households to diversify risk and overcome market imperfections Stark and Lucas 1988. In this framework, remittances fulfil multiple purposes including

insurance, investment repayment, and consumption smoothing. Altruistic motives are also central: migrants derive utility from improving the welfare of family members remaining at home and therefore remit more when families face hardship Funkhouser 1995. Contractual motives, such as the bequest or exchange motive, further explain remittances as part of inter-temporal agreements between migrants and their households, where transfers may secure inheritance or compensate relatives for managing assets in the origin country Cox and Stark 1996; Rapoport and Docquier 2006. These theoretical perspectives imply that any policy affecting family structure, financial constraints, or expectations about reunification has the potential to alter remittance flows.

4.3.2 Income Shocks, Uncertainty, and the Effects of Family Separation

A second strand of the literature highlights the responsiveness of remittances to changes in income, uncertainty, and household composition. Empirical studies show that remittances rise when migrants face higher income risk or when their families experience negative shocks, consistent with an insurance role Amuedo-Dorantes and Pozo 2006. Family separation also plays a critical role: when dependents remain abroad, migrants often remit more frequently and in larger amounts to support household consumption and maintain ties Funkhouser 1995. Differences in household structure, duration of stay, and expectations about return migration further shape remittance patterns, as shown in comparative studies of Salvadoran and Nicaraguan migrants Funkhouser 1995. At the macro level, remittances have been shown to reduce poverty and improve welfare Adams Jr and Page 2005, suggesting that policies influencing remittance flows may have sizeable economic consequences for origin countries. Collectively, these findings indicate that when migration policies increase family separation or tighten financial constraints, migrants may adjust their remitting behaviour accordingly.

4.3.3 Migration Policies, Sponsorship Rules, and Remittance Behaviour

A growing body of research examines how migration and family-reunification policies affect migrant decisions and financial strategies. Income thresholds for family reunification have become common policy tools in several countries, including European contexts where minimum-income

requirements determine eligibility to sponsor dependents Block and Bonjour 2013. These thresholds create discontinuities in the probability of reunification and may alter remittances by constraining the ability of families to live together. Comparative studies show that restrictive family-reunification rules can delay or prevent reunification, with implications for migrants' social and economic behaviour Strik, Hart, and Nissen 2013. Evidence from policy changes in Australia shows that stricter entry conditions can reduce the likelihood of remitting but increase the amount remitted among those who do send transfers, reflecting shifts in both incentives and household dynamics Mahuteau, Piracha, and Tani 2010. Studies in other contexts further highlight how family cycles such as reunification or the death of parents can reshape remittance patterns over time Della Puppa and Ambrosini 2022. Additionally, research demonstrates that the skill composition of migrant flows affects both remittance patterns and their distributional consequences, with low-skilled migrants often more responsive in terms of remittance behaviour Kratou, Pillai, and Sharif 2024.

4.3.4 Policy Discontinuities and Identification Strategies

Income thresholds embedded in migration policies create natural settings for quasi-experimental research. Regression Discontinuity Designs (RDD) provide a credible framework for estimating causal effects when treatment assignment changes sharply at a threshold D. S. Lee and Lemieux 2010. This approach is particularly relevant for studying income-based sponsorship requirements, where eligibility for family reunification changes discontinuously at a specific income cut-off. The literature emphasises the importance of bandwidth selection, continuity assumptions, and robustness checks when applying RDD, making it a suitable method to evaluate the behavioural impact of Kuwait's KWD 500 threshold.

4.3.5 Positioning This Study Within the Literature

Although the literature provides rich insights into remittance behaviour, household dynamics, and the impacts of migration policies, there remains limited evidence on how income-based restrictions on family reunification affect remittances in the Gulf region. In labour markets such as Kuwait, where migrants constitute the majority of the workforce and where sponsorship rules

tightly regulate family presence, income thresholds may fundamentally alter household strategies. By exploiting the sharp discontinuity created by Kuwait's KWD 500 eligibility requirement and comparing pre- and post-policy periods, this chapter fills an important gap in the literature. It provides new empirical evidence on how restrictive family-reunification policies shape remittance behaviour, connecting institutional constraints to financial decisions within migrant households.

4.4 Methodology

4.4.1 Regression Discontinuity Design (RDD)

This study utilizes a sharp Regression Discontinuity Design (RDD) to assess the causal effect of a policy change on the remittance behaviour of immigrant workers in Kuwait. The method utilizes a distinct shift in policy eligibility dictated by a wage level established by the Kuwaiti government. A recent modification raised the minimum required salary necessary for international workers to sponsor family members from 450 Kuwaiti Dinars (KD) (which was the threshold in 2016) to 500 KD in 2019 . This policy establishes a discontinuity in treatment assignment based exclusively on monthly income levels, hence offering a valid identification technique to assess the impact of family reunification eligibility on remittance results.

The RDD methodology is appropriate for scenarios where treatment allocation is determined by a threshold in a continuous variable, and when individuals are unable to accurately influence their standing in relation to the cut-off Hahn, Todd, and Van der Klaauw 2001; D. S. Lee and Lemieux 2010. When people marginally above and below the threshold are presumed to be comparable in all aspects except for treatment status, variations in outcomes at the cut-off might be construed as locally causative effects. RDD is progressively utilized in labour and migration economics to assess the impacts of thresholds in education, welfare, and immigration policy McCrary 2008; Andersen, Dustmann, and Landersø 2019.

To measure the local average treatment effect of the implementation of the law for those who are just below and just above, the paper implements cross-sectional sharp RDD approach. Let Y_i represent the amount of remittances sent by worker i and let $Income_i$ denote the worker's

real monthly income. The income threshold at which eligibility for family reunification changes is denoted by c=500 KD. Define a treatment indicator D_i as its =1 if household head is treated (receiving income=500 and above) and =0 otherwise. We estimate the linear regression model following Andersen, Dustmann, and Landersø 2019 as follow:

$$Y_i = \alpha + \tau D_i + f(\text{ Income }_i - c) + X_i'\gamma + \varepsilon_i \tag{4.1}$$

Where:

Y_i: the outcome of interest (remittances) for worker i.

τ: the coefficient of interest, capturing the local average treatment effect (LATE) of crossing the KWD 500 threshold on remittance behaviour.

D_i: a dummy variable =1 if and immigrant household head is treated (receiving income=500 and above) and =0 otherwise.

(Income $_i$ - c): a smooth function of the running variable (the distance from the threshold), typically estimated separately on either side of the cut-off to allow for different slopes.

X_i': a vector of the household head observable characteristics.

ϵ_i: the idiosyncratic error term.

4.4.2 Difference in Discontinuity (Diff-in-Disc)

The paper implement difference-in-discontinuity design approach (Diff-in-Disc) following Grembi, Nannicini, and Troiano 2016. This method is designed on combining two sources of variations; before (2013) and after (2021), with just below and just above, and taking the difference between the pre-treatment and post-treatment discontinuity at the threshold. The following equation uses the same notations of RDD model with the addition of time variable ($Post_t$).

$$Y_i = \alpha + \tau D_i + f(\text{ Income }_i - c) + \beta_0 (Post_t) + \beta_1 (D_i * Post_t) + X_i'\gamma + \varepsilon_i \tag{4.2}$$

where:

$Post_t$: a dummy variable =1 for the period after the intervention (2021) and =0 otherwise.

β_1: the coefficient of interest, capturing the causal effect of the introduction of the law on remittances.

To enhance the credibility of the results and assess their robustness, the paper employs the Difference-in-Differences (DiD) approach as a supplementary empirical strategy following Angrist and Pischke 2009. Diff-in-Disc focuses on the local cut-off, whereas DiD provides a wider Average Treatment Effect (ATE) by analyzing outcomes across two time periods (pre- and post-policy change) between a treated group and a control group. This enables the analysis to measure the overall policy effect beyond the immediate discontinuity and to determine whether the primary findings are consistent in a broader context.

The standard DiD design consists of two groups (treated (below the threshold) and control (above the threshold)) and two periods (2013 and 2021). The parallel trends assumption is the primary identification assumption, which states that the average change in outcomes over time for both groups would have been the same in the absence of treatment.

$$Y_{it} = \alpha + \beta_1 \text{ Post }_t + \beta_2 \text{ Treated }_i + \delta (\text{ Post }_t \times \text{ Treated }_i) + \mathbf{X}'_{it}\gamma + \varepsilon_{it} \tag{4.3}$$

where:

Y_i: the outcome of interest (remittances) for worker i.

$Treated_i$: a dummy variable =1 for the low-skilled immigrant workers earning income less than KWD 500 and =0 otherwise.

$Post_t$: a dummy variable =1 for the period after the intervention (2021) and =0 otherwise.

X'_{it}: a vector of the household head observable characteristics.

ϵ_i: the idiosyncratic error term.

The coefficient δ on the interaction term is the DiD estimator and measures the causal effect of the income threshold policy on remittances.

4.4.3 Choosing the bandwidth

To assess the causal impact of the minimal income threshold at the cut-off, the study employs the robust bias-correction methodology (the CCT method) established by Calonico, Cattaneo, and Titiunik 2014; and Calonico, Cattaneo, Farrell, et al. 2025. This method refines the traditional local polynomial regression discontinuity estimator by integrating bias-correction approaches that boost the precision of confidence intervals and hypothesis testing in finite samples.

The robust bias-corrected estimator mitigates the shortcomings of previous bandwidth selection techniques, including those proposed by Imbens and Kalyanaraman 2012. The CCT method, unlike traditional approaches that prioritize minimizing the mean squared error (MSE) of point estimators, explicitly incorporates bias in treatment effect estimation and develops variance estimators that retain validity post-bias correction, thus facilitating more dependable statistical inference.

In accordance with Calonico, Cattaneo, Farrell, et al. 2025, the ideal bandwidth is determined to minimize the asymptotic integrated mean squared error of the regression discontinuity estimator, expressed as:

$$h_{MSE} = C_{MSE} \cdot n^{-1/5} \tag{4.4}$$

Where C_{MSE} is given by:

$$C_{MSE} = \left(\frac{\delta_+^2(c) V_{p,+(r_p)} + \delta_-^2(c) V_{p,-(r_p)}}{f(c) \left[B_{p,p+1,+} \left(r_p\right)^2 + B_{p,p+1,-} \left(r_p\right)^2 \right]} \right)^{1/5} \tag{4.5}$$

In this expression, $\delta_+^2(c)$ and $\delta_-^2(c)$ denote the conditional variance of the outcome variable above and below the cut-off, $f(c)$ denotes the density of the running variable at the cut-off, whereas $V_{p,+(r_p)}$ and $V_{p,-(r_p)}$ are constants contingent upon the kernel function. Additionally, $B_{p,p+1,+}\left(r_p\right)$ and $B_{p,p+1,-}\left(r_p\right)$ represent the asymptotic bias.

The estimation method utilizes a local first-order polynomial (local linear regression) for the

primary RD estimate. Although the linear model may still have some bias in the estimation of treatment effect even with the optimal bandwidth, the CCT method employs a local polynomial of second-order (local quadratic regression) to correct this bias. A triangular kernel is utilized to allocate increased weight to observations nearer to the cut-off. The solution also considers potential mass points in the running variable, which is relevant due to the discontinuous character of reported income levels.

As a complementary bandwidth selection approach, this study incorporates the Placebo Zone Model Selection (PZMS) procedure introduced by Kettlewell and Siminski 2022. The PZMS method is designed to evaluate and select optimal regression discontinuity (RD) model specifications by exploiting regions of the running variable where no treatment occurs—termed "placebo zones." This approach is particularly useful in settings where conventional bandwidth selection may suffer from model misspecification or bias near the cut-off.

The fundamental concept of PZMS involves evaluating various candidate specifications, each characterized by a specific combination of bandwidth and local polynomial order, at artificial cut-off within the placebo zone, where no genuine discontinuity is expected to occur. The action of each specification is assessed by its ability to minimize the estimated treatment effect at the designated placebo thresholds. The PZMS algorithm calculates the root mean squared error (RMSE) of placebo treatment estimates at various thresholds and identifies the model with the minimum RMSE. This data-driven approach guarantees that the chosen model demonstrates strong performance in areas of the data where the true treatment effect is established as zero, thus enhancing the credibility of the specification when utilized at the actual cut-off.

Let θ_{pj} denote the estimated treatment effect from the j-th placebo threshold under specification p, and let J be the total number of placebo thresholds tested. The optimal specification p^* is selected to minimize the RMSE:

$$p^* = \arg\min_p \left\{ \text{RMSE}_p = \left(\frac{1}{J} \sum_{j=1}^{J} \theta_{pj}^2 \right)^{1/2} \right\} \tag{4.6}$$

This method is independent of the actual value of the treatment effect at the true cut-off, ensuring that the model does not falsely identify discontinuities where none exist. After identifying the

optimal specification through the placebo zone, it is implemented at the actual policy threshold (e.g., KWD 500) to assess the law's impact.

4.5 Data

The chapter uses the micro-level data of Kuwait Households Income and Expense Survey (KIES) for the year 2021 only to address the first research question of the effect of the law on those who are just below the threshold and those who are just above. In addition, it will use the KIES data of the years 2013 and 2021 to study the effect of the introduction of the policy over time using before and after data. The surveys are a weighted and representative for the whole economy. The chapter focuses its analysis on immigrants' workers who are affected by the law and those are immigrant workers at skill levels 1 & 2 according to the International Standard Classification of Occupations (ISCO-08) [1] by the International Labour Organization (ILO) or what so-called low skilled workers.

Remittances in the KIES dataset are reported as the total amount of money sent by the household head to family members abroad. For the purpose of this chapter, remittances are measured as monthly remittances in Kuwaiti Dinars (KWD). All remittance values are converted into real terms using the Consumer Price Index (CPI) from the Central Statistical Bureau, with 2013 as the base year. In addition to analysing remittances in levels, the empirical models also use their natural logarithm (ln real monthly remittances) to address skewness and improve interpretability. The analysis also considers remittances as a share of real monthly income, expressed as a percentage, to capture the financial burden of transfers relative to earnings. These three measures real monthly remittances, ln real monthly remittances, and remittances as a share of income are used throughout the descriptive and regression analysis.

Table 4.1 presents the descriptive statistics for immigrant workers in 2013 and 2021, separately for individuals who are affected (treated) and those who are not affected (control) by the income threshold relevant for family reunification (KWD 500) with the statistical significance indicated for the difference between the treated and control groups in each year.

[1] The International Standard Classification of Occupations (https://isco.ilo.org/en/isco-08/).

Several patterns emerge. In 2013, real monthly remittances were not statistically significant while most of the independent characteristics are. However, in 2021, real monthly remittance become highly significant across both groups. In both years, the workforce is overwhelmingly male (97–99%) and concentrated in the private sector (above 90%). Age distributions are not tightly aligned on both sides of the cut-off, with statistically significant differences in most age brackets. Marital status crucial for understanding remittance behaviour shows a consistent pattern. In both years, the majority of workers are married, but the share of single, divorced, or widowed individuals is slightly higher among control workers, with statistically significant differences in 2013. These differences are accounted for in the regression models by including marital status dummies.

Education distributions differ somewhat across groups, especially in 2013. Treated workers are more likely to have primary or below education, while control workers are more concentrated in secondary and high-school education categories. These differences diminish in 2021 but remain statistically significant for some categories, underscoring the importance of controlling for education in the empirical analysis.

Although the family size is not statistically significant between the two groups in both years, the mean of small family size (1-5 members) in 2021 increased dramatically compared with 2013.

Occupational classifications reflect the low-skilled nature of the sample. Most workers are concentrated in ISCO-08 [2] levels 5–9 (service and sales, crafts, plant and machine operators, and elementary occupations). Statistically significant differences appear in several occupational categories, but these occupational controls are included in all regression models.

Overall, Table 4.1 confirms that treated and control groups are broadly comparable across observable characteristics, while also highlighting key differences particularly in family size and education, that are appropriately controlled for in the empirical analysis. These descriptive patterns provide important context for interpreting the regression discontinuity estimates presented later in the chapter.

[2]The International Standard Classification of Occupations (https://isco.ilo.org/en/isco-08/).

TABLE 4.1: Descriptive Statistics of Immigrant Workers for 2013 and 2021 by Treated Groups

	2013					2021				
	Treated		Control		Diff	Treated		Control		Diff
Variable	Mean	Std. dev.	Mean	Std. dev.		Mean	Std. dev.	Mean	Std. dev.	
Dependent Variables:										
Real Monthly Remittances	164.17	326.10	152.59	280.45	11.58	143.27	139.47	121.91	156.79	21.36**
Ln Real Monthly Remittances	3.33	2.27	3.28	2.29	0.05	4.07	1.90	3.48	2.19	0.58***
Share of Real Monthly Remittances	0.27	0.64	0.12	0.30	0.15***	0.24	0.18	0.13	0.17	0.11***
Independent Variables:										
Gender and Sector:										
Male	0.97	0.18	0.88	0.33	0.09***	0.95	0.21	0.95	0.21	0.00
Private Sector	0.83	0.38	0.34	0.47	0.49***	0.93	0.26	0.73	0.45	0.20***
Age Group:										
Age Group (20-29)	0.09	0.29	0.04	0.19	0.06***	0.08	0.27	0.02	0.14	0.06***
Age Group (30-39)	0.59	0.49	0.37	0.48	0.22***	0.38	0.48	0.29	0.45	0.09***
Age Group (40-49)	0.92	0.27	0.62	0.48	0.30***	0.72	0.45	0.67	0.47	0.05**
Age Group (50-59)	0.96	0.20	0.87	0.34	0.09***	0.94	0.24	0.92	0.27	0.02
Age Group (60+)	0.04	0.20	0.13	0.34	-0.09***	0.06	0.24	0.08	0.27	-0.02
Marital Status:										
Married	0.94	0.24	0.87	0.34	0.07***	0.91	0.29	0.93	0.26	-0.02
Single/ Divorced/Widow/Separated	0.06	0.24	0.13	0.34	-0.07***	0.09	0.29	0.07	0.26	0.02
Educational Levels:										
Primary and Below	0.22	0.41	0.06	0.24	0.15***	0.20	0.40	0.01	0.12	0.18***
Secondary	0.25	0.43	0.16	0.36	0.09***	0.29	0.45	0.04	0.21	0.25***
High School	0.34	0.47	0.23	0.42	0.12***	0.22	0.42	0.12	0.32	0.10***
University and Above	0.19	0.39	0.55	0.50	-0.36***	0.29	0.45	0.82	0.38	-0.53***
Family Size:										
Family Size (1-5)	0.58	0.49	0.58	0.49	0.00	0.88	0.33	0.87	0.34	0.01
Family Size (6-10)	0.31	0.46	0.32	0.47	-0.01	0.12	0.32	0.13	0.33	-0.01
Family Size (11+)	0.11	0.31	0.09	0.29	0.02	0.00	0.06	0.00	0.07	0.00
Occupational Classifications:										
1- Managers...	0.00	0.00	0.06	0.23	-0.06***	0.00	0.00	0.23	0.42	-0.23***
2- Professionals	0.00	0.00	0.32	0.47	-0.32***	0.00	0.00	0.44	0.50	-0.44***
3- Technicians ...	0.00	0.00	0.19	0.39	-0.19***	0.00	0.00	0.29	0.45	-0.29***
4- Clerks.	0.16	0.37	0.00	0.00	0.16***	0.07	0.26	0.00	0.00	0.07***
5- Service and sales...	0.40	0.49	0.00	0.00	0.40***	0.29	0.45	0.00	0.00	0.29***
6- Skilled agricultural...	0.01	0.07	0.00	0.00	0.01**	0.01	0.08	0.00	0.00	0.01**
7- Craft & related trades...	0.16	0.36	0.00	0.00	0.16***	0.24	0.43	0.00	0.00	0.24***
8- Plant & machine...	0.15	0.36	0.00	0.00	0.15***	0.24	0.43	0.00	0.00	0.24***
9- Elementary occupations.	0.13	0.33	0.00	0.00	0.13***	0.15	0.36	0.00	0.00	0.15***
Total No. of Observations.	493		924			554		747		

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Income & Expense Survey (KIES) of 2013 & 2021. Real monthly remittances is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables. Treated is a dummy variable =1 for those who are affected by the law and =0 otherwise. All independent variables are dummy variables and they sum to 100.

4.5.1 Measuring the LATE Effect

The chapter tests the average local treatment effect (LATE) of the policy on those who are just below and just above the threshold of KWD 500 using the KIES of 2021. It estimates the local average treatment effect (LATE) of the KWD 500 income threshold on remittances in 2021 by implementing a cross-section sharp Regression Discontinuity Design (RDD) based on the methodology proposed by Calonico, Cattaneo, and Titiunik 2014. This approach addresses bias in local polynomial regressions at the cut-off and offers robust confidence intervals. In the 2021 sample, the CCT method identified a bandwidth of KWD 150, and we estimated the treatment effect utilizing a local linear polynomial (p = 1) within this bandwidth.

It also employs the Placebo Zone Model Selection (PZMS) method, as proposed by Kettlewell

and Siminski 2022, to conduct a robustness check and explore an alternative model selection strategy. This method assesses model specifications by examining their performance in untreated areas of the running variable, where no treatment effect is anticipated. The sample was limited to observations with an income below KWD 450 in 2021 to ensure the absence of treatment exposure. Placebo thresholds (e.g., KWD 300) were applied within this untreated region for the implementation of PZMS. The specification that minimized the placebo root mean squared error (RMSE) employed a local linear regression (p = 1) with a bandwidth of approximately KWD 50. The optimal model was subsequently applied at the actual policy cut-off (KWD 500) to estimate the LATE.

Table 4.2 shows the descriptive statistics of immigrants' workers for three CCT bandwidths where the study calculated the main bandwidth and tried to check a smaller and a larger bandwidths. Remittances used in this paper will be adjusted for inflation using the CPI data from the Central Statistical Bureau (CSB) Annual Bulletin for the year 2021. The paper will use some observable characteristics of immigrants' households such as age, gender, educational level, working sector, social status, family size and occupation classifications. Although those observable characteristics might not have a direct impact on remittances, they in fact affect the level of their income which is affected by the law and at the end might affect their remittances level.

The table shows the main descriptive statistics for the sample of immigrant workers included in the analysis and is restricted to those with incomes close to the KWD 500 (around £ 1,220) threshold (with bandwidths of KWD 100, 150 and 200). On average, workers remit approximately KWD 119 KD per month (around £ 290), with substantial variation across individuals. As a share of real income, low-skilled immigrant workers are remitting 25% of their real income.

The average real income after adjusting income for inflation is KWD 488.5 (around £ 1,100), reflecting the concentration of the sample near the eligibility cut-off for family reunification. The average age is 43 years, with the sample being mostly male workers (98%) and mainly employed in the private sector (93%) which leaves only (7%) for the public sector.

The majority of household heads are married (91%) while those who are single, divorced or widow represent together only (9%). Educational attainment is moderate, with an average level of 2.7 on a four-point scale (primary education and below, secondary education, high school education, university education and above). Family sizes are relatively small with an average of

1.1 on a three-point scale (family size (1-5) members, family size (6-10) members, and family size (11+) members). The occupation classification is a nine-point scale according to ISCO-08 occupation classification and it shows that most of the workers are in the category of craftsmen and workers related to the trades. Overall, the sample reflects the characteristics of middle-income, male immigrant workers in Kuwait's private sector, holding high school educational degree with a family size mostly between (1-5) members.

Table 4.3 is the balancing table by independent variables where it compares immigrant workers just below (KWD 350-500) and just above (KWD 500-650) the income cut-off of KWD 500 using the CCT main calculated bandwidth of (350-650). Across most observable characteristics, including age, gender, marital status, employment sector, and education level, there are no statistically significant differences between the two groups, supporting the validity of the RDD design. Appendices C.1 and C.2 show the balance tables for smaller and larger bandwidths and it reports no significant differences between both groups which again support the use of RDD even for smaller and larger bandwidths. However, the only variable that shows imbalance is the family size where it differs significantly across the cut-off ($p = 0.005$). To address this potential concern, regression includes control for family size. Overall, the balance tests suggest that individuals near the threshold are otherwise comparable, and that the observed discontinuity in the outcome variable can be interpreted as causal.

4.5.2 Measuring the Causal Effect

The research estimated the causal effect of the introduction of the KWD 500 income threshold law by utilizing both pre-policy (2013) and post-policy (2021) data through a Difference-in-Discontinuity Design (Diff-in-Disc), as outlined by Grembi, Nannicini, and Troiano 2016. The paper uses the KIES of 2013 together with 2021 data to check the effect of the law introduction over time. Using CCT method to measure the most appropriate bandwidth, it identifies a bandwidth of KWD 200 both sides. In addition, the paper uses the PZMS method as a robustness check where it restricts the income to those who earn below KWD 450 where the method is built on placebo threshold. The optimal bandwidth is approximately KWD 30. Table 4.4 shows the descriptive statistics of immigrants' workers for 3 bandwidths where it calculated the main bandwidth and tried to check a smaller and a larger bandwidths using both years of 2013 and 2021.

TABLE 4.2: Descriptive Statistics of Immigrant Workers with Different Bandwidths

Variables	(400-600)	(350-650)	(300-700)
	Mean	Mean	Mean
Dependent Variable:			
Real Remittances	114.00	119.81	120.81
Ln Real Remittances	4.02	4.07	4.03
Real Remittances Share	0.23	0.25	0.25
Independent Variable:			
Real Income	490.73	488.48	481.79
Age	43.46	43.13	42.83
Male	0.98	0.98	0.97
Private Sector	0.94	0.93	0.93
Married	0.92	0.91	0.92
Educational Levels	2.76	2.73	2.71
Family Size	1.09	1.08	1.08
Occupations Classifications	6.81	6.85	6.87
No. of Observations.	140	200	273

- Note: The data source is Kuwait Income and Expense Survey (KIES) of 2021. The main CCT bandwidth is (350-650). Real remittances are remittances adjusted for inflation and measured in Kuwaiti Dinar (KWD). The real remittances share is the proportion of real income used as remittances. Real income is income adjusted for inflation and measured in Kuwaiti Dinar (KWD).

TABLE 4.3: The Balance Table of Covariates of Bandwidth (350-650)

Independent Variables	Below (KWD 500)		Above (KWD 500)		Difference	P-value
	Mean	SD	Mean	SD		
Real Income	435.18	46.40	581.23	38.92	146.04	0.00
Age	42.86	9.70	43.60	9.04	0.74	0.71
Male	0.98	0.01	0.97	0.01	-0.01	0.62
Married	0.91	0.02	0.92	0.03	-0.01	0.81
Private Sector	0.94	0.02	0.89	0.03	-0.05	0.21
Educational Levels	2.77	1.04	2.68	1.14	-0.09	0.61
Family Size	1.04	0.20	1.14	0.39	0.10	0.01
Occupations Classifications	7.07	1.60	6.46	1.65	-0.61	0.02
No. of Observations.	124		76		-48.00	

- Note: The data source is Kuwait Income and Expense Survey (KIES) of 2021. The main CCT bandwidth is (350-650).

Using the main calculated CCT bandwidth, the table shows that the low-skilled immigrant workers remit on average KWD 161 (around £ 390) with a share of 37% of real income. The average real income is KWD 460 (around £ 1,100).

The average age of low-skilled immigrant workers is 38 years old. Most of households workers are male (97%), married (92%), and working in the private sector (95%). In a four-point scale educational level (primary education and below, secondary education, high school education, university education and above), it shows that most of those workers have secondary and high school educational level.

The family size is classified into three groups, small ((1-5) members), medium ((6-10) members), and large ((11+) members). Most of households accompany their family members and their family size range from small to medium size.

The occupational classification is a nine-point scale as classified using ISCO-08 occupation classification. With this scale, the data shows that most of the workers are at occupation level 6 and above.

Table 4.5 shows the internal validity of covariates around the threshold for the calculated bandwidth as of CCT method. Appendices C.3 and C.4 show the balance tables for the smaller and larger bandwidths. There is no statistically significant difference between the two groups even for a larger and smaller bandwidths which supports the use of Diff-in-Disc methodology to measure the casual effect of the introduction of the law.

4.5.3 Family Size Mechanism

The presence of family dependents is affected by the law imposed. Therefore, the paper examines the share distribution of household members before and after the policy change to assess whether the family reunion restriction reduced the family size share. Figure 4.1 shows the distribution and it confirms that the share of small family size (1-5 members) has increased after the imposition of the law from (59%) to (88%) which means that less number of dependents which supports the fact that the law has restricted family reunion and as a result this might push remittances to go up. The share of larger family sizes (6-10 members) has decreased sharply from (30%) to (12%) while the largest family size of 11+ members has almost vanished (from 10% to 0.1%).

TABLE 4.4: Descriptive Statistics of Immigrant Workers with Different Bandwidths

Variables	(350-650)	(300-700)	(250-750)
	Mean	Mean	Mean
Dependent Variable:			
Real Remittances	170.69	161.11	154.64
Ln Real Remittances	3.63	3.54	3.45
Real Remittances share	0.38	0.37	0.37
Independent Variable:			
Real Income	477.55	460.95	453.44
Age	37.79	38.02	37.80
Male	0.97	0.97	0.98
Private Sector	0.95	0.95	0.94
Married	0.92	0.92	0.92
Educational Levels	2.48	2.42	2.38
Family Size	1.56	1.51	1.52
Occupations Classifications	6.56	6.54	6.54
No. of Observations.	376	514	624

- Note: The data source is the Kuwait Income and Expense Survey (KIES) of 2013 and 2021. The main CCT bandwidth is (300-700). Real remittances are remittances adjusted for inflation and measured in Kuwaiti Dinar (KWD). The real remittances share is the proportion of real income used as remittances. Real income is income adjusted for inflation and measured in Kuwaiti Dinar (KWD).

TABLE 4.5: The Balance Table of Covariates of Bandwidth (300-700)

Independent Variables	Below (KWD 500)		Above (KWD 500)		Difference	P-value
	Mean	SD	Mean	SD		
Real Income	394.92	61.07	587.86	61.54	-192.95	0.00
Age	37.89	7.09	38.26	6.98	-0.37	0.81
Male	0.98	0.12	0.96	0.21	0.02	0.27
Married	0.92	0.29	0.92	0.26	0.00	0.78
Private Sector	0.93	0.23	0.93	0.20	0.00	0.87
Educational Levels	2.40	1.01	2.46	0.96	-0.06	0.29
Family Size	1.56	0.72	1.42	0.60	0.14	0.58
Occupations Classifications	6.45	1.65	6.70	1.73	-0.25	0.37
No. of Observations.	328		186		142.00	

- Note: The data source is Kuwait Income and Expense Survey (KIES) of 2013 and 2021. The main CCT bandwidth is (300-700).

4.5.4 Wage Trend Mechanism

Remittances might increase due to increase in wages. Therefore, to ensure that the rise in remittances was not a result of higher wage trend, the paper tests the real income trend before and after the policy. Figure 4.2 shows that the average real monthly income remains stable for low income immigrant workers, there was no significant increase between the two years. The right panel shows that workers earning below KWD 500 (treated group and directly affect by the law), did not experience any wage change over time. The left panel shows that worker earning above KWD 500 experienced a slight decline in average real income between 2013 and 2021.

This supports the interpretation that the increase in remittances was not income driven. Table 4.6 presents the findings of a Difference-in-Differences (DiD) regression with real monthly income as the dependent variable. This specification evaluates whether the observed rise in remittances can be attributed to changes in income rather than the 2019 family reunion law. The hypothesis here is that if the policy, rather than income growth, is responsible for the rise in remittances, there should be no substantial change in income for the treated group (low-skilled immigrant workers earning below the KD 500 level) following the implementation of the law. The results are shown with and without control factors such as age, gender, employment sector, educational level, marital status, family size, and occupational classification. In both models, the interaction term representing the treatment effect (treated × post) is statistically insignificant, suggesting that there was no change in income for the treated group after the policy implementation. The data indicate that the increase in remittances is not attributable to the increase in income, but rather to changes in household composition due to the policy.

4.5.5 Would workers bargain higher income?

Although workers would bargain for higher wages in order to meet the threshold of KWD 500 to bring in their families, this option is highly constrained. Immigrant workers in Kuwait are typically brought based on a fixed employment contract which includes all the information of their job and their wage levels. Once they sign, these contracts leave little room for renegotiation and requesting for higher wages are rarely agreed by employers especially for low-skilled workers.

Moreover, institutional regulations further restrict workers' mobility and bargaining power. According to Administrative Decision No. 842 of 2015 issued by the Public Authority for Manpower (PAM) in Kuwait, an immigrant worker must remain with his current employer for a minimum of one year from the contract start date before becoming eligible to transfer to another employer. Such transfer requires the explicit approval of the current employer. These rules are applied for both sectors (public and private). they limit worker's ability to improve their wage position through job mobility. Although the one-year restriction was temporarily removed in the post-COVID-19 period by Administrative Decision No. 142 of 2021, which permitted employees to change employers with the current employer's consent, this relaxation was situational and its practical impact is not observed in this analysis.

While PAM introduced a minimum wage law no.14 for 2017 where the minimum wage is KWD 75 for workers in the private and oil sectors, this policy establishes only a wage floor. It does not change the structural constraints of wage negotiation and employer transfer.

These dynamics can not be examined empirically in this study due to data limitation. The KIES used in this analysis does not provide information on the duration of employment with the current employer, nor does it capture whether a worker has changed employers in an effort to receive higher wages and meet the income threshold for family reunion. Therefore, the extent to which workers may attempt to increase their wages through bargaining or mobility remains open possibility within the current institutional framework.

4.5.6 Was it because of Covid-19 pandemic?

Because part of the data used in this study was collected in 2021, it is important to clarify the timing of the data collection in relation to the period of Covid-19 pandemic. The Kuwait Income and Expense Survey of 2021 was collected into two time period where it started in October 2019 but it was stopped after 4-month period due to the pandemic, and then resumed in March 2021 and last for 8-month. The paper excluded the data collected in the first wave of the survey to remove the effect of Covid-19 pandemic and to avoid capturing temporary shocks related to lockdown and only included the 2021 collected data. By that time, the most severe period of the

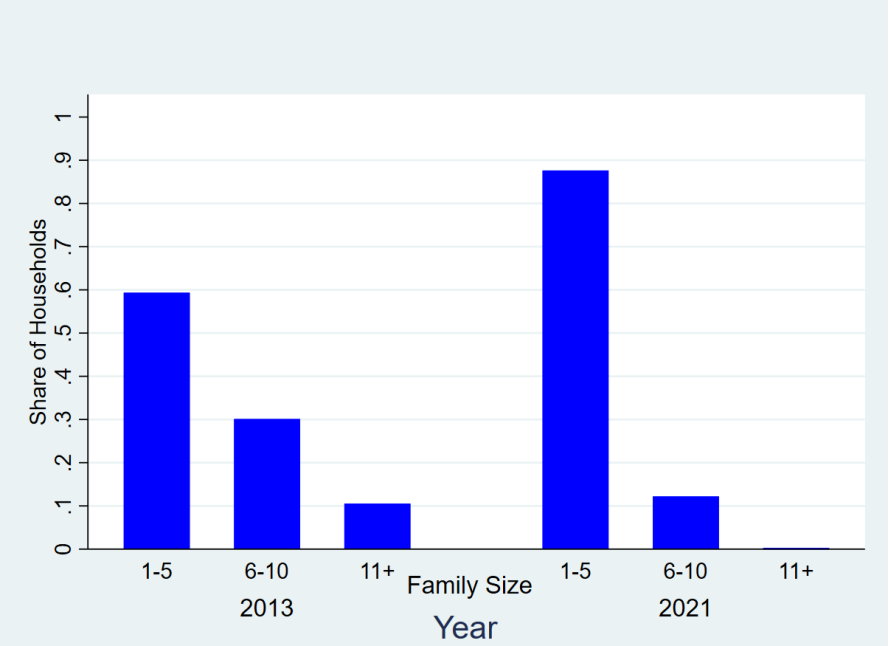


FIGURE 4.1: The Distribution of Family Size Share of Low Skilled Immigrant Workers

FIGURE 4.2: The Wage Distribution by Treated Group

TABLE 4.6: DiD Results of Wage Trend Mechanism

VARIABLES	Real Income	
Treated	-509.69***	-504.44***
	(25.61)	(24.44)
Post	-21.28	-23.27
	(30.80)	(32.60)
Interaction term	-7.21	-1.18
	(31.99)	(30.85)
Controls	No.	Yes.
Constant	872.88***	739.05***
	(24.98)	(120.14)
Observations	946	946
R-squared	0.54	0.56

- Note: Robust Standard Error in parentheses. *** significant at 1%, ** significant at 5%, * significant at 10%. The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

pandemic has passed and Kuwait had largely resumed normal economic activity. In addition, the data collection took place almost a full year after the initial Covid-19 lockdown.

The analysis focuses on low-skilled immigrant workers near the KWD 500 threshold, employing the RDD method centred on this cut-off. Limiting the sample to low-skilled immigrant workers just above and below the KWD 500 threshold allows for the identification of the policy effect while minimizing the risk that observable changes in remittance are influenced by macroeconomic shocks, such as the Covid-19 pandemic.

This local comparison strategy ensures that variations in remittance behaviour are likely attributable to changes in the law rather than external confounding factors. Low-skilled immigrant workers at the threshold are anticipated to experience effects from the pandemic in a similar manner. This makes them suitable for isolating the impact of the family reunion law.

4.6 Results and Discussion

In this section, the paper introduce the results of both the local average treatment effect (LATE) for those just below and just above the threshold, and the causal effect of the introduction of the policy using the KIES of 2021 only and KIES of 2013 and 2021 together respectively.

4.6.1 Results of being just below and just above the threshold (LATE Effect):

Table 4.7 views the main regression discontinuity design (RDD) estimates examining the impact of crossing the KWD 500 income threshold on natural log of remittance behaviour for post-treatment effect. Using the CCT measurement of the bandwidth, we end up with the bandwidth of KWD 150 both sides. The middle columns of table 4.7 shows the results of this bandwidth which confirms that there is positive effect of the law on natural log of real remittances with a coefficient of 2.21 log points which suggests that remittances increased by around 800%[3] among affected individuals. The significant increase indicates a sharp behavioural response among low-income immigrant workers, whose ability to reunite with their families was affected by the income cut-off. In addition, when controlling for age, gender, working sector, educational level, marital status, family size, and job categories, the result become highly significant at the 1% level (p-value = 0.00). This result is consistent with the theoretical expectation that family separation increases remittances, as workers continue to support their dependents abroad.

We also use two arbitrary bandwidth to check the feasibility of the effect. The results of all bandwidth (smaller and larger) supported the main bandwidth results at the 1% level (p-value = 0.00) and at the 5% level (p-value = 0.02) for smaller and larger bandwidths respectively.

Figure 4.3 presents the Local Average Treatment Effect (LATE) of the income threshold policy (cut-off at KWD 500) on the natural log of real remittances. There is a clear upward jump at the cut-off point, suggesting that immigrant workers just below the threshold (treated group) remit significantly more (in log terms) than those just above it (control group). This jump reflects the local treatment effect (LATE) of becoming eligible for family reunification on remittance behaviour.

4.6.2 Results of the introduction of the law over time (causal effect):

Table 4.8 shows the results of the imposition of the law on natural log of real remittances using data for the period before (2013) and after (2021) together with the treated (earning KWD 500 and more) and control (earning below KWD 500) groups. The paper implemented the difference-in-discontinuity (Diff-in-Disc) design to implement the regression analysis. With the use of the

[3] % change = $(e^{1.14}-1)*100$.

TABLE 4.7: The Regression Discontinuity Design Result of Local Average Treatment Effect (LATE)

Bandwidth	400-600		350-650		300-700	
Controls	Without	With	Without	With	Without	With
Coefficient	0.39	2.19***	0.72	2.21***	0.88**	1.19**
Std. Error	0.44	0.65	0.38	0.65	0.39	0.42
p-value	0.82	0.00	0.19	0.00	0.05	0.02
95% Conf. Interval	[-0.94, 1.18]	[1.06, 4.41]	[-0.32, 1.57]	[0.75, 3.94]	[-0.03, 1.93]	[0.15, 2.26]
Number of Observations	140	140	200	200	273	273

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The main CCT bandwidth is (350-650). The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

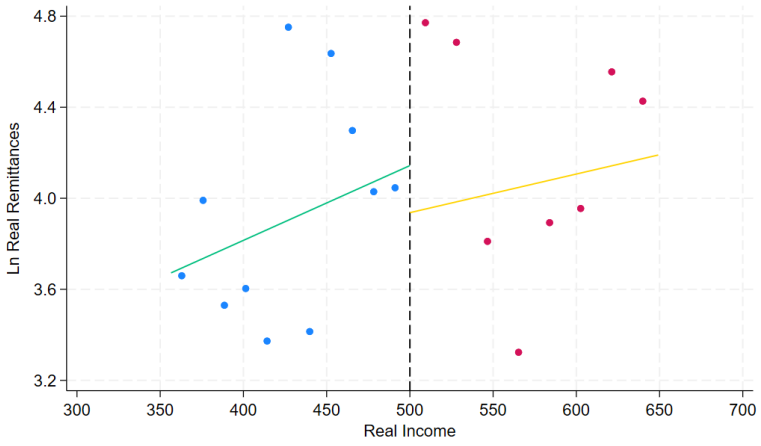


FIGURE 4.3: Regression Discontinuity for CCT Bandwidth (350-650) using post-treatment (2021) data

calculated bandwidth using CCT method which gives a bandwidth of KWD 200 both sides, the results positive and highly significant without and with controls with significant level of 1% (p-value=0.00). A coefficient of 0.45 implies that the policy led to an approximate increase of 57% in real remittances among affected low-skilled immigrant workers. The findings suggest that the income-based family reunion law significantly influenced remittance behaviour, controlling for any pre-existing discontinuities prior to the policy's implementation.

Figure 4.4 illustrates the discontinuity at the cut-off which explains the causal impact of the policy's introduction. Low-skilled immigrant workers below the threshold remit significantly more than those above since the slope of the left-side line is positive while the slope of the right-side line is flatter and slightly negative. This visual pattern supports the Diff-in-Disc estimation, where the increase in the size of the jump between 2013 and 2021 reflects the causal effect of the policy.

TABLE 4.8: The Difference-in-Discontinuity Design Result of the Casual Effect

Bandwidth	350-650		300-700		250-750	
Controls	Without	With	Without	With	Without	With
Coefficient	0.37***	0.26***	0.44***	0.45***	0.59***	0.67***
Std. Error	0.08	0.08	0.07	0.07	0.06	0.06
p-value	0.00	0.00	0.00	0.00	0.00	0.00
95% Conf. Interval	[0.21, 0.53]	[0.11, 0.42]	[0.29, 0.57]	[0.31, 0.59]	[0.47, 0.72]	[0.55, 0.80]
Number of Observations	372	372	504	504	616	616

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The main CCT bandwidth is (300-700). The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

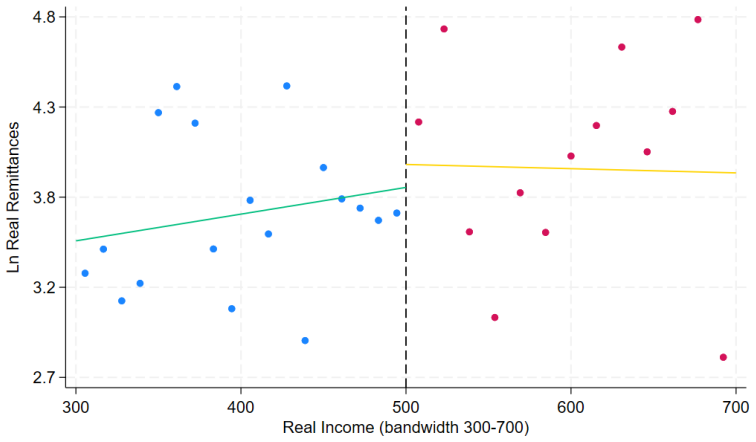


FIGURE 4.4: Regression Discontinuity for CCT Bandwidth (300-700) using data before & after (2013 & 2021)

4.6.3 What Happened to the Remittance Share of Real Income?

In this section, the study presents the effect of the law using the share of remittance from real income which is a measure that is widely used in the remittance literature to assess the intensity of remittance behaviour Adams Jr and Page 2005, Acosta, Fajnzylber, and Lopez 2007, Taylor et al. 2008, and Combes and Ebeke 2011. Remittance levels can rise due to an increase in income levels or because workers are remitting a higher proportion of their income. However, share of remitted income captures the depth of commitment and sacrifice and it shows how central remittances are in the household economic decisions. Therefore, by analyzing the share of remittance, the paper shows how deeply the policy is affecting household strategies where a higher share means that workers are remitting despite having less or unchanged income.

Table 4.9 shows the LATE result using the share of remittance from real income. The main bandwidth of (350-650) reflect that with and without controls the effect of the law on share of

TABLE 4.9: The Regression Discontinuity Design Result of Local Average Treatment Effect (LATE) using the Share of Real Remittances

Bandwidth	400-600		350-650		300-700	
Controls	Without	With	Without	With	Without	With
Coefficient	-0.01	0.003	0.05***	0.05***	0.04***	0.04***
Std. Error	0.01	0.01	0.01	0.01	0.01	0.01
p-value	0.66	0.86	0.00	0.00	0.00	0.00
95% Conf. Interval	[-0.04, 0.02]	[-0.02, 0.03]	[0.02, 0.08]	[0.02, 0.08]	[0.01, 0.07]	[0.01, 0.06]
Number of Observations	140		200		264	

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The main CCT bandwidth is (350-650). The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

TABLE 4.10: The Difference-in-Discontinuity Design Result of the Real Remittances Share of Real Income Casual Effect

Bandwidth	350-650		300-700		250-750	
Controls	Without	With	Without	With	Without	With
Coefficient	0.25***	0.24***	0.19***	0.20***	0.24***	0.25***
Std. Error	0.02	0.02	0.02	0.02	0.02	0.02
p-value	0.00	0.00	0.00	0.00	0.00	0.00
95% Conf. Interval	[0.19, 0.31]	[0.19, 0.30]	[0.15, 0.24]	[0.16, 0.24]	[0.19, 0.28]	[0.21, 0.29]
Number of Observations	372	372	504	504	616	616

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The main CCT bandwidth is (300-700). The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

remittance from real income is positive and its highly significant with 1% significance level.

Table 4.10 presents the causal effect of the law on the share of remittance from real income. It shows that there is a positive and highly significant effect of the law on the share of remittance from real income at 1% significant level.

These results confirm that the increase in remittances sent back home for household dependents is the result of the implementation of the policy restricting low-skilled immigrant household from bringing in their dependents.

4.7 Robustness Check

In this section, the paper presents multiple f robustness checks to validate the main results. First, it employs the Placebo Zone Model Selection (PZMS) procedure to identify the optimal bandwidth and confirm the consistency of the findings obtained using the Calonico, Cattaneo, and

TABLE 4.11: LATE Effect Results using CCT & PZMS Bandwidths

Bandwidth	**CCT (350-650)**		**PZMS (450-550)**	
Controls	Without	With	Without	With
Coefficient	0.72	2.21***	0.81	1.18**
Std. Error	0.38	0.65	0.38	0.43
p-value	0.19	0.00	0.89	0.02
95% Conf. Interval	[-0.32, 1.57]	[0.75, 3.94]	[-0.99, 1.15]	[0.24, 3.32]
Number of Observations	200	200	70	70

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

Titiunik 2014 (CCT) method. Second, it conducts a placebo test using the Kuwait Income and Expenditure Survey (KIES) of the year 2013, which is before the introduction of the income-based family reunification policy. Then, the Difference-in-Differences (DiD) method is implemented using data from both 2013 and 2021 to estimate the average causal effect of the policy and compare it with paper's main results. Finally, the paper address a macro-level evidence on changes in family size as a corresponding effect of the policy.

4.7.1 PZMS vs. CCT

The chapter uses the Placebo Zone Model Selection (PZMS) technique to measure the optimal bandwidth and reimplement the regression discontinuity design and compares it with the results of the bandwidth using the Calonico, Cattaneo, and Titiunik 2014 (CCT) method. Table 4.11 shows the results of the LATE effect while table 4.12 shows the results of the causal effect. Both tables confirm the validity of the main results using CCT.

TABLE 4.12: Causal Effect Results using CCT & PZMS Bandwidths

	CCT		**PZMS**	
Bandwidth	**(300-700)**		**(470-530)**	
Controls	Without	With	Without	With
Coefficient	0.44***	0.45***	0.67***	0.39**
Std. Error	0.07	0.07	0.19	0.18
p-value	0.00	0.00	0.00	0.03
95% Conf. Interval	[0.29, 0.57]	[0.31, 0.59]	[0.28, 1.05]	[0.02, 0.75]
Number of Observations	504	504	85	85

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

4.7.2 A Placebo Test

A placebo test is implemented using the data of Kuwait Income and Expense Survey (KIES) for the year of 2013 which is before the imposition of the restrictions on family reunion. The paper uses the same CCT bandwidth and implements the RDD regression. Table 4.13 shows the local treatment effect (LATE) results using 2013 data where there was no law imposed. The result confirms that there was no effect which means that the LATE effect measured in the main analysis is due to the imposition of the policy.

TABLE 4.13: LATE Effect using Placebo Period (2013)

Bandwidth	**(350-650)**	
Controls	Without	With
Coefficient	-0.58	-1.24
Std. Error	1.30	1.65
p-value	0.63	0.47
95% Conf. Interval	[-3.88, 2.36]	[-5.38, 2.48]
Number of Observations	181	181

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

4.7.3 Difference-in-Difference (DiD) Methodology

The chapter uses another methodology to check the validity of the results generated for the causal effect of the policy on low skilled immigrant workers. The treated groups are low skilled workers earning at least KWD 500. The control group are low skilled immigrant workers earning less than KWD 500. With the data from KIES 2013 (before) and 2021 (after), table 4.14 shows the DiD results.

4.7.4 Evidence from Aggregate Visa Data

This section provides supplementary evidence utilizing aggregate administrative data from the Migration Statistics Bulletin (MSB) for the years of 2013 and 2021 on newly issued family dependent visas (Visa No. 22) in Kuwait to support the findings obtained from household-level microdata. This visa type no.22 is only issued to family members accompanying household heads residing in Kuwait and serve as a direct indicator of family reunion trends.

Figure 4.5 illustrates the proportion of total newly issued family dependent visas categorized into two main skill groups—high-skilled and low-skilled—for the years 2013 and 2021. The classification is based on the countries of origin typically associated with different skill levels: workers from Arab countries, the EU, the US, and Australia are predominantly high-skilled, while those from Asian and African countries largely constitute the low-skilled segment of the labour force.

TABLE 4.14: Causal Effect using Difference-in-Difference Methodology

Variables	Before (2013)	After (2021)	Diff
Treated	3.27	4.46	1.19
Control	3.42	3.67	0.25
Diff	-0.15	0.79	0.94**
			(0.05)

- Note:*** significant at 1%, ** significant at 5%, * significant at 10%. Treated group are low-skilled immigrants earning KWD 500 and above. Control group are low-skilled immigrants earning less than KWD 500.

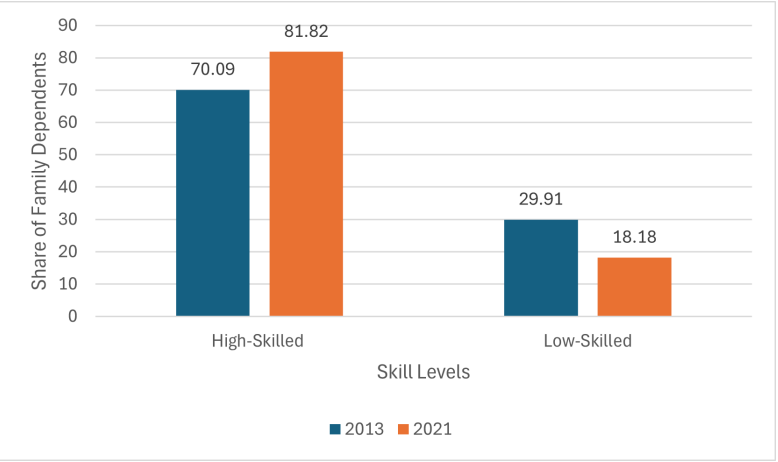


FIGURE 4.5: Share of Family Dependents by Household Head Skill-Level (2013 & 2021)

The figure illustrates a clear disparity in trends among skill groups. The proportion of family dependents among high-skilled professionals rose from 70.09% in 2013 to 81.82% in 2021. Conversely, the proportion of low-skilled workers decreased significantly from 29.91% to 18.18% during the same time period. This aggregate-level data supports the micro-level study by illustrating that the 2019 policy establishing a minimum income threshold (KWD 500) for family reunification has had a selective influence.

Low-skilled immigrant workers, who are more likely to earn below the cut-off, seem to have faced limitations in their ability to bring family members to Kuwait, as indicated by the decreasing proportion of dependents. This supports the theory that workers unable to reunite with their families locally may have increased their remittances to assist them overseas. Simultaneously, highly skilled professionals were mostly unaffected by the restrictions and shown an increased propensity to sponsor dependents in 2021 compared to 2013, reinforcing the heterogeneous effect of the policy.

This robustness check utilizing visa issuance data thus enhances the credibility of the primary finding: the income-based family reunion restriction modified household composition in Kuwait and influenced the changes in remittance behaviour, especially among low-skilled immigrant workers.

4.8 Heterogeneity Analysis

Understanding how the policy affects different subgroups is essential, as theory and prior empirical research suggest that remittance responses may vary systematically across worker characteristics. The New Economics of Labour Migration (NELM) predicts stronger behavioural adjustments among workers who face binding liquidity constraints or greater household obligations Stark and Lucas 1988. Altruistic, insurance, and exchange-motive theories further imply that remittance responses will be more pronounced for individuals with stronger financial ties to dependents abroad, such as married workers or workers from migrant communities with strong remittance norms Funkhouser 1995; Cox and Stark 1996; Rapoport and Docquier 2006. In the Gulf context, segmented labour markets and nationality-based occupational sorting also shape the ability to sponsor family members and the likelihood of clustering around the KWD 500 threshold Shah 2013; Kapiszewski 2017. These considerations motivate the subgroup analysis and guide expectations about which groups are likely to exhibit larger or smaller treatment effects.

To better understand how the effect of the family reunification income threshold varies across different groups, I explore heterogeneity by nationality (Arab vs. non-Arab) for the 2021 cross-sectional data and by gender using the repeated cross-sections of 2013 and 2021. These dimensions are particularly relevant given differences in average earnings and remittance behaviour.

While the heterogeneity by region is only available in the 2021 cross-section, it still provides insight into how the policy may differentially affect Arab and non-Arab workers. For the causal effect analysis, gender-based heterogeneity is feasible across both years. However, the gender composition of the labour force particularly among low-skilled migrant workers remains male-dominated, which may limit generalizability.

4.8.1 Heterogeneity by Region: Arab vs. Non-Arab Workers

Table 4.15 presents the heterogeneity in the local average treatment effect (LATE) of the income-based family reunification restriction using 2021 data, split by region based on their mother language to: Arab and non-Arab countries. The regression discontinuity estimates are reported

TABLE 4.15: LATE Effect by Region Groups

Bandwidth	CCT Bandwidth (350-650)					
Nationality	All		All Non Arab		All Arab	
Controls	Without	With	Without	With	Without	With
Coefficient	0.72	2.21***	-0.81***	-1.09***	0.51***	0.64***
Std. Error	0.38	0.65	0.15	0.15	0.18	0.17
p-value	0.19	0.00	0.00	0.00	0.00	0.00
95% C.I.	[-0.32, 1.57]	[0.75, 3.94]	[-1.11, -0.51]	[-1.39, -0.80]	[0.15, 0.86]	[0.30, 0.98]
No. of Observations.	200		113		87	

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The main CCT bandwidth is (350-650). The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification. All Arab countries include workers from countries where their mother language is Arabic. All Non-Arab countries include workers from countries where their mother language is not Arabic.

with and without controls, using the Calonico-Cattaneo-Titiunik (CCT) optimal bandwidth of 350–650 KD.

The heterogeneity results using the same CCT bandwidth (350–650 KD) reveal important variation by region. While Arab workers experience a significantly positive effect, consistent with the main findings, non-Arab workers show a negative effect. These estimates are still local to the bandwidth window and not full-sample averages. However, they reflect that even within the same income range, the response to the policy can vary due to structural differences across nationalities such as differences in baseline wages, remittance norms, or ability to bring family. Arab workers may be more concentrated around the threshold and able to adjust behaviour, whereas many non-Arab workers might still be below the effective threshold despite being in the bandwidth window. Thus, the negative effect among non-Arab workers does not undermine the overall finding; instead, it reinforces the importance of contextual differences in remittance behaviour within treated income ranges.

4.8.2 Heterogeneity by Gender: Male vs. Female Workers

Table 4.16 presents the gender-based heterogeneity in the causal effect of the income-based family reunification restriction policy using the 300–700 KD CCT bandwidth. The policy effect is positive and highly statistically significant in the full sample, and remains robust when restricting the analysis to male workers, who constitute the vast majority of the sample. These findings are

TABLE 4.16: Causal Effect using Gender

Bandwidth	CCT Bandwidth (300-700)					
Gender	All		Male		Female	
Controls	Without	With	Without	With	Without	With
Coefficient	0.44***	0.45***	0.38***	0.43***	0.10	3.05***
Std. Error	0.07	0.07	0.07	0.07	0.41	0.37
p-value	0.00	0.00	0.00	0.00	0.80	0.00
95% C.I.	[0.29, 0.57]	[0.31, 0.59]	[0.21, 0.37]	[0.28, 0.56]	[-0.70, 0.90]	[2.33, 3.77]
No. of Observations.	514		500		14	

- Note: *** significant at 1%, ** significant at 5%, * significant at 10%. The main CCT bandwidth is (300-700). The controls include: age, gender, working sector, educational level, social status, family size, and occupational classification.

consistent with the main hypothesis: male workers unable to reunite with their families increased remittances, likely due to continued obligations toward family members abroad.

Among female workers, the estimates show a small and statistically insignificant effect without controls. However, once observable characteristics are included, the effect becomes large and highly significant. While this result is suggestive of strong remittance responses among affected women, it should be interpreted with caution given the extremely small sample size (n=14). It is important to note that while the effect for female workers is substantial and statistically significant, the reliability of this estimate is limited by the small number of female observations. As such, these results should be viewed as exploratory and not conclusive. Nevertheless, the direction of the effect aligns with the proposed mechanism, reinforcing the idea that exclusion from family reunification leads to higher remittance flows.

4.9 Conclusion

This study aims to analyse the economic implications of Kuwait's 2019 income-based family reunion policy, which states that immigrant workers must earn a minimum of KWD 500 per month to become eligible for sponsoring their family members. The primary objective of the study was to evaluate the impact of this restriction on the remittance behaviour of low-skilled immigrant workers. The paper contributed to the literature through four paths. First, it was the first to empirically estimate the impact of the Kuwait income-based family restriction law on remittances behaviour using RDD and Diff-in-Disc methods. Second, it shed the lights on how restrictive

immigration policies can alter economic behaviour beyond the labour market participation. Furthermore, it reinforced theories on remittances as insurance and altruistic mechanisms, especially under institutional constraints in the host country. Finally, it employed strong causal identification strategies with multiple robustness checks and heterogeneity tests to enhance the credibility and generalizability of the findings.

The hypothesis was that workers who are unable to bring their families to Kuwait due to the income restriction would increase their remittances to support dependents abroad. To test this hypothesis, the paper implemented a Regression Discontinuity Design (RDD) around the KWD 500 threshold and a Differences-in-Discontinuity (Diff-in-Disc) approach using pre-policy (2013) and post-policy (2021) data to identify both the local treatment effect and the overall causal impact respectively. These methods were supported by a series of robustness checks, including alternative bandwidths (CCT and PZMS), a placebo cut-off using 2013 data, a Difference-in-Differences (DiD) model, and a validation using aggregated visa data. Also, the paper implemented some heterogeneity tests using Arab versus non-Arab workers and males versus females to valid the main results of local average treatment effect (LATE) and causal effect respectively.

The results show that the policy significantly increased both the level and the share of remittances relative to real income for low-skilled immigrant workers just below the income threshold, compared to those just above it. These findings support the hypothesis where the inability to reunite with their families, low-skilled immigrant workers send more money home. This is mainly to meet the needs of spouses and children left behind and it suggests that the restriction induced not only a behavioural shift in remittance patterns but also a form of financial substitution for physical family presence.

This paper's findings provide significant policy insights for Kuwait and other host nations dependent on migrant labour. The uniform threshold of KWD 500 may unfairly disadvantage low-skilled immigrant workers yet economically valuable workers. More adaptable frameworks, such occupation-specific cut-off, time-based eligibility, or employer guarantees, could ease these impacts. Remittances serve as a crucial mechanism for migrant workers to address household obligations. Neglecting their role in the development of family reunification programs may lead to unintended economic consequences and increased pressure on households. If income-based restrictions persist, the government should consider policies that facilitate temporary reunification

visits, remote caregiving arrangements, or subsidized communication infrastructure. Enhanced administrative data linking income, visa issuance, and household composition would promote more accurate and equitable policies.

To conclude, this paper has demonstrated that restrictive immigration policies, even when not directly targeting remittance behaviour, can reshape the economic decisions of migrant households. In the case of Kuwait, the inability of low-skilled immigrant workers (who earn income less than KWD 500) to bring their families resulted in greater remittance outflows, reinforcing the importance of family support as a driver of migrant financial behaviour.

A host country like Kuwait continues to balance demographic pressures with labour market demands, policies should be established with a better understanding of their broader socio-economic impacts. Future research could explore longer-term consequences on savings, well-being, and return migration decisions.

Chapter 5

Conclusions

5.1 Overview

This thesis has examined critical issues in labour economics and migration policy through the lens of Kuwait's segmented labour market, where non-nationals comprise the overwhelming majority of the private sector workforce. Despite their numerical and economic significance, immigrant workers in Kuwait face structural disadvantages shaped by institutional frameworks such as the Kafala (sponsorship) system, nationality-based wage stratification, and restrictive migration policies.

The research presented here seeks to understand the effects of labour market regulations and income-based restrictions on the employment, earnings, and financial behaviours of immigrant workers. Drawing on three empirical papers, the thesis investigates in chapter 2 quantifies wage disparities between nationals and non-nationals across skill levels and nationalities using decomposition methods, Blinder 1973 & Ronald Oaxaca 1973 (BO), Brown, Moon, and Zoloth 1980 (BMZ), and Nöpo 2008 matching approach, to distinguish between explained and unexplained components of the wage gap, chapter3 the causal impact of the 2015 Employment Protection Legislation (EPL) on immigrant employment and wages using a Difference-in-Differences (DiD) approach applied to repeated cross-sectional Kuwait Labour Force Survey (KLFS) data, and

chapter 4 assesses the effect of a 2019 income-based family reunification restriction on remittance behaviour using Regression Discontinuity Design (RDD) and Difference-in-Discontinuity (Diff-in-Disc) methods with data from the Kuwait Income and Expenditure Survey (KIES).

Together, the three papers offer a coherent and empirically grounded account of how labour market regulations and migration policies shape employment outcomes, wage structures, and household financial strategies for foreign workers in Kuwait. The insights developed are both context-specific and broadly relevant to other high-income, labour-importing economies, particularly within the Gulf Cooperation Council (GCC) region.

5.2 Motivation and Contribution

The motivation for this thesis arises from the structural segmentation and institutional tensions that characterise Kuwait's labour market. In particular, the country's heavy reliance on foreign labour in the private sector coexists with restrictive legal frameworks and segmented employment conditions, creating a dualism between nationals and non-nationals. Immigrant workers often occupy low-wage, low-protection jobs under the Kafala (sponsorship) system, and are subject to regulations that limit their bargaining power, job mobility, and access to family life. Despite being the backbone of economic activity, they remain institutionally marginalised.

While these dynamics are widely acknowledged in policy, empirical research on the economic consequences of labour and migration policies in Kuwait and more broadly across the Gulf Cooperation Council (GCC) states, remains limited and under-explored. Most existing literature focuses on migration to Western or middle-income countries, often neglecting high-income, labour-importing states with distinctive regulatory regimes. As such, key questions remain unanswered: How do policy changes shape employment outcomes and wage structures for immigrant workers? What are the distributional consequences of migration controls? And how do immigrant households adapt financially in response?

This thesis seeks to address these gaps by conducting an in-depth, empirically grounded analysis of the effects of institutional change on immigrant workers in Kuwait. Its contributions are threefold. First, the thesis provides original empirical evidence on the microeconomic effects of institutional reforms in Kuwait, using nationally representative data from two key sources: the Kuwait

Labour Force Survey (KLFS) and the Kuwait Income and Expenditure Survey (KIES). The use of both individual- and household-level data allows for a comprehensive analysis across multiple dimensions of worker experience. Second, the research employs a combination of robust econometric methods tailored to each empirical question. These include decomposition techniques (BO, BMZ, and Nopo matching) for examining wage disparities across nationalities and skill levels (chapter 2); Difference-in-Differences (DiD) for evaluating employment and wage effects of the 2015 Employment Protection Legislation (EPL) (chapter 3); and Regression Discontinuity Design (RDD) and Difference-in-Discontinuity (Diff-in-Disc) for assessing the 2019 income-based family reunification restriction (chapter 4). The combination of these techniques enables credible causal inference in the absence of experimental data. Third, the thesis makes a conceptual and policy-oriented contribution by highlighting the unequal and sometimes unintended consequences of labour and migration policies in segmented labour markets. It links empirical evidence to wider debates on labour governance, wage inequality, and the socio-economic position of migrant workers, both within Kuwait and in comparable GCC economies. These findings question widely held assumptions that labour protection laws automatically improve conditions for workers, or that migration policies apply equally to all. Instead, the evidence demonstrates that such policies when implemented in a segmented labour market, can unintentionally exacerbate existing inequalities, particularly for low-income and low-skilled migrant workers.

Taken together, these contributions strengthen the evidence base on migration and labour institutions in the Gulf and provide timely insights for academics, policymakers, and international organisations concerned with labour market reform and migrant welfare.

5.3 Methodologies and Main Findings

This thesis consists of three empirical chapters, each addressing a distinct but interrelated research question concerning the economic outcomes of immigrant workers in Kuwait in response to specific policy interventions. Each paper applies an appropriate causal inference strategy, selected based on the nature of the policy, available data, and the research design required to identify the impact.

5.3.1 Chapter 2: Wage differentials between immigrants and natives in the Kuwaiti private sector

The first empirical chapter investigates wage differentials between Kuwaiti nationals and immigrant workers across three skill levels, classified according to the International Labour Organization (ILO) framework. The chapter uses three decomposition techniques, the Blinder 1973-Ronald Oaxaca 1973 (BO) method, its Brown, Moon, and Zoloth 1980 (BMZ) extension, and the Nöpo 2008 matching approach, to isolate the portion of wage gaps that can be explained by observable characteristics from that which remains unexplained.

The findings reveal that wage differentials are most pronounced among low-skilled immigrant workers, especially those from South and Southeast Asia. While part of the gap is attributable to factors such as education, occupation, and region, a substantial proportion remains unexplained suggesting the presence of nationality based discrimination, occupational segregation, or institutional barriers to wage equality.

Importantly, the structure of the unexplained wage gap varies by nationality and skill level, underscoring the stratified nature of Kuwait's labour market. The evidence shows that formal legal equality is insufficient to eliminate wage disparities where institutional segmentation and employer preferences continue to influence hiring and compensation practices.

5.3.2 Chapter 3: The Employment Protection Legislation Effect on Wages in Kuwait

The second empirical chapter evaluates the introduction of Employment Protection Legislation (EPL) in 2015, implemented by the Public Authority for Manpower (PAM), which sought to formalise private sector labour contracts, regulate termination procedures, and enhance dispute resolution mechanisms. While the reform aimed to strengthen worker protections, its real-world effects in a segmented labour market required empirical scan.

Using a Difference-in-Differences (DiD) approach applied to the Kuwait Labour Force Survey (KLFS), the paper compares trends in employment and wages for immigrant workers in the private sector (treated group) versus the public sector (control group) before and after the policy's implementation.

The findings show that the EPL reform increased the likelihood of employment among private-sector immigrant workers, suggesting that job formalisation may have encouraged hiring or reduced informality. However, this was accompanied by a decline in real wages, indicating that employers may have offset increased compliance costs by suppressing wage growth. This duality, higher employment but lower wages, highlights the complexity of introducing labour protections in settings characterised by limited enforcement capacity and asymmetric bargaining power.

These results challenge the assumption that protective legislation necessarily improves overall worker welfare. Instead, they demonstrate that in segmented labour markets, such reforms may produce uneven or even contradictory outcomes, depending on how employers adjust in response to increased regulation.

5.3.3 Chapter 4: The effect of migrant's family reunion law in Kuwait on remittances

The third empirical chapter evaluates the effects of a 2019 policy that increased the minimum income threshold for sponsoring family members to KWD 500 per month. This reform effectively excluded many low-income immigrant workers especially in low-skilled occupations from bringing their spouses or children to Kuwait.

To identify the causal effect of this policy, the paper employs a Regression Discontinuity Design (RDD) centred around the income threshold, alongside a Difference-in-Discontinuity (Diff-in-Disc) analysis using data from the 2013 and 2021 Kuwait Income and Expenditure Surveys (KIES).

The results show a significant increase in remittance flows among immigrant households just below the income cut-off, both in terms of the level and share of income remitted. This behavioural response is interpreted as a form of coping strategy where in the absence of physical family reunification, affected workers increased financial transfers to support family members who remained abroad.

Further validation is provided by administrative data, which shows a notable decline in the issuance of dependent visas for nationalities with high concentrations of low-income workers.

The findings suggest that migration restrictions based on income may achieve population management objectives, but also produce unintended social and financial consequences, particularly for lower-income migrant households.

5.4 Policy Implications

The findings across the three empirical chapters of this thesis offer direct and actionable insights for the design and implementation of labour and migration policy in Kuwait. Each study identifies specific mechanisms through which policy interventions have affected immigrant workers, and the implications of these effects for economic efficiency, equity, and institutional design.

In chapter 2, despite accounting for observable characteristics such as education, occupation, and sector, significant wage gaps persist between Kuwaiti nationals and certain groups of immigrant workers particularly those in low-skilled occupations and from South and Southeast Asia. These unexplained wage differentials likely reflect structural segmentation and nationality-based sorting within the labour market.

Wage inequality cannot be resolved through skills upgrading alone. The findings support the need for structural interventions that address discriminatory pay practices and institutional barriers to wage equality. These include establishing transparent wage setting frameworks across occupations and sectors, enforcing standardised employment contracts with clear wage entitlements, and introducing anti-discrimination measures and regular pay audits disaggregated by nationality and occupation. Such reforms would promote a more equitable and even labour market, while also improving Kuwait's international standing in labour governance.

The results of chapter 3 show that while the 2015 Employment Protection Legislation (EPL) increased the probability of employment among immigrant workers in the private sector, it also led to a decline in real wages. This trade-off suggests that the formalisation of contracts may have encouraged hiring or reduced informal employment, but that employers likely responded to increased regulatory obligations by suppressing wage growth.

EPL reforms must be accompanied by effective enforcement mechanisms. Legislation alone is insufficient without institutional capacity to monitor compliance, employers may adjust in ways that

undermine the intended protections. This finding underscores the importance of strengthening labour inspection systems, improving dispute resolution processes, and ensuring workers have accessible channels for reporting violations. Where enforcement is weak, even well-designed protections can produce counterproductive effects. Chapter 4 addressed the 2019 policy that restricted family sponsorship to workers earning over KWD 500 had a clear behavioural consequence where affected workers significantly increased their remittances, suggesting a shift in household financial strategy in response to family separation. This remittance increase imposes an additional burden on low-income workers, and administrative data confirm that the policy has led to a sharp drop in dependent visa issuance for lower-wage nationalities.

While the income threshold may support demographic or fiscal objectives, it imposes unintended financial and emotional costs on migrant households. Policy design should account for such effects and consider mitigation strategies, including offering graduated income thresholds based on occupation, skill level, or cost of living, supporting lower-cost remittance channels, exploring alternative sponsorship models that allow for partial or temporary family reunification under monitored conditions. These steps would help balance population management concerns with migrant household welfare and social stability.

Across all three studies, the evidence highlights the importance of designing policies that are not only economically rational but also administratively feasible and socially inclusive. Migrant workers form the core of Kuwait's private sector workforce, and their economic contributions cannot be disentangled from their social and financial vulnerabilities.

This thesis supports a transition towards a more inclusive, transparent, and evidence-informed labour governance framework. Policymaking should be guided by data on actual outcomes not assumptions, and should seek to minimise unintended consequences by incorporating migrant perspectives, improving enforcement, and addressing structural inequalities in the labour market.

5.5 Limitations and Future Directions

While this thesis offers a robust empirical contribution to the study of labour market policy and migration in Kuwait, it is not without limitations. These constraints reflect both data availability and scope, and they offer several promising avenues for future research. By clearly expressing

what this study could not address, this section outlines how future work can extend and deepen the evidence base on immigrant workers' outcomes in the Gulf context.

A primary limitation lies in the reliance on repeated cross-sectional data, which restricts the ability to observe individuals or households over time. Consequently, this thesis cannot capture the long-term effects of policy changes on employment trajectories, wage mobility, or remittance patterns. Future research should prioritise the construction or use of panel data, whether through administrative records or longitudinal surveys. This would allow for tracking worker transitions, persistence of inequality, and dynamic behavioural responses over time particularly following major policy reforms such as changes in employment protection or migration rules.

While the thesis identifies outcome-level effects (such as changes in wages, employment, and remittances), it does not directly observe the mechanisms or coping strategies adopted by workers in response to these shocks. For instance, how do workers adjust when faced with wage suppression or family separation? Do they change jobs, enter informal arrangements, or reconfigure household roles? Future studies could explore these questions by incorporating time-use data, qualitative interviews, or administrative labour market histories, to better understand how migrant households adapt under constrained institutional conditions. This behavioural dimension is critical for informing more responsive and humane policy design.

The thesis focuses on worker-level outcomes, but policy implementation and wage-setting are also shaped by employer decisions. Without firm-level data, it is not possible to analyse how employers respond to changes in regulation, for example, through adjustments in hiring practices, contract structures, or workforce composition. Future research should integrate establishment-level or matched employer–employee datasets, where available, to capture the demand side of the labour market and assess how firms behave in segmented systems where nationality and skill level affect wages and mobility.

The analysis in this thesis adopts a partial equilibrium framework, focusing on individual or household-level impacts. However, policy changes such as those affecting employment protections or remittances, likely generate broader macroeconomic effects, including wage compression, changes in aggregate consumption, or productivity shifts. Future research could employ structural or Computable General Equilibrium (CGE) models to simulate these economy-wide

consequences and to evaluate the net welfare effects of various policy scenarios in the Kuwaiti labour market.

The findings are specific to Kuwait's institutional context. While Kuwait shares key features with other GCC countries (e.g. labour nationalisation policies, the sponsorship system, and a reliance on low-skilled migrant labour), each country exhibits important institutional differences. Future comparative research across the GCC would enhance the external validity of the findings, allowing for the analysis of how policy effectiveness varies by institutional design, enforcement capacity, and political context. Aligning datasets throughout the region may facilitate discussions on regional labour policy.

The current analysis does not disaggregate results by gender, nor does it examine intra-household dynamics. Yet, gendered patterns in migration, remittance behaviour, and family responsibilities are highly relevant—particularly in the context of family separation and wage inequality. Future work should examine how male and female migrant workers experience policy constraints differently, including how care responsibilities, income allocation, or access to legal protections vary by gender. These dynamics are especially critical in understanding the broader welfare effects of migration restrictions.

While chapter 4 establishes that income-based restrictions increase remittance outflows, it does not analyse how these remittances are used by recipient households in origin countries. This limits the ability to assess the developmental impact of migration from a bilateral or transnational perspective. Future research could link remittance data to recipient-side outcomes, such as children's education, household investment, debt repayment, or health expenditure. Such work would offer a more broad understanding of the economic and social consequences of migration policies in both sending and receiving contexts.

This thesis provides new empirical evidence regarding the impact of labour and migration policies on immigrant workers in Kuwait and establishes a foundation for a more extensive research agenda. Future research should aim to incorporate longitudinal data, behavioural insights, employer-side analysis, macroeconomic modelling, regional comparisons, gender disaggregation, and transnational perspectives. The dimensions are critical for enhancing comprehension of labour market segmentation, policy formulation, and migrant welfare in high-income, labour-importing economies.

5.6 Concluding Remarks

This thesis offers a thorough and evidence-based analysis of the interaction between labour market institutions and migration policies in influencing economic outcomes for immigrant workers in Kuwait. The findings indicate that within a highly segmented labour market, even well-intentioned policies such as employment protection legislation and family reunification rules, can lead to unequal, unintended, or adverse outcomes when implemented in contexts marked by limited enforcement, asymmetric power dynamics, and institutional stratification.

The analysis employs robust quantitative methods and nationally representative datasets to demonstrate that labour protections can enhance employment while simultaneously applying downward pressure on wages. Wage differentials remain evident across nationalities and skill levels, even when controlling for observable characteristics. Additionally, migration restrictions modify household financial strategies, leading to increased remittance outflows as a reaction to enforced family separation. These findings enhance our comprehension of the impact of institutional design and regulatory implementation on markets and the economic realities experienced by migrant households.

These results show a challenge to policymakers where legal reform alone is not sufficient. Labour governance must be matched by effective enforcement, equitable design, and an understanding of how different groups are affected in practice. In a region where immigrant labour underpins economic growth but remains vulnerable to legal and institutional exclusion, the need for coherent, inclusive, and evidence-informed policy is more important than ever.

This thesis aims to provide empirical evidence and conceptual insights to inform policy reform in Kuwait and contribute to broader research and policymaking across high-income, labour-importing economies. The findings address fundamental questions of equity, governance, and sustainability in the management of migration and segmented labour markets.

As this thesis has demonstrated, labour and migration policies despite they were well-intentioned, they can produce uneven and sometimes counterproductive outcomes when implemented in structurally segmented labour markets. Through rigorous empirical analysis using nationally

representative data and policy-relevant econometric methods, the research advances our understanding of how institutional frameworks affect employment, wage inequality, and household financial behaviour among immigrant workers. While the analysis is grounded in the Kuwaiti context, the findings offer broader insights into the governance of migrant labour in high-income, labour-dependent economies. The thesis contributes to the academic literature on labour market dualism, migration policy, and institutional reform, and lays the groundwork for a future research agenda that deepens this evidence base. It is hoped that this work will support policymakers in designing more inclusive, evidence-based, and sustainable labour policies that recognise both the economic contributions and the social realities of migrant workers.

Appendix A

Supplementary Analysis for Chapter 2

A.1

TABLE A.1: The Economic Activities Sections according to ISIC Categories

Section	ISIC	Economic Activity:
1	01-03	Agriculture, forestry and fishing
	05-09	Mining and quarrying
2	10-33	Manufacturing
3	35	Electricity, gas, steam and air conditioning supply
	36-39	Water supply; sewerage, waste management and remediation activities
4	41-43	Construction
	45-47	Wholesale and retail trade; repair of motor vehicles and motorcycles
	49-53	Transportation and storage
5	55-56	Accommodation and food service activities
	58-63	Information and communication
	64-66	Financial and insurance activities
	68	Real estate activities
	69-75	Professional, scientific and technical activities
6	77-82	Administrative and support service activities
7	84	Public administration and defence; compulsory social security
	85	Education
	86-88	Human health and social work activities
8	90-93	Arts, entertainment and recreation
	94-96	Other service activities
	97-98	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use
	99	Activities of extraterritorial organizations and bodies

- Note: The International Standard Industrial Classification of All Economic Activities (ISIC) is the international reference classification of productive activities. Its main purpose is to provide a set of activity categories that can be utilized for the collection and reporting of statistics according to such activities.

A.2

TABLE A.2: The OLS Regression Results for Skill Level 3 & 4

VARIABLES	India		Bangladesh		Egypt		Nepal		Pakistan		Philippine	
Immigrant	-0.938***	-0.740***	-1.420***	-1.792***	-0.979***	-0.906***	-2.478***	-2.610***	-0.990***	-1.169***	-0.930***	-1.032***
	(0.001)	(0.002)	(0.007)	(0.006)	(0.001)	(0.001)	(0.026)	(0.022)	(0.003)	(0.003)	(0.003)	(0.003)
Male		0.168***		0.187***		0.150***		0.186***		0.194***		0.198***
		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)
Controls:												
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	7.070***	6.829***	7.092***	6.459***	7.050***	6.296***	7.091***	6.470***	7.089***	6.475***	7.093***	6.752***
	(0.001)	(0.015)	(0.001)	(0.018)	(0.001)	(0.015)	(0.001)	(0.018)	(0.001)	(0.018)	(0.001)	(0.016)
Observations	655,727	655,727	445,487	445,487	660,163	660,163	442,219	442,219	458,217	458,217	468,146	468,146
R-squared	0.457	0.579	0.092	0.351	0.462	0.666	0.021	0.303	0.168	0.402	0.217	0.439
VARIABLES	Other Asian		Africa		Westerian		GCC		Other Arab			
Immigrant	-0.830***	-1.058***	-1.050***	-1.053***	-0.255***	-0.359***	-0.205***	-0.231***	-0.671***	-0.773***		
	(0.004)	(0.004)	(0.014)	(0.012)	(0.004)	(0.004)	(0.004)	(0.003)	(0.001)	(0.002)		
Male		0.185***		0.186***		0.189***		0.185***		0.197***		
		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)		
Controls:												
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes		
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes		
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes		
Constant	7.091***	6.540***	7.091***	6.473***	7.090***	6.457***	7.090***	6.548***	7.086***	6.516***		
	(0.001)	(0.018)	(0.001)	(0.018)	(0.001)	(0.016)	(0.001)	(0.018)	(0.001)	(0.019)		
Observations	451,720	451,720	442,773	442,773	450,334	450,334	453,849	453,849	539,242	539,242		
R-squared	0.085	0.343	0.014	0.297	0.009	0.284	0.008	0.294	0.272	0.457		

- Note: This table presents OLS regression results with robust standard errors shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is native workers. The regressions control for human capital characteristics, including experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.2. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

A.3

TABLE A.3: The OLS Regression Results for Skill Level 2

VARIABLES	India		Bangladesh		Egypt		Nepal		Pakistan		Philippine	
Immigrant	-1.831***	-1.555***	-2.009***	-1.804***	-1.683***	-1.544***	-2.140***	-1.987***	-1.458***	-1.342***	-1.702***	-1.431***
	(0.001)	(0.003)	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)	(0.004)	(0.002)	(0.004)
Male		0.025***		0.179***		0.130***		0.204***		0.211***		0.178***
		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)
Controls:												
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	6.752***	5.738***	6.824***	6.798***	6.758***	6.503***	6.734***	6.626***	6.736***	6.118***	6.717***	6.382***
	(0.001)	(0.005)	(0.002)	(0.009)	(0.002)	(0.010)	(0.001)	(0.012)	(0.001)	(0.010)	(0.002)	(0.010)
Observations	1,241,046	1,241,046	253,133	253,133	355,034	355,034	158,755	158,755	177,029	177,029	236,550	236,550
R-squared	0.600	0.652	0.840	0.897	0.732	0.824	0.881	0.915	0.772	0.820	0.783	0.871
VARIABLES	Other Asian		Africa		Westerian		GCC		Other Arab			
Immigrant	-1.493***	-1.369***	-1.631***	-1.374***	-0.947***	-0.808***	-0.706***	-0.637***	-1.031***	-0.899***		
	(0.002)	(0.004)	(0.007)	(0.007)	(0.011)	(0.010)	(0.008)	(0.007)	(0.002)	(0.004)		
Male		0.220***		0.209***		0.215***		0.211***		0.172***		
		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)		
Controls:												
Year	Yes	Yes	Yes	Yes	Yes	Yes						
Human Capital Characteristics	No	Yes	No	Yes	No	Yes						
Geographical Area	No	Yes	No	Yes	No	Yes						
Economic Activity	No	Yes	No	Yes	No	Yes						
Constant	6.740***	6.416***	6.740***	6.541***	6.741***	6.592***	6.743***	6.543***	6.704***	6.197***		
	(0.002)	(0.011)	(0.002)	(0.045)	(0.002)	(0.045)	(0.002)	(0.047	(0.002)	(0.02)		
Observations	146,473	146,473	111,511	111,511	109,935	109,935	111,284	111,284	166,975	166,975		
R-squared	0.719	0.799	0.333	0.541	0.073	0.362	0.082	0.361	0.577	0.687		

- Note: This table presents OLS regression results with robust standard errors shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is native workers. The regressions control for human capital characteristics, including experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.2. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

A.4

TABLE A.4: The OLS Regression Results for Skill Level 1

VARIABLES	India		Bangladesh		Egypt		Nepal		Pakistan		Philippine	
Immigrant	-2.010***	-1.557***	-2.323***	-1.836***	-1.668***	-1.128***	-2.173***	-2.174***	-1.331***	-0.385***	-1.794***	-1.149***
	(0.041)	(0.033)	(0.028)	(0.021)	(0.047)	(0.042)	(0.032)	(0.043)	(0.055)	(0.056)	(0.027)	(0.032)
Male		0.173***		0.014***		-0.471***		-0.166***		-0.835***		-0.183***
		(0.002)		(0.001)		(0.072)		(0.003)		(0.084)		(0.004)
Controls:												
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	6.425***	6.071***	6.567***	6.658***	6.546***	6.572***	6.503***	7.121***	5.989***	7.030***	6.094***	6.086***
	(0.041)	(0.037)	(0.028)	(0.022)	(0.047)	(0.068)	(0.032)	(0.067)	(0.055)	(0.077)	(0.027)	(0.098)
Observations	390,892	390,892	377,588	377,588	83,812	83,812	76,334	76,334	13,751	13,751	18,524	18,524
R-squared	0.007	0.391	0.080	0.508	0.03	0.513	0.066	0.493	0.216	0.671	0.468	0.752
VARIABLES	Other Asian		Africa		Westerian		GCC		Other Arab			
Immigrant	-1.870***	-0.550***	-1.915***	-1.880***	N/A	N/A	-1.689***	-0.169***	-0.804***	-1.328***		
	(0.057)	(0.040)	(0.026)	(0.022)	N/A	N/A	(0.083)	(0.041)	(0.067)	(0.056)		
Male		0.119***		-0.157***	N/A	N/A		0.153***		0.267***		
		(0.005)		(0.008)	N/A	N/A		(0.032)		(0.082)		
Controls:												
Year	Yes	Yes	Yes	Yes	N/A	N/A	Yes	Yes	Yes	Yes		
Human Capital	No	Yes	No	Yes	N/A	N/A	No	Yes	No	Yes		
Geographical Area	No	Yes	No	Yes	N/A	N/A	No	Yes	No	Yes		
Economic Activity	No	Yes	No	Yes	N/A	N/A	No	Yes	No	Yes		
Constant	6.176***	6.099***	6.497***	7.124***	N/A	N/A	6.102***	3.431***	5.666***	5.339***		
	(0.057)	(0.061)	(0.028)	(0.033)	N/A	N/A	(0.093)	(0.331)	(0.068)	(0.080)		
Observations	17,468	17,468	1,969	1,969	127	127	487	487	6,449	6,449		
R-squared	0.129	0.804	0.732	0.969	N/A	N/A	0.557	0.989	0.324	0.827		

- Note: This table presents OLS regression results with robust standard errors shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is native workers. The regressions control for human capital characteristics, including experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.2. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

A.5

TABLE A.5: The OLS results for Skill level 3 & 4 using All GCC Countries as reference

VARIABLES	India		Bangladesh		Egypt		Nepal		Pakistan	
Immigrants	-0.933***	-0.732***	-1.415***	-1.755***	-0.973***	-0.899***	-2.473***	-2.591***	-0.984***	-1.150***
	(0.001)	(0.002)	(0.007)	(0.006)	(0.001)	(0.001)	(0.026)	(0.022)	(0.003)	(0.003)
Male		0.171***		0.189***		0.152***		0.187***		0.195***
		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)
Controls:										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	7.065***	6.863***	7.087***	6.515***	7.045***	6.355***	7.085***	6.522***	7.084***	6.527***
	(0.001)	(0.015)	(0.001)	(0.018)	(0.001)	(0.015)	(0.001)	(0.018)	(0.001)	(0.018)
Observations	667,581	667,581	457,342	457,342	672,018	672,018	454,074	454,074	470,072	470,072
R-squared	0.451	0.576	0.088	0.346	0.458	0.662	0.02	0.3	0.161	0.396
VARIABLES	Philippines		Other Asian		Africa		Westerns		Other Arab	
Immigrants	-0.925***	-1.016***	-0.825***	-1.040***	-1.044***	-1.036***	-0.250***	-0.344***	-0.665***	-0.764***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.014)	(0.012)	(0.004)	(0.004)	(0.001)	(0.002)
Male		0.200***		0.186***		0.187***		0.191***		0.198***
		(0.001)		(0.001)		(0.001)		(0.001)		(0.001)
Controls:										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	7.087***	6.793***	7.086***	6.597***	7.086***	6.525***	7.084***	6.514***	7.080***	6.549***
	(0.001)	(0.015)	(0.001)	(0.018)	(0.001)	(0.018)	(0.001)	(0.016)	(0.001)	(0.019)
Observations	480,001	480,001	463,574	463,574	454,628	454,628	462,189	462,189	551,096	551,096
R-squared	0.21	0.431	0.081	0.338	0.013	0.294	0.008	0.281	0.265	0.451

- Note: This table presents OLS regression results with robust standard errors shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is All GCC workers. The regressions control for human capital characteristics, including experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.6. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

A.6

TABLE A.6: The OLS results for Skill level 2 using All GCC Countries as reference

VARIABLES	India		Bangladesh		Egypt		Nepal		Pakistan	
Immigrant	-1.816***	-1.521***	-1.995***	-1.737***	-1.668***	-1.498***	-2.126***	-1.894***	-1.443***	-1.266***
	(0.001)	(0.003)	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)	(0.004)	(0.002)	(0.004)
Male		0.019***		0.163***		0.114***		0.186***		0.190***
		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)
Controls:										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	6.736***	5.718***	6.806***	6.779***	6.742***	6.494***	6.717***	6.674***	6.720***	6.121***
	(0.001)	(0.005)	(0.002)	(0.009)	(0.002)	(0.010)	(0.002)	(0.012)	(0.002)	(0.010)
Observations	1,243,413	1,243,413	255,500	255,500	357,401	357,401	161,122	161,122	179,396	179,396
R-squared	0.598	0.651	0.832	0.891	0.725	0.817	0.867	0.903	0.752	0.804
VARIABLES	Philippines		Other Asian		Africa		Westerns		Other Arab	
Immigrant	-1.687***	-1.349***	-1.479***	-1.298***	-1.616***	-1.284***	-0.930***	-0.748***	-1.017***	-0.842***
	(0.002)	(0.004)	(0.002)	(0.004)	(0.008)	(0.008)	(0.012)	(0.011)	(0.002)	(0.004)
Male		0.167***		0.203***		0.188***		0.194***		0.155***
		(0.002)		(0.002)		(0.002)		(0.002)		(0.002)
Controls:										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	6.701***	6.396***	6.723***	6.425***	6.723***	6.545***	6.724***	6.586***	6.688***	6.200***
	(0.002)	(0.010)	(0.002)	(0.011)	(0.002)	(0.049)	(0.002)	(0.050)	(0.002)	(0.013)
Observations	238,917	238,917	148,841	148,841	113,879	113,879	112,302	112,302	169,342	169,342
R-squared	0.772	0.862	0.695	0.78	0.292	0.503	0.062	0.342	0.55	0.666

- Note: This table presents OLS regression results with robust standard errors shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is All GCC workers. The regressions control for human capital characteristics, including experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.6. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

A.7

TABLE A.7: The OLS results for Skill level 1 using All GCC Countries as reference

VARIABLES	India		Bangladesh		Egypt		Nepal		Pakistan	
Immigrant	-0.432***	-0.348***	-0.686***	-0.429***	-0.039**	0.013	-0.562***	-0.310***	0.067***	0.291***
	(0.016)	(0.012)	(0.011)	(0.008)	(0.018)	(0.015)	(0.013)	(0.010)	(0.022)	(0.018)
Male		0.172***		0.013***		-1.603***		-0.184***		-1.417***
		(0.002)		(0.001)		(0.061)		(0.003)		(0.068)
Controls:										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Constant	4.847***	4.876***	4.929***	5.278***	4.915***	6.557***	4.890***	7.056***	4.587***	7.221***
	(0.016)	(0.021)	(0.011)	(0.012)	(0.018)	(0.068)	(0.013)	(0.070)	(0.022)	(0.076)
Observations	391,308	391,308	378,004	378,004	84,228	84,228	76,750	76,750	14,167	14,167
R-squared	0.003	0.388	0.072	0.499	0.015	0.508	0.034	0.47	0.172	0.658
VARIABLES	Philippines		Other Asian		Africa		Westerns		Other Arab	
Immigrant	-0.354***	-0.213***	-0.395***	-0.01	-0.327***	0.140***	-0.133	0.030	0.456***	-0.081***
	(0.012)	(0.010)	(0.023)	(0.012)	(0.023)	(0.007)	(0.118)	(0.037)	(0.028)	(0.031)
Male		-0.192***		0.116***		-0.171***		-0.161***		-0.913***
		(0.005)		(0.005)		(0.008)		(0.027)		(0.073)
Controls:										
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Human Capital	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Geographical Area	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Economic Activity	No	Yes	No	Yes	No	Yes	No	No	No	Yes
Constant	4.649***	5.839***	4.695***	5.723***	4.781***	7.014***	4.413***	8.132***	4.406***	5.259***
	(0.012)	(0.116)	(0.023)	(0.058)	(0.023)	(0.043)	(0.055)	(0.315)	(0.028)	(0.088)
Observations	18,941	18,941	17,884	17,884	2,385	2,385	543	543	6,865	6,865
R-squared	0.341	0.673	0.09	0.784	0.089	0.976	0.208	0.989	0.312	0.802

- Note: This table presents OLS regression results with robust standard errors shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1. All results are weighted. The reference group is All GCC workers. The regressions control for human capital characteristics, including experience and its square, marital status, educational level, and literacy skills. Definitions and summary statistics for these variables can be found in Table 2.6. The model also includes year fixed effects, economic activity dummies, and geographic area controls represented by governorate-level dummy variables (equal to 1 if the individual resides in the governorate, and 0 otherwise).

A.8

TABLE A.8: The Descriptive Statistics of Workers by Nationalities (1)

Variables	India	Bangladesh	Egypt
Dependent Variables:			
Ln Real Wage	4.983***	4.340***	5.469***
Ln Real Wage for Skilled Level 3 & 4	6.174***	5.689***	6.135***
Ln Real Wage for Skilled Level 2	4.951***	4.747***	5.095***
Ln Real Wage for Skilled Level 1	4.424***	4.172***	4.833***
Independent Variables:			
Gender & Sector:			
Male	0.888***	0.850***	0.809***
Private Sector	0.924***	0.974***	0.731***
Educational Level & Literacy Skills:			
Primary and below	0.333***	0.609***	0.125***
Secondary	0.502***	0.363***	0.225***
High school and above	0.165***	0.028***	0.650***
Read & Write in Arabic	0.009***	0.009***	0.773***
Read & Write in Any Language	0.888***	0.890***	0.200***
Can't Read or Write	0.102***	0.102***	0.028***
Experience:			
Experience	25.319***	30.723***	22.325***
Experience squared	751.752***	1023.795***	630.644***
Social status:			
Married	0.875***	0.945***	0.883***
Single	0.125***	0.055***	0.117***
Occupational classifications:			
Skilled Level 3 & 4	0.123***	0.007***	0.398***
Skilled Level 2	0.652***	0.275***	0.449***
Skilled Level 1	0.225***	0.719***	0.153***
Geographical Areas:			
Al-Ahmadi	0.662***	0.224***	0.180***
Al-Asima	0.012***	0.009***	0.014***
Al-Farwaniya	0.192***	0.632***	0.410***
Hawally	0.065***	0.017***	0.186***
Al-Jahra	0.055***	0.104***	0.178***
Mubarak Al-Kabeer	0.014***	0.013***	0.032***
Economic Activities:			
1-Agriculture, forestry, fishing ...	0.145***	0.122***	0.023***
2-Manufacturing.	0.225***	0.072***	0.147***
3-Electricity, gas, steam ...	0.217***	0.031***	0.217***
4-Construction, wholesale ...	0.084***	0.075***	0.135***
5-Accommodation and food ...	0.048***	0.027***	0.066
6-Administrative and support ...	0.100***	0.659***	0.143***
7-Public administration and defence ...	0.072***	0.006***	0.255***
8-Arts, entertainment and recreation ...	0.108***	0.007	0.013***
No. of Observations	20,481	6,376	5,294
Percent of the total	53.44	16.64	13.81
No. of Observations (skilled level 3 & 4)	1,383	42	1,388
No. of Observations (skilled level 2)	14,192	1,929	2,929
No. of Observations (skilled level 1)	4,906	4,405	977

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2015 and 2016/17. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables and they sum to 100. Skill levels are classified according to ISCO-08 and ISCO-88 classifications as in table 2.1.

A.9

TABLE A.9: The Descriptive Statistics of Workers by Nationalities (2)

Variables	Nepal	Pakistan	Philippines	Other Asian
Dependent Variables:				
Ln Real Wage	4.434***	5.383***	5.194***	5.212***
Ln Real Wage for Skilled Level 3 & 4	4.623***	6.120***	6.177***	6.278***
Ln Real Wage for Skilled Level 2	4.646***	5.323***	5.093***	5.293***
Ln Real Wage for Skilled Level 1	4.295***	4.803***	4.494***	4.441***
Independent Variables:				
Gender & Sector:				
Male	0.880***	0.946***	0.395***	0.611***
Private Sector	0.991***	0.921***	0.930***	0.920***
Educational Level & Literacy Skills:				
Primary and below	0.508***	0.345***	0.144***	0.323***
Secondary	0.469***	0.410***	0.532***	0.376***
High school and above	0.024***	0.245***	0.324***	0.301***
Read & Write in Arabic	0.003***	0.078***	0.001***	0.065***
Read & Write in Any Language	0.878***	0.862***	0.980***	0.872***
Can't Read or Write	0.119***	0.060***	0.019***	0.063***
Experience:				
Experience	23.369***	31.822***	20.719***	31.434***
Experience squared	610.355***	1,171.076***	517.619***	1,186.736***
Social status:				
Married	0.881***	0.945***	0.708***	0.855***
Single	0.119***	0.055***	0.292***	0.145***
Occupational classifications:				
Skilled Level 3 & 4	0.002***	0.166***	0.152***	0.150***
Skilled Level 2	0.395***	0.695***	0.741***	0.581***
Skilled Level 1	0.604***	0.140***	0.107***	0.269***
Geographical Areas:				
Al-Ahmadi	0.558***	0.206***	0.275***	0.298***
Al-Asima	0.000***	0.027***	0.008***	0.069***
Al-Farwaniya	0.373***	0.533***	0.215***	0.290**
Hawally	0.048***	0.085***	0.476***	0.269**
Al-Jahra	0.016***	0.139*	0.023***	0.067***
Mubarak Al-Kabeer	0.004***	0.011***	0.002***	0.007***
Economic Activities:				
1-Agriculture, forestry, fishing ...	0.052***	0.074***	0.047***	0.027***
2-Manufacturing.	0.194***	0.254***	0.129***	0.105***
3-Electricity, gas, steam ...	0.164***	0.269***	0.072***	0.130***
4-Construction, wholesale ...	0.080***	0.173***	0.094***	0.248***
5-Accommodation and food ...	0.048*	0.045***	0.425***	0.104***
6-Administrative and support ...	0.429***	0.048***	0.070***	0.235***
7-Public administration and defence ...	0.002***	0.097***	0.083***	0.089***
8-Arts, entertainment and recreation ...	0.031***	0.041***	0.081***	0.062***
No. of Observations	1,789	1,011	1,310	r554
Percent of the total	4.67	2.64	3.42	1.45
No. of Observations (skilled level 3 & 4)	5	112	188	63
No. of Observations (skilled level 2)	682	746	987	356
No. of Observations (skilled level 1)	1,102	153	135	135

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2015 and 2016/17. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables and they sum to 100. Skill levels are classified according to ISCO-08 and ISCO-88 classifications as in table 2.1.

A.10

TABLE A.10: The Descriptive Statistics of Workers by Nationalities (3)

Variables	Other African	Westerns	GCC	Other Arabs
Dependent Variables:				
Ln Real Wage	5.065***	6.722***	6.698***	6.155***
Ln Real Wage for Skilled Level 3 & 4	6.049***	6.849	6.899***	6.437***
Ln Real Wage for Skilled Level 2	5.151***	5.811***	6.063***	5.771***
Ln Real Wage for Skilled Level 1	4.544***	4.280	4.586**	5.357***
Independent Variables:				
Gender & Sector:				
Male	0.449***	0.367	0.683***	0.596***
Private Sector	0.979***	0.796***	0.193***	0.834***
Educational Level & Literacy Skills:				
Primary and below	0.282***	0.000	0.081***	0.068***
Secondary	0.543***	0.019***	0.351***	0.202***
High school and above	0.175***	0.981***	0.568***	0.729***
Read & Write in Arabic	0.093***	0.229***	0.664***	0.604***
Read & Write in Any Language	0.821***	0.741***	0.336***	0.386***
Can't Read or Write	0.087***	0.030***	0.000	0.009***
Experience:				
Experience	19.658***	20.052***	21.808***	25.166***
Experience squared	453.467**	546.744***	678.751***	816.951***
Social status:				
Married	0.843**	0.710***	0.671	0.763***
Single	0.157**	0.290***	0.329	0.237***
Occupational classifications:				
Skilled Level 3 & 4	0.148***	0.886	0.810	0.601***
Skilled Level 2	0.492***	0.108	0.162	0.359***
Skilled Level 1	0.360***	0.006***	0.028***	0.039***
Geographical Areas:				
Al-Ahmadi	0.264***	0.161	0.124***	0.083
Al-Asima	0.012*	0.065	0.039***	0.047***
Al-Farwaniya	0.406	0.032***	0.143***	0.222
Hawally	0.234	0.698***	0.034***	0.595***
Al-Jahra	0.083	0.025***	0.635***	0.049***
Mubarak Al-Kabeer	0.001***	0.019**	0.024***	0.004***
Economic Activities:				
1-Agriculture, forestry, fishing ...	0.071***	0.000	0.014***	0.011***
2-Manufacturing.	0.032	0.029	0.038	0.092***
3-Electricity, gas, steam ...	0.028	0.054***	0.012	0.130***
4-Construction, wholesale ...	0.128**	0.246***	0.063***	0.234***
5-Accommodation and food ...	0.240**	0.182***	0.058	0.163***
6-Administrative and support ...	0.468***	0.005	0.030***	0.034***
7-Public administration and defence ...	0.033***	0.475***	0.785*	0.277***
8-Arts, entertainment and recreation ...	0.000	0.009***	0.002	0.058***
No. of Observations	53	64	323	1068
Percent of the total	0.14	0.17	0.84	2.79
No. of Observations (skilled level 3 & 4)	7	54	258	526
No. of Observations (skilled level 2)	19	9	59	487
No. of Observations (skilled level 1)	27	1	6	55

- Note: *** p<0.01, ** p<0.05, * p<0.1. Data source is Kuwait Labour Force Survey (KLFS) of 2015 and 2016/17. Real monthly wage is in Kuwaiti Dinar (KWD). All independent variables reflect dummy variables and they sum to 100. Skill levels are classified according to ISCO-08 and ISCO-88 classifications as in table 2.1.

A.11

FIGURE A.1: The Density Distribution of the Ln Real Wage for Skill Level 3 and 4

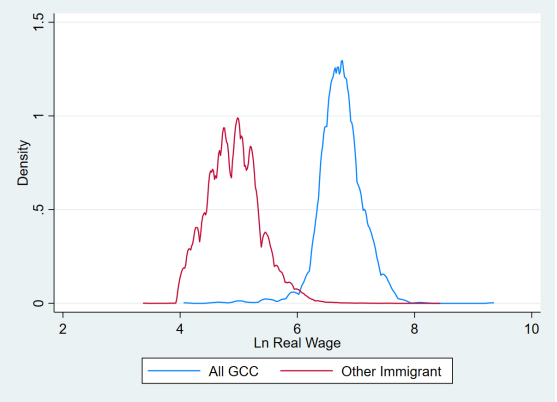


FIGURE A.2: The Density Distribution of the Ln Real Wage for Skill Level 2

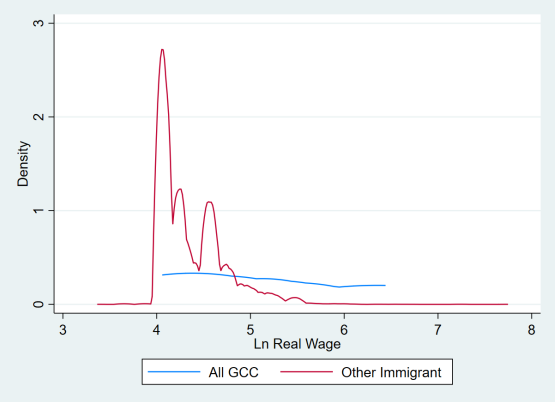


FIGURE A.3: The Density Distribution of the Ln Real Wage for Skill Level 1

Appendix B

Supplementary Analysis for Chapter 3

B.1

TABLE B.1: Chi-square (χ^2) Balancing Test Results

Variable	Before (2014)			
	New Employee		Current Employee	
	Chi-square	P-value	Chi-square	P-value
Gender:				
Male	0.29	0.59	168.57	0.00
Educational Level:				
Primary and below	0.33	0.56	135.54	0.00
Secondary	11.70	0.00	6.04	0.01
High school and above	25.10	0.00	249.09	0.00
Age Groups:				
Age group (15-24)	0.67	0.41	11.64	0.00
Age group (25-34)	3.51	0.06	10.12	0.00
Age group (35-44)	0.81	0.37	0.07	0.79
Age group (45-54)	0.80	0.37	5.75	0.02
Age group (55+)	0.85	0.36	26.65	0.00
Literacy Skill:				
Read & Write Arabic	2.92	0.09	26.77	0.00
Read & Write Any language	10.95	0.00	158.66	0.00
Can't Read or Write	5.35	0.02	34.08	0.00
Geographical Area:				
Al-Ahmadi	110.75	0.00	0.00	0.00
Al-Asima	0.12	0.72	3.97	0.05
Al-Farwaniya	15.53	0.00	98.93	0.00
Hawally	11.50	0.00	4.83	0.03
Al-Jahra	25.73	0.00	14.49	0.00
Mubarak Al-Kabeer	599.62	0.00	0.00	0.00
Economic Activity:				
1-Agriculture, forestry, ...	0.63	0.43	20.84	0.00
2-Manufacturing.	0.04	0.84	27.86	0.00
3-Electricity, gas, steam ...	9.84	0.00	98.68	0.00
4-Construction, wholesale ...	7.60	0.01	130.68	0.00
5-Accommodation & food ...	6.26	0.01	39.96	0.00
6-Administrative ...	2.85	0.09	14.10	0.00
7-Public administration ...	79.81	0.00	963.34	0.00
8-Arts, entertainment ...	6.67	0.01	10.77	0.00
Occupation Classifications:				
1- Managers, ...	1.71	0.19	9.11	0.00
2- Professionals.	15.48	0.00	264.54	0.00
3- Technicians ...	0.27	0.60	4.55	0.03
4- Clerks.	21.14	0.00	18.43	0.00
5- Service and sales ...	7.99	0.01	55.61	0.00
6- Skilled agricultural, ...	1.93	0.16	12.92	0.00
7- Craft and related trades ...	6.64	0.01	55.85	0.00
8- Plant and machine ...	0.49	0.48	19.50	0.00
9- Elementary occupations.	3.56	0.06	13.53	0.00

- Note: The data source is Kuwait Labour Force Survey (KLFS) of 2014. All variables are dummy variables and they sum to 100.

B.2

TABLE B.2: Difference-in-Difference for Real Wages of Subgroup of New Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	278.04	159.04	-119.00
Control	381.91	570.94	189.03
Diff	-103.87	-411.90	-308.03

- Note: The data source is Kuwait labour Force Survey (KLFS) of 2014 and 2016. Treated is a dummy variable =1 for workers who are affected by the law and =0 otherwise. The subgroup of workers are workers with the availability of data on economic activities and occupational classifications.

B.3

TABLE B.3: Difference-in-Difference for Ln Real Wages of Subgroup of New Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	5.39	4.81	-0.58
Control	5.71	6.00	0.29
Diff	-0.31	-1.19	-0.88

- Note: The data source is Kuwait labour Force Survey (KLFS) of 2014 and 2016. Treated is a dummy variable =1 for workers who are affected by the law and =0 otherwise. The subgroup of workers are workers with the availability of data on economic activities and occupational classifications.

B.4

TABLE B.4: OLS Regression Results for New workers with Economic Activities and Occupations

VARIABLES	Subgroup with economic act. & occupations			
	Real Wage		Ln Real Wage	
Treated	-103.866***	-52.757***	-0.314***	-0.056***
	(3.726)	(2.782)	(0.011)	(0.007)
Post	189.026***	141.147***	0.293***	0.313***
	(3.855)	(2.844)	(0.011)	(0.007)
Treated*Post	-308.030***	-162.058***	-0.877***	-0.446***
	(4.195)	(3.131)	(0.012)	(0.008)
Male		55.634***		-0.008**
		(1.287)		(0.003)
Constant	381.909***	7.906	5.707***	4.342***
	(3.378)	(5.646)	(0.010)	(0.014)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Economic Activities	No	Yes	No	Yes
Occupational Classifications	No	Yes	No	Yes
Observations	220,871	220,871	220,871	220,871
R-squared	0.189	0.656	0.225	0.761

- Note: The data source is Kuwait labour Force Survey (KLFS) of 2014 and 2016. The table represent the OLS regression results. Treated is a dummy variable =1 for workers who are affected by the law and =0 otherwise. The subgroup of workers are workers with the availability of data on economic activities and occupational classifications.

B.5

TABLE B.5: Difference-in-Difference for Real Wages of Subgroup of Current Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	333.12	196.97	-136.15
Control	563.18	555.27	-7.91
Diff	-230.06	-358.30	-128.24

- Note: The data source is Kuwait labour Force Survey (KLFS) of 2014 and 2016. The table represent the OLS regression results. Treated is a dummy variable =1 for workers who are affected by the law and =0 otherwise. The subgroup of workers are workers with the availability of data on economic activities and occupational classifications.

B.6

TABLE B.6: Difference-in-Difference for Ln Real Wages of Subgroup of Current Workers (Raw Data)

Variable	Before (2014)	After (2016)	Diff
Treated	5.51	4.95	-0.57
Control	6.15	6.06	-0.08
Diff	-0.63	-1.12	-0.48

- Note: The data source is Kuwait labour Force Survey (KLFS) of 2014 and 2016. The table represent the OLS regression results. Treated is a dummy variable =1 for workers who are affected by the law and =0 otherwise. The subgroup of workers are workers with the availability of data on economic activities and occupational classifications.

B.7

TABLE B.7: OLS Regression Results for Subgroup of Current workers with Economic Activities and Occupations

VARIABLES	Subgroup with economic act. & occupations			
	Real Wage		Ln Real Wage	
Treated	-230.058***	-105.182***	-0.633***	-0.226***
	(1.356)	(1.144)	(0.003)	(0.002)
Post	-7.914***	77.897***	-0.082***	0.113***
	(1.324)	(1.028)	(0.003)	(0.002)
Treated*Post	-128.238***	-59.168***	-0.484***	-0.131***
	(1.502)	(1.186)	(0.004)	(0.002)
Male		89.654***		0.122***
		(0.475)		(0.001)
Constant	563.180***	202.135***	6.147***	4.767***
	(1.178)	(2.212)	(0.003)	(0.004)
Controls:				
Human Capital Characteristics	No	Yes	No	Yes
Geographical Areas	No	Yes	No	Yes
Economic Activities	No	Yes	No	Yes
Occupational Classifications	No	Yes	No	Yes
Observations	2,049,018	2,049,018	2,049,018	2,049,018
R-squared	0.161	0.52	0.237	0.759

- Note: The data source is Kuwait labour Force Survey (KLFS) of 2014 and 2016. The table represent the OLS regression results. Treated is a dummy variable =1 for workers who are affected by the law and =0 otherwise. The subgroup of workers are workers with the availability of data on economic activities and occupational classifications.

Appendix C

Supplementary Analysis for Chapter 4

C.1

TABLE C.1: The Balance Table of Covariates of Bandwidth (400-600)

Variable	Below (KWD 500)		Above (KWD 500)		Difference	P-value
	Mean	SD	Mean	SD		
Real Income	457.04	34.27	557.33	26.16	100.30	0.00
Age	43.32	10.25	43.72	9.53	0.40	0.97
Male	1.99	0.11	1.98	0.15	-0.01	0.67
Married	1.08	1.08	1.08	0.27	0.00	0.96
Private Sector	1.04	1.04	1.10	0.29	0.06	0.10
Educational Levels	2.76	2.76	2.76	1.08	0.00	0.90
Family Size	1.06	1.05	1.16	0.36	0.10	0.04
Occupations Classifications	6.97	6.97	6.50	1.64	-0.47	0.08
No. of Observations.	90		50			

- Note: The data source is Kuwait Income and Expense Survey (KIES) of 2021. The tables show the balancing test for CCT bandwidth which are smaller(400-600) from the main bandwidth (350-650).

C.2

TABLE C.2: The Balance Table of Covariates of Bandwidth (300-700)

Variable	Below (KWD 500)		Above (KWD 500)		Difference	P-value
	Mean	SD	Mean	SD		
Real Income	408.6417	61.7	605.0073	51.57	196.37	0.00
Age	42.8973	9.37	42.72234	8.7	-0.17	0.76
Male	1.97432	0.16	1.960304	0.19	-0.01	0.50
Married	1.074539	0.26	1.07647	0.26	0.00	0.88
Private Sector	1.064226	0.24	1.077796	0.27	0.01	0.67
Educational Levels	2.675622	0.108	2.755905	1.11	0.08	0.59
Family Size	1.05	0.21	1.125693	0.36	0.08	0.04
Occupations Classifications	7.09	1.59	6.518209	1.58	-0.57	0.01
No. of Observations.	168		105			

- Note: The data source is Kuwait Income and Expense Survey (KIES) of 2021. The tables show the balancing test for CCT bandwidth which are wider(300-700) from the main bandwidth (350-650).

C.3

TABLE C.3: The Balance Table of Covariates of Bandwidth (350-650)

Variable	Below (KWD 500)		Above (KWD 500)		Difference	P-value
	Mean	SD	Mean	SD		
Real Income	426.80	42.95	563.78	43.87	-136.98	0.00
Age	37.38	7.49	38.47	7.21	-1.09	0.40
Male	1.98	0.12	1.97	0.18	0.01	0.46
Married	1.09	0.29	1.07	0.25	0.02	0.53
Private Sector	1.06	0.24	1.05	0.22	0.01	0.38
Educational Levels	2.53	0.94	2.39	0.96	0.14	0.38
Family Size	1.60	0.75	1.49	0.63	0.11	0.83
Occupations Classifications	6.44	1.7	6.75	1.75	-0.31	0.47
No. of Observations.	235		141			

- Note: The data source is Kuwait Income and Expense Survey (KIES) of 2013 and 2021. The tables show the balancing test for CCT bandwidth which are smaller(350-650) from the main bandwidth (300-700).

C.4

TABLE C.4: The Balance Table of Covariates of Bandwidth (250-750)

Variable	Below (KWD 500)		Above (KWD 500)		Difference	P-value
	Mean	SD	Mean	SD		
Real Income	375.77	71.91	606.57	74.76	-230.80	0.00
Age	37.63	6.99	38.11	7.11	-0.48	0.20
Male	1.98	0.14	1.96	0.20	0.02	0.32
Married	1.08	0.27	1.06	0.24	0.02	0.61
Private Sector	1.05	0.22	1.04	0.20	0.01	0.51
Educational Levels	2.36	1.02	2.43	0.99	-0.07	0.23
Family Size	1.55	0.71	1.46	0.62	0.09	0.77
Occupations Classifications	6.47	1.67	6.67	1.72	-0.20	0.25
No. of Observations.	395		229			

- Note: The data source is Kuwait Income and Expense Survey (KIES) of 2013 and 2021. The tables show the balancing test for CCT bandwidth which are wider(250-750) from the main bandwidth (300-700).

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