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Micro-Level Determinants of Informal Employment in Turkey: A Logistic Regression Analysis

Sera Yildirim Dalyan[1]*

[1]Department of Labor Economics and Industrial Relations, Faculty of Economics and Administrative Sciences, Fırat University, Elazig, Turkey.

***Corresponding Author**
E-mail: sera.yildirim@firat.edu.tr

ABSTRACT

Since the 1980s, globalization and the diffusion of neo-liberal economic policies have reshaped labor markets and employment relations, generating enduring structural shifts that continue to influence patterns of informality. Identifying the micro-level determinants of informal employment is essential for designing effective policy interventions, as informality remains both a persistent global challenge and a core concern for social welfare systems. This study investigates the influence of individual and workplace characteristics on the likelihood of informal employment in Turkey. Drawing on microdata from the Household Labour Force Survey (HLFS) conducted by TURKSTAT between 2011 and 2015, a period marked by post-crisis stability and relative structural homogeneity, a logistic regression model is employed to estimate the probability of informal work. The model incorporates fifteen variables capturing demographic attributes (gender, age, education, marital status), employment status, firm-level features, number of employees, occupational position, managerial responsibility, and the extent to which work is performed at home.

The findings reveal significant associations between informal employment and the majority of micro-level factors, with the exceptions of marital status, job search method, mode of working, job continuity, and home-based work, which do not exhibit statistically significant effects. These results provide robust empirical evidence for policymakers, highlighting which individual and workplace dynamics should be prioritized when formulating strategies to reduce informality.

Keywords: Informal employment, Informal economy, Micro determinants, Labour market, Logistic regression.

Introduction

The informal economy, and its primary component informal employment constitutes one of the persistent structural challenges undermining economic growth, social welfare, and the sustainability of social security systems. In Turkey, informality has remained one of the most enduring vulnerabilities of the labor market for decades. While macro-level factors such as unemployment, migration, urbanization, economic crises, income inequality, and weak regulatory mechanisms are frequently identified as major determinants of informality, focusing exclusively on these dimensions fails to capture the phenomenon's multidimensional nature. Informal employment is also deeply intertwined with individuals' socio-demographic attributes and the structural characteristics of their workplaces. Hence, a systematic examination of micro-level determinants is essential to uncover the root causes of informality and to formulate evidence-based, targeted policy interventions. Empirical studies conducted in Turkey indicate that informal employment is driven by both macroeconomic fluctuations and the interplay between individual characteristics and institutional structures. Demographic attributes, such as gender, age, education level, and marital status, along with workplace features including legal status, sectoral composition, and firm size, constitute the key micro-level determinants shaping the likelihood of informal work.

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The primary aim of this study is to identify the micro-level determinants of informal employment in Turkey and to analyze individuals' propensity to engage in informal work using a logistic regression model. The model was developed based on 15 micro factors encompassing both demographic and workplace-related variables. The relationships among these factors and informal employment, as well as their relative impacts, were comparatively tested using data from the Turkish Statistical Institute's HLFS across multiple years. Since the dataset excludes extraordinary shocks such as economic crises and pandemics, the findings reflect stable structural patterns rather than temporary fluctuations. The use of reliable, systematic, and comprehensive micro-level data strengthens the empirical robustness of the analysis, providing more credible insights into the underlying determinants of informal employment for both scholars and policymakers.

Literature Review

Research on informality in Turkey has historically prioritized macro-structural determinants—social, economic, financial, administrative, and legal while micro-level evidence has remained comparatively limited. The COVID-19 period renewed attention to micro determinants as insecure and flexible employment expanded (ILO, 2021). Registered firms demonstrated greater shock resilience, whereas contraction up to Q2-2021 pushed many workers into informal employment, intensifying concerns about job quality (ILO, 2022a). Youth (15–24) were disproportionately affected: in 2021, global youth unemployment reached 15.6%, informality hovered near 78%, and the risk of extreme poverty was roughly double that of adults (ILO, 2022b; OECD, 2023). Turkish evidence reflects these trends low-educated youth are concentrated in micro-enterprises and part-time low-wage jobs, often seeking secondary income sources; temporary and informal work carries a significant wage penalty, particularly for women (Duman, 2023; Görmüş, 2023). While limited segments of informality approximate formal wages, gendered care burdens and weak mobility channels keep many women in low-pay, low-protection employment (Espino & de los Santos, 2021; Arora *et al.*, 2023).

Informality continues to operate as both a coping mechanism and a vulnerability amplifier—undermining worker protection, income stability, and access to social support, especially among the young (ILO, 2022; World Bank, 2022). Rising educational attainment remains the most consistent predictor of transitions to formal work (Adejumo *et al*., 2021; Conover *et al*., 2022; Ghore *et al*., 2023; Li & Gao, 2023; Bahl & Sharma, 2024). Yet, in emerging economies, informality also perpetuates infrastructural and health deficits (Elgin *et al*., 2022; Ohnsorge & Yu, 2022). Measurement precision within HLFS data is crucial: distinguishing informal employment from wage underreporting affects interpretation (Bağır *et al*., 2023; Tunalı, 2023). Accordingly, recent studies emphasize gender-sensitive indicators, reduced response error, and improved tracking of informal subsegments (Koolwal, 2024; UN Women & TURKSTAT, 2025; WIEGO, 2025).

Persistent gender- and youth-based disadvantages in wages and job quality have continued since 2019. Minimum-wage compression narrows the lower tail of earnings but can restrict women's access to formality and increase crowding in low-wage segments (Bozdoğan, 2024; ILO, 2024; OECD, 2024a; Elitaş, 2025; UN Women & TURKSTAT, 2025; WIEGO, 2025). Sectoral segmentation—especially in agriculture, construction, and small enterprises remains central, while employment volatility shapes the probability of transitions between formal and informal work (EC, 2024; TURKSTAT, 2024; Ayhan *et al*., 2025; OECD, 2025). Comparative policy analyses highlight that integrated frameworks combining tax incentives, enforcement, and social-protection linkages accelerate formalization (ILO, 2023; ILOSTAT, 2025; World Bank, 2025). At the regional level, the composition and intensity of informality in Turkey continue to exhibit post-2017 micro-regional disparities (Şenel & Öçal, 2021; Günlük-Şenesen & Yobaş, 2025). Although informal wage premia fluctuate cyclically, OECD and BIS data confirm a persistent underreporting core within these cycles (BIS, 2023; OECD, 2024b).

International evidence reinforces that informality reflects not only macroeconomic context but also micro-attributes such as education, gender, age, sector, firm size, and legal status. In Kosovo, informal employment reached 34.6%, concentrated among men, youth, the less educated, and rural households (Gashi & Williams, 2019). A 35-country European study associates informality with lower education and family instability (Krasniqi & Williams, 2018). Across the MENA region, agricultural dominance and large public sectors sustain informality, whereas in Russia, employer status substantially reduces informal participation (Merkuryeva, 2006; Angel-Urdinola & Tanabe, 2012).

Findings from Kenya and South Africa similarly reveal women, new entrants, and low-skilled workers overrepresented in precarious segments (Beavon & Rogerson, 1986; Nattrass, 1987; McKeever, 1998; Elbadawi & Loayza, 2008; Wamuthenya, 2010). Enrolment in social-protection schemes among informal workers is likewise shaped by micro-factors such as age, education, income, institutional trust, residence, contribution rates, and firm structure (Conde *et al*., 2022).

Within Turkey, HLFS microdata confirm that informality is highest in agriculture and lowest in Central Anatolia, with structural concentration in small and micro non-agricultural firms (Güloğlu, 2005; Fidan & Genç, 2013; Şenel & Öçal, 2021). Formal-sector wage premia are substantial, and transitions to formal employment are strongly linked to higher education and large-firm affiliation, whereas exits from informality are least likely in construction and small enterprises (Özer & Biçerli, 2003; Alcan *et al*., 2015). Overall, despite temporal and regional variation, empirical evidence converges on a stable set of micro determinants education, gender, age, enterprise size/status, sector, and employment type confirming that Turkish informality remains concentrated among women, youth, and the less educated, particularly within small and micro firms outside agriculture (Toptaş, 1998; Erdut, 1999; Yüzbaşıoğlu, 2010; Şenel & Öçal, 2021).

Materials and Methods

Data Set and Variables

This study used microdata from TURKSTAT's HLFS (2011–2015) to analyze the micro-level determinants of informal employment in Turkey, a period marked by post-crisis macroeconomic stability. The dependent variable distinguishes formal from informal workers based on Social Security registration, while independent variables include demographic (gender, age, education, marital status) and workplace-related factors (firm status, size, occupation, responsibility, tenure, job search method, work type, continuity, home-based status, and sector). Using random sampling, 1,500 individuals were selected annually to ensure representativeness and enhance the robustness of the results.

Data Analysis

Logistic Regression (LR) analysis was employed to examine the impact of micro-level factors on informal employment. Given that the dependent variable employment status is dichotomous ("formal" vs. "informal"), a binary logistic regression model was deemed the most appropriate analytical approach. This method provides a robust framework for estimating the probability of informal employment based on categorical and continuous predictors. During the analytical process, multiple estimation algorithms were tested, and their residual mean squares were compared. The *Forward: Wald* algorithm was selected, as it produced the lowest error value and the most stable parameter estimates. All statistical analyses were conducted using the *SPSS for Windows 20.0* software package. The hypotheses developed for this study were constructed within the framework of individuals' demographic characteristics and workplace attributes.

Results and Discussion

In 2011, the HLFS covered 144,361 households, with 165,234 individuals responding to the question regarding their registration status with the Social Security Institution (SSI). In 2012, 145,910 households were surveyed, and 164,699 individuals provided valid responses. The corresponding figures for 2013 were 146,055 households and 164,177 respondents; for 2014, 150,057 households and 174,288 respondents; and for 2015, 149,615 households and 174,453 respondents. These statistical results confirm that each annual wave of the HLFS was conducted with a large and representative sample, ensuring both the reliability and comparability of the data used in the analysis.

Analysis and Evaluation for 2011

In 2011, a random sample of 1,501 from 165,235 respondents was analyzed; frequency distributions were used to profile micro-determinants of informality. SSI-registered workers comprised 56.4% and informal workers 43.6%; 71.8% were male, with ages concentrated at 40–54. Education: primary/middle 36.9%, secondary 17.9%, tertiary and

above 24.8; 74.7% were married. Employment was mainly in the private sector (86.4%); 55.2% worked in regular workplaces (factories/offices/stores), 27.2% in fields/gardens; firms with ≤10 employees accounted for 61.8%. Status: wage/salary 59.2%, self-employed 21.3%, unpaid family worker 14.7%, employer 4.9%; 42.1% had administrative responsibility; 30.4% began their current job in 2010–2011. Job search channels: relatives/spouse/friends 55.5%, own initiative 23.7%. Work pattern: full-time 87.3%, permanent 79.7%, home-based 4.9%. By activity, agriculture (plant/animal production) led with 25.4%, followed by retail 10.1%, public administration 7.1%, building construction 4.0%, food & beverage 3.9%, and education 3.7%.

Table 1. 2011 Logistic Regression Estimation Results

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
D1 What is your gender?	1.661	.198	70.314	1	.000*	2.194
D2 What is your age?	1.401	.441	10.090	1	.001*	.847
D3 What is your highest level of education completed?	1.661	.198	70.314	1	.000*	.668
D4 What is your marital status?	.158	.164	.924	1	.336	.854
D5 What is the status of your workplace?	1.775	.123	206.979	1	.000*	.991
D6 What is the condition of your workplace?	.845	.444	3.619	1	.037*	.429
D7 How many people are employed in this establishment or workplace?	1.243	.080	239.761	1	.000*	1.056
D8 What is your employment status at this workplace?	.856	.094	83.437	1	.000*	.425
D9 Do you have administrative responsibilities at your job?	.549	.547	1.007	1	.316	1.731
D10 When did you start working in this job/workplace?	.627	.287	4.779	1	.029*	1.873
D11 How did you find this job?	.060	.026	5.316	1	.021*	.941
D12 What is your working arrangement in this job?	.455	.159	8.196	1	.004*	1.576
D13 What is the continuity status of your job?	.085	.061	1.938	1	.164	.919
D14 Do you perform all or part of your job at home?	.204	.338	.365	1	.546	.815
D15 What is the main activity of your workplace or organization?	1.424	.256	30.832	1	.000*	4.153
Constant	.721	.282	6.530	1	.011*	.486

Significance Tests for the Logistic Model

- Omnibus Test of Model Coefficients: **Chi-Square = 402.345, p = 0.000**
- -2 Log Likelihood: **689.249**
- Cox & Snell R Square: **0.691**
- Nagelkerke R Square: **0.689**
- Hosmer and Lemeshow Test: **Chi-Square = 4.226, p = 0.358 (> 0.05)**

*Statistically significant variable at 0.05

An examination of the logistic regression results presented in **Table 1** shows that the variables *marital status*, *administrative responsibility*, *job continuity*, and *working from home* do not have a statistically significant effect on informal employment. In contrast, all other variables were found to be significant. Among these, *workplace status*, *gender*, and *education level* emerged as the most influential determinants of informal employment, while *job search method*, *work pattern*, and *year of employment* were identified as the factors with the weakest effects.

Analyses and Evaluation for 2012

From 164,695 HLFS respondents in 2012, a random sample of 1,501 was analyzed. SSI registration was 74.4% (25.6% unregistered); 71.8% were male. Ages clustered in mid-life; 59% were married. Education was overwhelmingly tertiary: 49.6% college/university and 49.9% postgraduate. Most worked in the private sector (97.1%) and in regular establishments (93.9%); firm size ≤10 employees was 35.2% and ≥50 was 23.1%. Wage/salary workers comprised 97.1%; only 14.7% had managerial duties. Job tenure peaks were 2005–2009 (36.4%) and 2010–2011 (39.8%). Jobs

were found mainly via own initiative (46.6%), relatives/friends (28.6%), and private agencies (18.5%); İŞKUR accounted for 4.5%. Full-time and permanent work dominated (94.9% and 93.2%); home-based work was rare (≤1.6%). Sectorally, retail led (13.4%), followed by education (5.9%), wholesale (5.5%), food & beverage (3.7%), health (3.5%), and food manufacturing (3.4%).

Table 2. 2012 Logistic Regression Estimation Results

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
D1. What is your gender?	2.028	.338	36.063	1	.000*	7.599
D2. What is your age?	1.175	.283	17.191	1	.000*	3.238
D3. What is your highest completed level of education?	2.091	.338	38.177	1	.000*	8.095
D4. What is your marital status?	.131	.131	1.001	1	.317	1.140
D5. What is the status of your workplace?	2.373	.328	52.287	1	.000*	10.724
D6. What is the condition/status of your workplace?	1.662	.263	39.972	1	.000*	5.269
D7. How many employees are there in this establishment/organization/workplace?	.897	.186	23.258	1	.000*	2.452
D8. What is your position in this establishment/organization/workplace?	.631	.066	90.365	1	.000*	.532
D9. Do you have administrative responsibilities in your job?	.812	.294	7.622	1	.006*	2.252
D10. When did you start working in this job/workplace?	.871	.279	9.782	1	.002*	2.390
D11. How did you find this job?	.081	.056	2.102	1	.147	1.085
D12. What is your working arrangement in this job?	.013	.274	.002	1	.961	.987
D13. What is the continuity status of your job?	.035	.055	.396	1	.529	.966
D14. Do you perform all or part of your work from home?	.723	.389	3.463	1	.063	.485
D15. What is the main activity of this establishment/organization/workplace?	1.159	.289	16.071	1	.000*	3.185
Constant	.242	.031	61.765	1	.000*	.785

Significance Tests for the Logistic Model
• Omnibus Test of Model Coefficients: Chi-Square = 561.099, p = 0.015
• –2 Log Likelihood: 784.442
• Cox & Snell R Square: 0.674
• Nagelkerke R Square: 0.702
• Hosmer and Lemeshow Test: Chi-Square = 5.842, p = 0.297 > 0.05

*Statistically significant variable at 0.05

Table 2 demonstrates that marital status, job search method, type of work, job continuity status, and working from home variables have no statistically significant effect on the dependent variable. However, all remaining micro-level factors were found to have significant effects on informal employment. Consistent with the findings from 2011, the strongest determinants were *workplace status*, *education level*, and *gender*, while the variables with the weakest effects were *main workplace activity*, *employment status*, and *administrative responsibility*. These results reinforce the conclusion that informal employment in Turkey is primarily shaped by structural workplace characteristics and socio-demographic inequalities, particularly those related to gender and education.

Analyses and Evaluation for 2013

In 2013, a random sample of 1,503 from 164,176 HLFS respondents was analyzed: 76.4% were SSI-registered, 23.6% unregistered; 71.0% male; ages concentrated at 40–49 (20.4% and 21.2%). Education was predominantly higher: 44.6% college/university, 54.4% postgraduate; 63.7% were married. Employment was mainly private sector (98.7%)

and in regular establishments (93.0); firm size ≤10 workers 35.7%, ≥50 workers 22.7%. Status: wage/salary 91.7%, self-employed 3.7%, employers 2.9%, unpaid family 1.7%; 19.9% had managerial duties. Job starts clustered in 2005–2009 (30.6%) and 2010–2011 (45.1%). Job search: own initiative 50.3%, relatives/friends 19.6%, İŞKUR 7.5%, private agencies 2.4%, other 20.3%. Full-time work was 95.5%, permanent 89.9%; home-based work was rare (1.1%). Sectorally, retail led (12.1%), followed by education (5.3%), food & beverage (3.7%), health (3.5%), and motor-vehicle/trailer manufacturing (3.1%).

Table 3. 2013 Logistic Regression Estimation Results

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
D1. What is your gender?	.301	.122	6.026	1	.014*	.740
D2. What is your age?	.244	.046	28.257	1	.000*	.784
D3. What is your highest completed level of education?	.674	.137	24.066	1	.000*	.510
D4. What is your marital status?	.037	.157	.054	1	.815	1.037
D5. What is the status of your workplace?	2.239	.311	51.881	1	.000*	.107
D6. What is the condition/status of your workplace?	.673	.126	.859	1	.041*	1.960
D7. How many employees are there in thisestablishment/organization/workplace?	.856	.195	19.359	1	.000*	2.355
D8. What is your position in this establishment/organization/workplace?	.600	.076	62.660	1	.000*	.549
D9. Do you have administrative responsibilities in your job?	1.599	.252	40.268	1	.000*	4.946
D10. When did you start working in this job/workplace?	.858	.287	8.923	1	.003*	2.359
D11. How did you find this job?	.021	.050	.172	1	.678	.980
D12. What is your working arrangement in this job?	.488	.273	3.196	1	.074	1.629
D13. What is the continuity status of your job?	.116	.058	3.996	1	.056	1.123
D14. Do you perform all or part of your work from home?	1.441	.901	2.560	1	.110	4.225
D15. What is the main activity of this establishment/organization/workplace?	1.362	.294	21.508	1	.000*	3.904
Constant	4.977	1.371	13.189	1	.000*	.007
Significance Tests for the Logistic Model						
• Omnibus Test of Model Coefficients: Chi-Square = 538.211, p = 0.000						
• –2 Log Likelihood: 653.731						
• Cox & Snell R Square: 0.714						
• Nagelkerke R Square: 0.728						
• Hosmer and Lemeshow Test: Chi-Square = 5.335, p = 0.249 > 0.05						

*Statistically significant variable at 0.05

As shown in **Table 3**, the prediction results indicate that *marital status*, *job search method*, *type of work*, *job continuity status*, and *working from home* did not exert a statistically significant effect on the dependent variable. In contrast, *workplace status*, *administrative responsibility*, and *workplace activity area* emerged as the most influential predictors of informal employment, while *age*, *gender*, and *employment status* had relatively weaker—yet still meaningful—effects. Overall, these results suggest that structural and institutional workplace characteristics continued to play a decisive role in explaining informal employment in 2013, whereas individual demographic factors had a comparatively limited impact.

Analyses and Evaluation for 2014

From 174,287 HLFS respondents in 2014, a random sample of 1,501 was analyzed: 60% were SSI-registered and 40% unregistered; 68.9% male. Ages were skewed to mid-life, led by 40–44 (41.3%). Education was predominantly tertiary (88.9% college/university, 4.5% postgraduate); 57.4% were married. Most worked in the private sector (96.4%) and

in regular establishments (84.5%); firm size ≤10 employees was 47.4% and ≥50 was 29.0%. Status: wage/salary 83.9%, self-employed 8.4%, employers 3.4%, unpaid family 4.3%; only 11.9% had managerial duties. Job starts clustered in 2010–2011 (62.8%). Job search channels: relatives/friends 33.6%, own initiative 32.7%, İŞKUR 17.2%, private agencies 16.3%. Full-time and permanent work dominated (92.1% and 82.7%); home-based work was rare (2.8%). By sector, retail led (11.1%), followed by agriculture/livestock (6.9%), building construction (5.3%), education (5.2%), food & beverage (4.6%), and wholesale (3.5%).

Table 4. 2014 Logistic Regression Estimation Results

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
D1. What is your gender?	.005	.003	3.861	1	.027	.995
D2. What is your age?	.162	.041	15.921	1	.000*	1.176
D3. What is your highest completed level of education?	1.393	.214	42.351	1	.000*	.248
D4. What is your marital status?	.055	.155	.126	1	.722	.946
D5. What is the status of your workplace?	4.213	.942	19.988	1	.000*	67.533
D6. What is the condition/status of your workplace?	1.523	.224	46.285	1	.000*	.218
D7. How many employees are there in this establishment/organization/workplace?	.403	.139	8.380	1	.004*	1.497
D8. What is your position in this establishment/organization/workplace?	.717	.066	116.911	1	.000*	.488
D9. Do you have administrative responsibilities in your job?	1.058	.160	43.936	1	.000*	2.879
D10. When did you start working in this job/workplace?	1.828	1.157	2.493	1	.114	.161
D11. How did you find this job?	.019	.042	.200	1	.655	1.019
D12. What is your working arrangement in this job?	.119	.248	.230	1	.631	.888
D13. What is the continuity status of your job?	.135	.059	5.203	1	.023*	.873
D14. Do you perform all or part of your work from home?	1.602	1.161	1.906	1	.167	.201
D15. What is the main activity of this establishment/organization/workplace?	1.093	.232	22.154	1	.000*	2.983
Constant	.953	.058	271.376	1	.000*	.385

Significance Tests for the Logistic Model

• Omnibus Test of Model Coefficients: Chi-Square = 538.211, p = 0.000

• –2 Log Likelihood: 653.731

• Cox & Snell R Square: 0.714

• Nagelkerke R Square: 0.728

• Hosmer and Lemeshow Test: Chi-Square = 5.335, p = 0.249 > 0.05

*Statistically significant variable at 0.05

According to the 2014 logistic regression results presented in **Table 4**, *marital status*, *time of starting work*, *method of finding work*, *type of work*, and *working from home* did not exert statistically significant effects on the dependent variable. In contrast, all remaining variables exhibited significant associations with informal employment. Examination of the coefficient magnitudes revealed that *workplace status*, *administrative responsibility*, and *workplace activity area* were the strongest determinants of informality, whereas *gender*, *age*, and *job continuity* had relatively weaker effects.

Analyses and Evaluation for 2015

From 174,452 HLFS respondents in 2015, a random sample of 1,507 was analyzed: 63.4% were SSI-registered (36.6% unregistered); 70.8% were male. Ages concentrated at 25–39 (15.2% 25–29; 14.1% 30–34; 15.9% 35–39); 65+ were 2.6%. Education: 41.1% college/university, 33.0% vocational HS, 11.7% elementary, 6.4% middle school, 2.9% HS,

3.5% postgraduate, 1.3% no schooling; 64.2% were married. Employment was mainly private (87.9%); 71.5% worked in regular establishments; firm size ≤10 was 51.1% and ≥50 was 29.1%. Status: wage/salary 76.6%, self-employed 12.0%, employers 5.0%, unpaid family 6.4%; 15.1% had managerial duties. Job starts clustered in 2010–2011 (56.1%) and 2005–2009 (19.8%). Job search: own initiative 47.8%, relatives/friends 20.4%, other 23.0%, private agencies 6.5%, İŞKUR 2.3%. Full-time and permanent work dominated (90.3% and 80.6%); home-based work was rare (1.7%). By sector, retail led (10.9%), followed by agriculture (10.6%), education (6.4%), food & beverage (5.0%), and public administration/social security (5.0%).

Table 5. 2015 Logistic Regression Estimation Results

Variable	B	S.E.	Wald	df	Sig.	Exp(B)
D1. What is your gender?	.792	.305	6.744	1	.009*	.453
D2. What is your age?	.162	.041	15.365	1	.000*	1.176
D3. What is your highest completed level of education?	.544	.058	87.518	1	.000*	1.722
D4. What is your marital status?	.500	.163	9.363	1	.002*	.607
D5. What is the status of your workplace?	1.975	.334	35.063	1	.000*	.139
D6. What is the condition/status of your workplace?	1.327	.357	13.796	1	.000*	.265
D7. How many employees are there in this establishment/organization/workplace?	.965	.057	287.197	1	.000*	.381
D8. What is your position in this establishment/organization/workplace?	.807	.069	136.022	1	.000*	.446
D9. Do you have administrative responsibilities in your job?	.423	.094	20.094	1	.000*	1.526
D10. When did you start working in this job/workplace?	.405	.209	3.741	1	.033*	1.499
D11. How did you find this job?	.053	.031	2.878	1	.090	1.054
D12. What is your working arrangement in this job?	.248	.203	1.488	1	.223	1.281
D13. What is the continuity status of your job?	.083	.046	3.290	1	.070	1.086
D14. Do you perform all or part of your work from home?	.076	.196	.151	1	.698	1.079
D15. What is the main activity of this establishment/organization/workplace?	1.650	.201	67.504	1	.000*	5.205
Constant	1.641	.190	74.273	1	.000*	5.158
Significance Tests for the Logistic Model						
• Omnibus Test of Model Coefficients: Chi-Square = 645.013, p = 0.001						
• –2 Log Likelihood: 671.558						
• Cox & Snell R Square: 0.708						
• Nagelkerke R Square: 0.715						
• Hosmer and Lemeshow Test: Chi-Square = 6.112, p = 0.346 > 0.05						

*Statistically significant variable at 0.05

According to the results presented in **Table 5**, the logistic regression results indicate that job search method, work pattern, job continuity, and working from home do not have statistically significant effects on the dependent variable. In contrast, all remaining variables display significant associations with informal employment. When examining the magnitude of the coefficients, the strongest predictors are identified as *workplace status*, *main workplace activity*, and *workplace condition*, while the weakest effects are observed in *age*, *administrative responsibility*, and *time of starting work*.

When the estimation results of the logistic regression analyses conducted between 2011 and 2015 are evaluated holistically, it becomes evident that the statistically insignificant variables remain largely consistent across years. In particular, *marital status (D4)*, *job search method (D11)*, *type of work (D12)*, *job continuity (D13)*, and *whether the job is performed entirely or partially at home (D14)* consistently exhibited no significant effect on the dependent variable. This finding suggests that individual preferences or micro-level variations in employment patterns play only a limited role in explaining informal employment.

In contrast, variables that demonstrated statistically strong and consistent effects throughout the five years include *workplace status (D5)*, *gender (D1)*, *education level (D3)*, *age (D2)*, *number of employees (D7)*, and *main workplace activity (D15)*. These variables also stand out as the most decisive factors in terms of coefficient magnitude. Institutional features such as workplace status and activity area exert a stronger influence on informal employment than demographic attributes, yet the distribution of significant factors reflects a structural balance between demographic (gender, age, education) and workplace-based (status, firm size, sector) determinants.

The limited significance of certain variables in specific years such as *administrative responsibility (D9)* in 2011 and *time of starting work (D10)* in 2014 can be attributed to sample representation limitations rather than structural irrelevance. Accordingly, the lack of statistical significance for these variables reflects period-specific sample distributions rather than a genuine absence of effect. Moreover, because the 2011–2015 period predates the widespread diffusion of platform and remote work, the nonsignificance of D12–D14 is theoretically consistent. As emphasized by Erdut (1999), although flexible forms of employment can theoretically increase informality due to monitoring challenges, such effects may not have been observable in this pre-pandemic context.

The results align closely with both international and Turkey-specific literature. Comparative studies demonstrate that informality is persistently associated with individual characteristics education, gender, and age as well as workplace context sector, firm size, and institutional status. Relevant examples include Gashi and Williams (2019) for Kosovo; Krasniqi and Williams (2018) for 35 European countries; Angel-Urdinola and Tanabe (2012) for the MENA region; Merkuryeva (2006) for Russia; and Wamuthenya (2010), Nattrass (1987), and Beavon and Rogerson (1986) for Kenya and South Africa. In the Turkish context, Şenel and Öçal (2021) found informality concentrated in agriculture; Güloğlu (2005) observed similar patterns in manufacturing; and Alcan, Can and Pektaş (2015) highlighted that transitions to formal employment are more likely in large firms (50+) but less likely in construction. The prominence of *workplace status (D5)* and *number of employees (D7)* in this study mirrors findings by Angel-Urdinola and Tanabe on the public–private distinction and by Fidan and Genç (2013), who reported exponentially higher informality in firms employing 1–9 workers. The persistent significance of *main workplace activity (D15)* also aligns with studies showing high informality in agriculture and construction and lower rates in corporate services (Güloğlu, 2005; Şenel & Öçal, 2021). From a demographic standpoint, the negative association between education and informality (Toptaş, 1998; Yüzbaşıoğlu, 2010) and gender disparities in informal employment (Nattrass, 1987; McKeever, 1998; Özer & Biçerli, 2003; Wamuthenya, 2010) corroborate the significance of *D3* and *D1* in this model. The overrepresentation of women and less-educated individuals in informal employment further supports the direction and strength of these coefficients. Similarly, the significance of *age (D2)* is consistent with previous findings indicating that "informality is highest at the younger and older age extremes" (Fidan & Genç, 2013). The significant relationship between employment status and informality—captured indirectly here through *D5*, *D7*, and *D15*—is in line with Merkuryeva's (2006) finding that business ownership reduces informality, and Alcan *et al*. (2015), who emphasize transitions to formality within large firms.

The consistent insignificance of *marital status (D4)* across years aligns with mixed evidence in the literature: while some studies suggest that married individuals' access to spousal social security reduces informality, others find a higher risk among single individuals. This suggests that the effect of marital status may be mediated by education or income channels. Similarly, the inconsistent results for *job search method (D11)*, *work type (D12)*, and *job continuity (D13)* reflect their limited and heterogeneous representation in the dataset during the 2011–2015 period. Underrepresentation of home-based work (D14) is likewise expected, given that flexible or remote forms of employment only became widespread after the pandemic, preventing measurable effects in this cross-sectional context.

In summary, the 2011–2015 findings clearly demonstrate that the structural micro-determinants of informal employment—education, gender, age, firm size, workplace status, and activity—remain stable over time. The observed pattern is consistent with both international and national evidence, and the multi-year comparative design of this study contributes to the literature by revealing not only year-specific relationships but also the persistence of these determinants. From a policy perspective, enhancing formalization through targeted strategies for small and micro-enterprises, high-risk sectors (agriculture, construction), and vulnerable groups (the less educated, women, and youth)

is critical. Designing training, monitoring, and incentive mechanisms that integrate firm size, workplace status, and sectoral characteristics will strengthen the effectiveness of formalization policies.

Conclusion

The informal economy and its most critical component, informal employment, have emerged as a structural issue of global concern since the last quarter of the twentieth century, affecting both developed and developing economies. While the causes of informality are often explained by macro-level social, economic, and legal factors, its persistence is equally rooted in micro-level determinants such as workers' demographic characteristics and workplace structures. In Turkey, informal employment cannot be attributed to a single cause; rather, it reflects a complex interplay of unemployment, labor market rigidities, income and tax inequality, poverty, migration and unplanned urbanization, low human capital quality, the dominance of small enterprises, and deficiencies in inspection and enforcement systems. Despite a range of institutional and legal reforms implemented in Turkey since the early 2000s, informal employment remained as high as 31% in 2023—demonstrating the entrenched, structural nature of the problem and the need for sustained policy action.

Using microdata from TURKSTAT's HLFS (2011–2015), this study identified key micro-level determinants of informal employment through logistic regression analysis. Workplace status, gender, education, age, firm size, and sector emerged as significant predictors, while marital status, job search method, work pattern, job continuity, and home-based work were statistically insignificant.

The insignificance of marital status suggests that education mediates its effect on informality, as higher educational attainment increases awareness of social security obligations. Similarly, the non-significance of home-based and part-time work likely reflects their limited representation in the dataset, although global evidence links flexible employment to rising informality under neoliberal reforms. Workplace status and firm size remain the strongest predictors, highlighting the vulnerability of small enterprises operating outside formal oversight. Gender and age effects further reveal structural inequalities, with women, youth, and older workers disproportionately engaged in informal employment. These findings emphasize the need for education-focused and group-specific policy interventions to mitigate informality.

In summary, the most influential determinants of informal employment between 2011 and 2015 were *workplace status*, *gender*, *education*, *age*, *number of employees*, and *main workplace activity*. Based on these findings, four priority policy domains are identified for tackling informal employment: (i) strengthening inspections and sanctions, (ii) raising the level of education and increasing social security awareness, (iii) reducing the financial burden on employment, and (iv) implementing targeted programs for women, young people, and older workers. Such a comprehensive approach will contribute to transforming not only the short-term fluctuations of informal employment but also its structural dynamics.

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