METHODOLOGY OF UNI-VERI

Objective and Definition: Presidency of the Republic of Turkey Human Resources Office has implemented the UNI-VERI for the first time in 2019. It aims to evaluate the performance of the higher education system in the labor market and to guide policy recommendations to strengthen the structure of human capital in Turkey. Comprehensive micro data sets are used by matching the university graduate information obtained from the Council of Higher Education with the employee information from the Social Security Institution (SSI). These micro data sets are analyzed using various statistical methods and modern tools provided by data science. In this regard, the labor market performances of the university graduates are evaluated based on "departments" and presented to the use of professionals and students who will choose a university or professions.

Data Structure: This study was carried out using the information of students who graduated from a 4-year program between 2014 and 2019. Graduates of online faculties[1] of universities and over the age of 35 are not included in the analysis. In the first stage, the departments were grouped based on their curriculum and reduced to 81 different departments in ANNEX 1. The details of department classifications can be found in ANNEX 2. In order to ensure statistical reliability, university-department combinations which have at least 20 employed graduates were included in the analysis. Graduates who found a job up to 6 months before graduation were included in the analysis, provided that they did not quit the job before graduation. In the next stage, the labor market performances of the graduates of the departments after graduation were calculated using six basic indicators detailed below and reported in a way to allow comparisons based on departments.

Indicators: Analysis results of the six indicators are shown as scatter charts in UNI-VERI. Purpose of the charts is to present the performance of the graduates from the related departments for the indicators. 6 indicators included to analysis are listed below:

1. **Entry Level Wage Distribution:** To calculate the entry-level wage distribution, reported wages of the graduates in their first job are divided into wage bins, starting from the "4250 ₺- 5999 ₺". The highest group is defined as "10,000 ₺ and above". Unemployed graduates are not included in the analysis. Reported wages are adjusted for inflation and expressed in terms of 2021 prices. It should be noted that the wage data includes the earnings reported by the firms and this may cause a bias on average wages.

2. **Duration Until First Employment:** It measures the length of time between graduation and the first job based on departments. A college student who finds a job before graduation is also included in the study if they did not quit the job before graduation. In charts, the period of finding a job up to 6 months before graduation is shown as "Before Graduation".

---

[1] The graduates of online faculties of universities is excluded from the analysis since it extensively covers those who already work in a job and/or aim to have more than one university degree.

3. **Skill Mismatch:** It occurs when the jobs require fewer or higher qualifications compared to employee's education level. This indicator constructed using the graduates' level of education and employment data. The required skill for a given job and education level are matched using International Standard Classification of Occupation (ISCO) and skill set classification of the International Labor Organization (ILO). This indicator shows whether the graduates work in suitable jobs for their qualifications. If the skill mismatch value is close to 0 or equal to 0, it indicates that the graduates are employed in suitable jobs for their qualifications. The value approaching 3 indicates that the graduate is working in a job which requires much less qualifications than he/she has. The detailed technical explanations about the skill mismatch indicator can be found in ANNEX 3. Skill mismatch was examined and reported in four groups. The group in which the qualification mismatch is equal to 0 is defined as "No Mismatch", the group with qualification mismatch that is equal to 1 as "Low Mismatch", the group with qualification mismatch that is equal to 2 as "Mid-Level Mismatch" and the group with qualification mismatch that is equal to 3 as "High Mismatch". The skill mismatch indicator presents statistics based on graduates' observable and recorded education level and minimum qualification requirement for a given job. It should be noted that the administrative data can't evaluate the graduates' soft and cognitive skills and qualifications required by the department they selected or job they employed.

4. **Employment in Public Sector:** It shows the graduates' public sector employment rate, including public employees and servants. The public-private sector distinction is determined according to the type of insurance information in SSI data.

5. **Sectoral Distribution:** It shows the graduates' distribution of employment by the sector where the sectors are classified using NACE.

6. **Firm Size:** It shows the graduates' distribution of employment by the firm size. Firm size is determined using the conventional definitions of MSMEs.

ANNEX 1: DEPARTMENS

Agriculture	International Trade
Aircraft Engineering	Islamic Sciences
Anthropology	Labor Economics
Aquaculture	Law
Archaeology	Manufacturing Engineering
Architecture	Marine Engineering
Audiology	Material Engineering
Automotive Engineering	Mathematics
Banking And Insurance	Mathematics Teaching
Bioengineering	Mechanical Engineering
Biology	Medicine
Business Management	Mining Engineering
Chemical Engineering	Nursing
Chemistry	Nutrition And Dietetics
Child Development	Petroleum Engineering
Civil Engineering	Pharmacy
Communication	Philosophy
Computer And Instructional Technologies Teaching	Physics
Computer Engineering	Physics, Chemistry and Biology Teaching
Conservatory	Physiotherapy
Dentistry	Pilotage
Econometrics	Political Science, Public Administration and International Relations
Economics	Preschool Teaching
Education	Primary School Teaching
Electrical And Electronic Engineering	Psychological Counseling And Guidance
Environmental Engineering	Psychology
Fine Arts	Public Finance
Food Engineering	Science Teaching
Foreign Languages	Social Sciences Teaching
Forest Engineering	Social Services

Geography	Sociology
Geological Engineering	Sport Sciences
Geomatics Engineering	Statistics
Geophysical Engineering	Technical Education
Health Care Management	Textile Engineering
Health Care Services	Tourism
Health Management	Turkish Language and Literature
History	Turkish Language Teaching
Industrial Design	Urban and Landscape Design
Industrial Engineering	Veterinary Medicine
Interior Architecture	

ANNEX 2: DEPARTMENT CLASSIFICATION

AERONAUTICAL ENGINEERING	·Aerospace Engineering ·Aeronautical Engineering ·Aircraft and Aerospace Engineering ·Meteorological Engineering
AGRICULTURE	·Agricultural Economics ·Agricultural Engineering ·Agricultural Genetic Engineering ·Agricultural Structures and Irrigation ·Agricultural Machinery and Technologies ·Agricultural Technology ·Dairy Technology ·Field Crops ·Herbal Production and Technologies ·Animal Production ·Horticulture ·Nutrient Technology· Organic Agriculture ·Poultry Farming ·Soil Science and Plant Nutrition ·Tobacco Expertise ·Wildlife Ecology ·Zoology
ANTHROPOLOGY	·Anthropology ·Ethnology ·Folklore ·Social Anthropology ·Turkish Folklore
AQUACULTURE	·Aquaculture ·Aquaculture Engineering ·Aquatic Sciences and Engineering ·Fisheries Technology ·Fisheries Technology Engineering
ARCHEOLOGY	· Archeology · Archeology and Art History ·Classical Archeology ·Conservation and Restoration of Cultural Properties ·Museology ·Prehistoria ·Protohistoria and Near Eastern Archeology ·Prehistoric Archeology · Conservation And Restoration Of Movable Cultural Heritage ·Turkish-Islamic Archeology
ARCHITECTURE	·Architecture
AUDIOLOGY	·Audiology
AUTOMOTIVE ENGINEERING	·Automotive Engineering ·Rail Systems Engineering ·Transportation Engineering
BANKING AND INSURANCE	·Banking ·Banking and Finance ·Banking and Insurance ·Capital Market and Portfolio Management ·Capital Markets ·Capital Market Auditing and Rating ·Insurance ·Insurance and Risk Management · Insurance and Social Security

BIOENGINEERING	·Bioengineering ·Bioinformatics and Genetics · Biomedical Engineering ·Biosystems Engineering ·Biotechnology ·Biotechnology and Molecular Biology · Genetics and Bioinformatics · Genetics and Bioengineering ·Molecular Biology and Genetics ·Molecular Biology, Genetics and Bioengineering ·Medical Engineering
BIOLOGY	·Biology
BUSINESS MANAGEMENT	·Family and Consumer Sciences · Information and Records Management · Maritime Business Management ·Energy Management · Real Estate and Asset Valuation ·Entrepreneurship · Aviation Management ·Human Resources Management ·Business Information Management ·Business Management ·Library Science ·Accounting ·Accounting Information Systems ·Accounting and Auditing · Accounting and Finance Management ·Accounting and Financial Management · Gastronomy Management ·Marketing ·Arts and Culture Management ·Civil Aviation Management ·Land Registry and Cadastre · Textile Development and Marketing · International Retail Management· Local Governments · Management Sciences ·Management Sciences Programs
CHEMICAL ENGINEERING	·Chemical Engineering ·Chemical Engineering and Applied Chemistry ·Chemistry and Process Engineering ·Chemistry-Biology Engineering ·Polymer Engineering
CHEMISTRY	·Biochemistry ·Chemistry
CHILD DEVELOPMENT	·Child Development ·Child Health and Development
CIVIL ENGINEERING	·Civil Engineering

COMMUNICATION	·Press and Publication ·Journalism ·Public Relations ·Visual Communication · Visual Communication Design · Visual Arts and Visual Communication Design ·Public Relations and Advertising · Public Relations and Publicity ·Communication ·Communication Sciences ·Communication Arts ·Communication Design ·Communication and Design ·Communication Design and Management ·Culture Management ·Media and Visual Arts ·Media and Communication ·Media and Communication Systems · Fashion and Textile Design ·Radio and Television ·Radio, Television and Cinema · Advertising Design and Communication ·Advertising ·Cinema and Digital Media ·Cinema and Television · Television Reporting and Programming ·New Media ·New Media and Journalism
COMPUTER AND INSTRUCTIONAL TECHNOLOGIES TEACHING	·Computer Education Teaching ·Computer Systems Teaching ·Computer and Control Teaching · Computer and Instructional Technologies Teaching ·Electronics and Computer Teaching
COMPUTER ENGINEERING	·Digital Forensics Engineering ·Computer Science and Engineering ·Computer Engineering ·Computer and Software Engineering ·Information Systems Engineering ·Software Engineering
CONSERVATORY	·Harp ·Ballet ·Ballet Dancing · Band Conducting ·Jazz ·Instrumental Performance ·Instrumental Performance Education ·Musical Instrument Making ·Dancing · Drama and Acting · Ethnomusicology and Folklore · Bassoon ·Flute ·Traditional Musical Instruments ·Traditional Turkish Folk Music · Traditional Turkish Music · General Musicology ·Guitar ·Violin ·Clarinet ·Classical Ballet · Composition ·Composition and Band Conducting · Double Bass ·Horn ·Choreology ·Chorus ·Modern Dance ·Music ·Music Sciences ·Music Technologies ·Music Theory ·Music Ensembles ·Musicology · Wind and Percussion Instruments ·Obua ·Opera · Opera Singing ·Opera and Concert Singing ·Comparative Music in Ottoman Era ·Acting ·Piano ·Piano Making and Repairing ·Piano-Harp-Guitar ·Popular Music Singing ·Performing Arts ·Voice Training ·Voice ·Basic Sciences ·Theory · Theatre · Theatre Criticism and Dramaturgy ·Trombone ·Trumpet ·Tuba ·Turkish Religious Music · Turkish Folk Music ·Turkish Folk Music Instrument Education ·Turkish Folk Music Vocational Training ·Turkish Folk Dances ·Turkish Music · Basic Sciences of Turkish Music ·Turkish Classical Music ·Basic Sciences of Turkish Classical Music ·Turkish Classical Music Voice Training · Viola · Violoncello · Percussion Instruments ·String Instruments ·String Instruments Making
DENTISTRY	·Dentistry
ECONOMETRICS	·Econometrics ·Financial Econometrics

ECONOMICS	·Economics ·Economics and Finance ·Management-Economics
EDUCATION	·Household Economics and Nutrition Teaching ·Household and Consumer Sciences Teaching ·German Teaching ·Arabic Teaching ·Physical Education and Sports Teaching ·Office Management Teaching ·Geography Teaching · Flower, Knitting and Weaving Teaching, · Decorative Arts Teaching ·Moulding Teaching ·Electrics Teaching ·Electronics Teaching ·Electronics and Communications Teaching ·Industrial Technologies Teaching ·Energy Teaching ·Physical Education and Sports Teaching For Disabled People ·Philosophy Teaching ·French Teaching ·Textile Industry Teaching ·Textile Teaching ·Teaching For Visually Impaired People ·Graphics Teaching ·Ready-Made Teaching ·English Teaching ·English Teaching Education ·Teaching For Hearing Impaired People ·Management Teaching ·Japanese Teaching · Die sinking Teaching ·Hospitality Management Education · Hospitality Management Teaching · Control Teaching ·Hairdressing and Beauty Teaching · Machine Drawing and Construction Teaching ·Printing Press Teaching ·Mechatronics Teaching ·Vocational Drawing Teaching ·Metal Teaching ·Furniture and Decoration Teaching · Fashion Design Teaching ·Accounting and Finance Teaching ·Music Teaching · Broidery Teaching ·Automotive Teaching ·Special Education Teaching ·Marketing Teaching ·Art Education ·Art Education Teaching ·Health Education ·Ceramics Teaching ·Travel Management and Tourist Guidance Education · Travel Management and Tourist Guidance Teaching ·Machining Teaching ·History Teaching ·Design and Construction Teaching ·Textile, Weaving and Knitting Teaching ·Textile Teaching ·Telecommunications Teaching ·Installment Teaching ·Gifted Education ·Construction Teaching ·Construction Drawing Teaching ·Construction Design Teaching ·Teaching For Mentally Disabled People
ELECTRICS AND ELECTRONICS ENGINEERING	·Electrics Engineering ·Electrics and Electronics Engineering ·Electrics-Electronics Engineering · Electronics Engineering · Electronics and Communication Engineering ·Telecommunication Engineering
ENVIRONMENTAL ENGINEERING	·Environmental Engineering

FINE ARTS	·Accessory Design ·Animation ·Printmaking · Combined Arts · Glass· Animation Film Design and Directing ·Tile ·Tile Design ·Cartoon ·Cartoon and Animation ·Playwriting ·Playwriting-Dramaturgy · Sound Arts Design ·Handcrafts ·Handscraft Design and Production · Old Tile Restoration · Film Design and Screenwriting ·Film Design and Directing ·Film Design · Photography ·Photography and Graphic Arts · Photography and Video · Traditional Turkish Handcrafts · Traditional Turkish Arts · Gemology ·Visual Arts ·Image Arts ·Graphics ·Graphic Illustration and Printing ·Graphics Arts · Graphics Design ·Carpet and Rugs · Carpet, Rugs and Old Fabric Patterns ·Calligraphy ·Sculpture · Editing, Sound and Cinematography ·Jewelry ·Jewelry and Jewelry Design · Textile and Fashion Design ·Fashion Design · Fashion and Textile Design ·Performance ·Plastic Arts ·Plastic Arts and Painting · Painting· Painting-Printing Arts · Restoration and Conservation · Stage Design and Costumes ·Stage Design · Management of Performing Arts · Arts Management ·Conservation of Work of Arts and Restoration ·Arts Design ·Arts and Culture Management ·Arts and Design ·Ceramics ·Ceramics Arts ·Ceramics and Glass ·Ceramics and Arts Design ·Jewelry Design ·Jewelry Design and Technology ·Textile ·Textile Design ·Textile Design and Production · Textile and Leather Fashion Design ·Textile and Fashion Design ·Illumination ·Tourism Animation
FOOD ENGINEERING	·Food Engineering

FOREIGN LANGUAGES	·Albanian Language and Literature ·American Culture and Literature ·Ancient Greek Language and Literature ·Arabic Language and Literature ·Armenian Language and Literature ·Azerbaijani Turkish Language and Literature ·Bosnian Language and Literature ·Bulgarian Language and Literature ·Chinese Language and Literature ·Choreology ·Circassian Language and Literature ·Comparative Literature ·Croatian Language and Literature ·English Language and Comparative Literature ·English Language and Literature ·French Language and Literature ·Georgian Language and Literature ·German Language and Literature ·Greek Language and Literature ·Hebrew Language and Literature ·Hindology ·Hititology ·Hungarology ·Italian Language and Literature ·Japanese Language and Literature ·Korean Language and Literature ·Kurd Language and Literature ·Latin Language and Literature ·Linguistics ·Modern Greek Language and Literature ·Modern Turkish Dialects and Literature ·Persian Language and Literature ·Polish Language and Literature ·Polish Language and Literature (Polish) ·Russian Language and Literature ·Sinology ·Spanish Language and Literature ·Sumerology ·Translation and Interpreting (Arabic) ·Translation and Interpreting (Bulgarian) ·Translation and Interpreting (Chinese) ·Translation and Interpreting (Double Language: English- German) ·Translation and Interpreting (Double Language: English-French) ·Translation and Interpreting (English) ·Translation and Interpreting (French) ·Translation and Interpreting (German) ·Translation and Interpreting (Persian) ·Translation and Interpreting (Russian) ·Translation and Interpreting (Turkish- English - French) ·Translation and Interpreting (Turkish-German-English) ·Translation Studies (English) ·Translation Studies (German) ·Urdu Language and Literature ·Zaza Language and Literature
FORESTRY	·Forestry ·Forest Industry Engineering ·Wood works engineering
GEOGRAPHY	· Geography
GEOLOGICAL ENGINEERING	· Hydrogeology Engineering · Geological Engineering
GEOMATICS ENGINEERING	·Geomatics Engineering ·Geodesy and Photogrammetry Engineering
GEOPHYSICAL ENGINEERING	·Geophysical Engineering
HEALTH CARE MANAGEMENT	·Health Care Administration ·Health Care Management ·Health Institutions Management

HEALTH CARE SERVICES	·Emergency Aid and Disaster Management ·Gerontology ·Language and Speech Therapy ·Occupational Health and Safety ·Orthotics-Prosthetics ·Perfusion
HISTORY	·Art History ·History ·History of Science
INDUSTRIAL DESIGN	·Industrial Product Design · Industrial Design ·Industrial Design Engineering · Nautical Design
INDUSTRIAL ENGINEERING	·Industrial Engineering · Industrial Systems Engineering ·Industrial and Systems Engineering ·Management Engineering ·Systems Engineering
INTERIOR ARCHITECTURE	·Interior Architecture ·Interior Architecture and Environmental Design
INTERNATIONAL TRADE	·International Business Management ·International Entrepreneurship ·International Finance and Banking ·International Logistics and Transportation ·International Trade ·International Trade and Business Management ·International Trade and Financing ·International Trade and Logistics ·International Trade and Marketing ·Transportation and Logistics
ISLAMIC SCIENCES	·World Religions · Religious and Moral Education Teaching ·Theology· Primary Education Religious and Moral Education Teaching ·Islamic Sciences ·Islam and Religion Sciences ·International Theology ·Common Religious Education and Practices
LABOR ECONOMICS	·Labor Economics and Industrial Relations
LAW	·Law
MANAGEMENT	·Management ·Management Sciences (Faculty of Management)
MANUFACTURING ENGINEERING	·Manufacturing Engineering ·Control Engineering ·Control and Automation Engineering · Mechanical and Manufacturing Engineering ·Mechatronics Engineering ·Mechatronics Systems Engineering ·Production Systems Engineering

MARINE ENGINEERING	·Naval Architecture and Marine Engineering ·Ocean Engineering ·Shipbuilding Engineering ·Shipbuilding and Ocean Engineering
MATERIALS ENGINEERING	·Material Engineering ·Metallurgical and Material Engineering ·Nanotechnology Engineering
MATHEMATICS	·Finance Mathematics ·Mathematics ·Mathematics and Computer Sciences
MATHEMATICS TEACHING	·Primary Education Mathematics Teaching ·Mathematics Teaching
MECHANICAL ENGINEERING	·Mechanical Engineering
MEDICINE	·Medicine
MINING ENGINEERING	·Mineral Processing Engineering ·Mining Engineering
NURSING	·Midwifery ·Nursing ·Nursing and Health Services
NUTRITION AND DIETETICS	·Nutrition and Dietetics
PETROLEUM ENGINEERING	·Energy Systems Engineering ·Nuclear Energy Engineering ·Petroleum and Natural Gas Engineering
PHARMACY	·Pharmacy
PHILOSOPHY	·Philosophy of Economics, Politics and Society · Philosophy

PHYSICS	·Astronomy and Space Sciences ·Physics · Physics Engineering · Optic and Acoustical Engineering · Space Sciences and Technologies
PHYSICS, CHEMISTRY AND BIOLOGY TEACHING	·Biology Teaching ·Physics Teaching · Chemistry Teaching
PHYSIOTHERAPY	·Occupational Therapy ·Physiotherapy and Rehabilitation
PILOTAGE	·Pilotage ·Pilot Training
POLITICAL SCIENCE, PUBLIC ADMINISTRATION AND INTERNATIONAL RELATIONS	·European Union Relations · Public Administration · Global Politics and International Relations · Global and International Relations ·Political Science ·Political Science and Public Administration · Political Science and International Relations · Societal and Public Sciences ·International Studies ·International Relations ·International Relations and European Union ·International Relations and Maritime Safety
PRESCHOOL EDUCATION	·Preschool Education ·Child Development and Education Teaching ·Child Development and Preschool Education Teaching
PRIMARY SCHOOL EDUCATION	·Primary School Education
PSYCHOLOGICAL COUNSELING AND GUIDANCE	·Psychological Counseling And Guidance
PSYCHOLOGY	·Psychology
PUBLIC FINANCE	·Public Finance

SCIENCE TEACHING	·Science Teaching
SOCIAL SERVICES	·Social Services
SOCIAL STUDIES TEACHING	· Social Studies Teaching
SOCIOLOGY	·Cultural Studies ·Human Science ·Sociology
SPORT SCIENCES	·Coach Training ·Exercise and Sport Sciences ·Sports Management ·Sports Sciences
STATISTICS	·Actuary · Actuarial Science ·Actuary and Risk Management ·Statistics · Statistics and Computer Sciences
TECHNICAL EDUCATION	·Air Traffic Control ·Aircraft Electric-Electronics ·Airframe-Engine Maintenance ·Aviation Management ·Business Information Management ·Commercial Air Transportation Management ·Computer Sciences ·Customs Management ·Electricity and Electronics ·Household Economics ·Informatics Systems and Technologies ·Logistics and Transportation ·Logistics Management ·Management Information Systems ·Printing Technologies ·Technology and Information Management
TEXTILE ENGINEERING	·Leather Engineering ·Textile Engineering
TOURISM	·Gastronomy ·Gastronomy and Culinary Arts ·Hospitality Management ·Hotel Management ·Travel Management ·Tourism Management ·Tourism Guidance ·Food and Beverage Management
TURKISH LANGUAGE AND LITERATURE	·Turkish Language and Literature

TURKISH TEACHING	·Turkish Teaching ·Turkish Language and Literature Teaching
URBAN DESIGN AND LANDSCAPE ARCHITECTURE	·Urban Design And Landscape Architecture ·Landscape Architecture ·City and Regional Planning
VETERINARY MEDICINE	·Veterinary Medicine

ANNEX 3: SKILL MISMATCH INDICATOR

Definition: Skill mismatch occurs when jobs that people work in require fewer or higher qualifications than their education level. Graduates work in less-skilled jobs than their education level requires, there is an over-qualification; if they have higher skills above those needed for the job, there is an under-qualification problem. In other words, if a university graduate is employed in a job that requires the high school graduation, there is an over-qualification mismatch, and if a high school graduate is employed in a job that requires the university graduation, an under-qualification conflict occurs. Skill mismatch is an important labor market indicator that affects job satisfaction, productivity, and inequalities in wage increases.

Methodology of Skill Mismatch Indicator: For the skill mismatch indicator calculated using education and employment data, the method was developed based on the standard occupation (ISCO) and skill sets classification of the International Labor Organization (ILO). According to this method, the skill levels of the individuals are evaluated on a scale ranging from 1-4. The value 1 defines the qualifications acquired through primary education and the value 4 defines the qualifications acquired through higher education. This scale, which considers the duration of education and levels of expertise, is classified as follows:

Table 1: Classification of Levels of Skill

Level of Skill	Explanation
1	It is defined by taking into consideration the category 1 of ISCED, which is the International Standard Classification of Education, and requires 5 years primary education level. Level 1 professions include performing basic physical and manual tasks.
2	It is described by considering Category 2 and Category 3 of ISCED, which covers the first and second stages of secondary education. Occupations at Level 2 generally include the use of machinery and electronic equipment; the use of vehicles; repair and maintenance of electrical and mechanical equipment; and performing tasks such as storing, organizing and using information.
3	It is identified considering the category 5 of ISCED, it includes an education that starts at the age of 17-18 and lasts about 4 years and provides a degree that is not equivalent to undergraduate degree. Occupations at Level 3 usually involve performing complex technical and application in a specialized field that require extensive technical and operational knowledge.
4	It is prepared based on the Category 6 and Category 7 of ISCED and includes education starting at the age of 17-18, lasting about 3, 4 or more years, leading to a higher education degree or a postgraduate degree. Occupations at Skill Level 4 usually involve complex problem solving, decision making and performing tasks that require comprehensive theoretical and practical knowledge in a profession.

Source: ILO, International Standard Classification of Occupations, 2008 (ISCO-08).

In the qualification mismatch calculations, the difference between the skill levels of individuals and the skill levels required by the ISCO-08 occupational groups are considered. In this context, it is appropriate to employ a person who has received undergraduate degree in one of the professional occupational groups with skill level 4. If a person with a undergraduate degree is employed in professions with skill level 3, 2 or 1, the problem of skill mismatch arises because he is employed in a job that requires lower qualifications than his/her qualifications.

Table 2: Occupational Groups and Levels of Skill

Occupational Groups (ISCO-08)	Levels of Skills
1. Legislators, Senior Executives and Managers	3,4
2. Experts of a Profession	4
3. Assistants of a Profession	3
4. Office Workers and Customer Service Employees	2
5. Service Employees and Sales Staff	2
6. Qualified Agriculture, Animal Husbandry, Hunting, Forestry and Aquaculture Workers	2
7. Artists	2
8. Plant and Machine Operators and Assemblers	2
9. Elementary Occupations	1

Source: ILO, International Standard Classification of Occupations, 2008 (ISCO-08).

This method only evaluates skill match in terms of occupation code-training duration and does not take into consideration the skills acquired after person is employed. On the other hand, skill mismatch can also occur when the cognitive characteristics and interests of graduates do not match the qualifications required by the preferred department or the occupation. However, it is not possible to measure this dimension of the skill mismatch with the available administrative data obtained by public sector. The limitations of the method should be evaluated within this framework.

References:

(1) International Labor Organization (ILO), (2018). Measurement of qualifications and skills mismatches of persons in employment. 20th International Conference of Labour Statisticians Geneva.

(2) International Labor Organization (ILO) International Standard Classification of Occupations https://www.ilo.org/public/english/bureau/stat/isco/isco08/ index.htm (22 Haziran 2019 tarihinde erişim sağlandı).

(3) McGowan, M. A., & Andrews, D. (2015). Skill mismatch and public policy in OECD countries.

(4) OECD, Skills and Work Portal https://www.oecd.org/employment/skills-and-work/ (22 Haziran 2019 tarihinde erişim sağlandı).

(5) Quintini, G. (2011). Over-qualified or under-skilled. OECD Social, Employment and Migration Working Papers No. 120. https://www.oecd-ilibrary.org/content/paper/ 5kg58j9d7b6d-en (22 Haziran 2019 tarihinde erişim sağlandı).