Immigration and Labor Market Mobility in Israel, 1990 to 2009

Sarit Cohen Goldner, Zvi Eckstein, and Yoram Weiss
## Contents

1  **Introduction**  
   1.1  Introduction  
   1.2  Background  
   1.3  Description of the Chapters  
   1.4  Lessons  

2  **The Aggregate Macroeconomic Impact of a Large Inflow of Immigrants**  
   2.1  Introduction  
   2.2  Natives and Immigrants in the Labor Market  
   2.3  The Capital-Labor Ratio—Trends and Adjustment  
   2.4  An Open-Economy Equilibrium Model with Adjustment Costs  
      2.4.1  Model Specification  
      2.4.2  Calibration  
      2.4.3  Simulations  
      2.4.4  Related Literature  
   2.5  Immigration and GNP Growth: A Puzzle?  
   2.6  Summary  
   Appendix: Quality-Adjusted Labor  

3  **On the Wage Growth of Immigrants**  
   3.1  Introduction  
   3.2  A Model for Immigrant Earning Equations  
   3.3  The Empirical Earning Function  
   3.4  Data  
   3.5  Estimation Results  
      3.5.1  Results for Natives  
      3.5.2  Results for Immigrants  
   3.6  Decomposition of Wage Growth  
   3.7  Occupational Transitions  
   3.8  Convergence of Wages  
      3.8.1  Convergence of Residual Distributions  
      3.8.2  Convergence of Average Wages  
   3.9  Summary  

4  **Immigrants' Choice of Employment, Occupation, and Human Capital: Dynamic Stochastic Empirical Models**  
   4.1  Introduction  
   4.2  The Data  
      4.2.1  (A) Females  
      4.2.2  (B) Males  
   4.3  Model Specifications  
      4.3.1  (A) Females  
      4.3.2  (B) Males  
   4.4  Solution and Estimation Methods  
      4.4.1  Solution  
      4.4.2  Estimation Method  
      4.4.3  Identification  
   4.5  Results  
      4.5.1  The Model's Fit
4.5.2 Estimated Parameters

4.6 Policy Analysis: Training
4.6.1 (A) Females
4.6.2 (B) Males
4.6.3 Summary

4.7 Verification of the Model: Out-of-Sample Predictions
4.7.1 Out-of-Sample Predictions
4.7.2 Aggregate Trends
4.7.3 High-Skilled Immigrants
4.7.4 Summary

4.8 The Value of Immigrating to Israel

4.9 Concluding Remarks

5 Job Search and the Loss of Skills
5.1 Introduction
5.2 Data
5.3 The Model
5.4 Implementation of the Model
5.5 Results
5.5.1 Wages
5.5.2 Nonmonetary Returns
5.5.3 Job-Offer and Job-Termination Probabilities
5.5.4 Choice Probabilities and Types
5.6 The Model's Fit
5.7 Loss of Human Capital
5.8 Summary

Appendix: Supplementary Tables

6 The Joint Choice of Residential Location and Employment by Immigrants
6.1 Introduction
6.2 The Theoretical Model
6.2.1 The Housing Market
6.2.2 Production Technology
6.2.3 The Labor Market
6.2.4 Wages
6.2.5 Job-Offer Probabilities
6.2.6 Job Search
6.2.7 Utility
6.2.8 The Immigrant's Problem
6.2.9 The Model's Predictions
6.3 Model Specification
6.3.1 The Value Function
6.3.2 The Wage Function
6.3.3 Areas of Residence, Occupations and Job Search
6.3.4 Job-Offer Probabilities
6.3.5 The Immigrant's Choice on Arrival in Israel
6.4 Estimation and Identification
6.5 Data
6.6 Results
6.6.1 Wage Parameters
6.6.2 Job-Offer Probability Parameters
6.6.3 Weight of the Monetary Component in Immigrants' Choices
6.6.4 The Probability of Search on Each Path
6.6.5 Nonemployment
6.6.6 Distribution of Immigrants by Area of Residence and Occupation
6.6.7 The Probability of Moving between Areas of Residence and Occupations
6.6.8 Utilization of the Immigrants' Human Capital in Israel
6.7 Comparison of the Model's Prediction to Other Data Sources
6.8 Conclusions
Appendix A: Supplementary Model for Estimating the Wage Premium and Rate of Promotion
Appendix B: Supplementary Tables

7 Immigrants from the FSU after Twenty Years in Israel: Evidence and Interpretation
7.1 Introduction
7.2 Employment, Occupations, and Wages
7.3 Social Indicators
    7.3.1 Housing
    7.3.2 Marriage Patterns
7.4 Return Migration and Out-Migration
7.5 Concluding Remarks
List of Tables

2.1 Immigrants from FSU by year of immigration and occupation in the FSU
2.2 Annual growth rates of population, production, and capital, 1922 to 2001
2.3 Labor force participation rates among native Israelis and immigrants, 1990 to 2000
2.4 Unemployment rates among native Israelis and immigrants, 1990 to 2000
2.5 Average growth rate of the real wage for natives and immigrants
3.1 Occupation, schooling, and experience of male native Israelis and immigrants who arrived in 1990-91
3.2 Monthly wages of male immigrants by schooling and years since arrival in Israel, 1991 to 2000
3.3 Occupational distribution of male immigrants, 1991 to 2000
3.4 Monthly wages of male immigrants and natives by work experience in Israel, 1991 to 2000
3.6 Nonlinear least squares estimation of the wage equation for male natives, 1991 to 2000
3.7 Nonlinear least squares estimation of the wage equation for male immigrants, 1991 to 2000
3.8 Components of annual wage growth rates during 1991 to 2000 and 1991 to 1995 (percent)
4.1A Summary statistics—Females
4.1B Summary statistics—Males
4.2A Actual quarterly transitions—Females
4.2B Actual quarterly transitions—Males
4.3A OLS estimation of wage equation—Females
4.3B OLS estimation of wage equation—Males
4.4A Predicted transitions—Females
4.4B Predicted transitions—Males
4.5A Actual and predicted accepted wages by quarters since arrival, experience, and participation in a training course—Females
4.5B Actual and predicted accepted wages by quarters since arrival and participation in a training course—Males
4.6A Estimated occupation-specific wage and job-offer probability parameters—Females
4.6B Estimated occupation-specific wage and job-offer probability parameters—Males
4.7A Estimated job-offer probabilities—Females
4.7B Estimated job- and training-offer probabilities—Males
4.8A Estimated parameters—Females
4.8B Estimated parameters—Males
4.9 Estimated job-offer probabilities from nonemployment or training by type—Males
4.10 Predicted transitions by type (%)—Males
4.11 Effect of policy experiments on labor market outcomes—Females
4.12 Effect of policy experiments on average accepted wages—Females
4.13 Cost-benefit analysis of the policy experiments—Females
4.14 Effect of policy experiments on average accepted wages and nonemployment during the 4th and 5th years following arrival—Males
4.15 Annual effect of training availability on average accepted wages—Males
4.16 Cost-benefit analysis of the policy experiments—Males
4.17 Summary statistics for the four samples—Females
4.18 Actual and predicted choice distribution during the ten-year period following arrival—comparison between the Labor Force Survey and the unconditional prediction of the model—Females
4.19 Actual and predicted choice distribution during the ten-year period following arrival—Engineers' Survey—Females
4.20A Value of immigrating to Israel—Females
4.20B Value of immigrating to Israel—Males
5.1 First occupation in Israel by occupation in the FSU
5.2 Occupational distribution in Israel by year since arrival
5.3 Average minimal schooling requirements of jobs held by immigrants by year since arrival and schooling acquired in the FSU
5.4 Average monthly reported wages of immigrants by occupation and years since arrival
5.5 Monthly wage OLS regression and knowledge of Hebrew logit regression
5.6 Estimated monthly job-offer probabilities by current occupation and type
5.7 Predicted occupational distribution by type (percent, selected months)
5.8 Actual and predicted monthly transitions, months 1 to 71
5.9 Actual and predicted monthly wages by occupation, job, and type
5.10 Predicted wage growth of stayers and movers within and across occupations
5.11 Occupational choice distribution of immigrants who worked in occupation 1 in the FSU, by age on arrival
5.12 Discounted present value of lifetime earnings loss
5.A1 Sample means and standard deviations
5.A2 Distribution of completed schooling and minimal schooling requirements, by occupation
5.A3 Maximum likelihood estimates and asymptotic t-values
5.A4 Wage regressions for out-of-sample predictions
6.1 Distribution of immigrants by occupation in the FSU and in Israel and by area of residence in Israel
6.2 Distribution of choices by area of residence in Israel
6.3 Predicted and actual wages
6.4 Estimated job-offer probabilities while nonemployed
6.5 Probabilities of choosing areas of residence and type of employment
6.6 Monthly probability of finding employment by first occupation and area of residence in Israel
6.7 Actual and predicted distribution of first area of residence and first type of employment in Israel (number of immigrants)
6.8 Proportion of immigrants who changed area of residence
6.9 Simulated probabilities of choosing the various paths and changing area of residence and occupation, assuming 1995 housing costs
6.10 Expected wage loss as a percentage of the potential wage in Israel for each path
6.11 Expected wage loss as a percentage of the potential wage in Israel for each path, assuming 1995 housing costs
6.12 Simulated effect of rent subsidization in the Periphery on wage loss
6.A1 Distribution of immigrants who arrived from the FSU during 1990 to 1992 by occupation
6.A2 Classification of cities by area—Center and Periphery
6.A3 Distribution of Israeli men by occupation and their job's required years of schooling (1991)
6.A4 Estimated parameters
7.1 Social integration indicators in 2008
7.2 Distribution of FSU immigrants who arrived during the period 1989 to 2000, by place of residence in 2000
7.3 Spouses of immigrants who married in Israel, 1992 to 2009
7.4 Sex ratio (females/males) in 1992
7.5 Survival rates as of 2004: FSU immigrants who arrived during 1990-91, conditional on staying in Israel until 1995
7.6 Average schooling of stayers and movers among FSU immigrants who arrived during 1990-91, as of 2004
List of Figures

2.1 Growth rates of population and per capita GNP
2.2 Adjusted and unadjusted capital-labor ratios
2.3 Return on capital (percent)
2.4 Ratio of gross investment to capital stock
2.5 Total direct foreign investment in Israel ($millions in current prices)
2.6 Ratio of current account deficit to GDP
2.7 Simulated response to labor endowment shock (deviation from steady state)
2.8 Simulated response to labor endowment shock under various assumptions for capital adjustment costs (deviation from steady state)
3.1 Predicted proportion of male workers with 16+ years of schooling employed in occupation 1
3.2 Simulated wage-age profiles for native and immigrant males
3.3 Residual distributions for natives and immigrants with five or fewer years of experience
3.4 Residual distributions for natives and immigrants with six or more years of experience
3.5 Simulated wage-age profiles averaged over occupations for native and immigrant males
4.1 Actual choice distributions
4.2 Predicted choice distributions
4.3 Predicted unconditional choice distributions
4.4 Actual and predicted choice distributions during the ten-year period following arrival
5.1 Acceptance probabilities by years of schooling and minimal job requirements
5.2 Actual and predicted proportion of immigrants
5.3 Actual and predicted monthly transition probabilities
5.4 Simulated actual and potential annual earnings
7.1 Labor market integration of immigrants, repeated cross-sectional data
7.2 Unemployment rate of immigrants
7.3 Unemployment rate by schooling
7.4 Workers in WC jobs
7.5 Workers in WC jobs by schooling
7.6 Log hourly wages by schooling
7.7 Variance of log hourly wages by schooling
7.8 Log hourly wages by occupation
7.9 Variance of log hourly wages by occupation
7.10 Marital status of immigrants and natives
7.11 Marital status of immigrants, 1989 to 1991 cohorts