A brief analysis on the mismatch between education and occupation in Kosovo

April 2020

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Introduction

A paramount factor of a country's economic development is the adequate utilization of human resources. This implies, among other, ensuring that a big part of the labor force is in appropriate occupations. In Kosovo, there is a gap between the market requirements and the labor force output from educational institutions. As a result, the number of individuals facing a mismatch between education and occupation is very high.

This gives rise to situations where the qualifications obtained from a school or university do not match the qualifications required by an employer, for the employee's work. The mismatch can be vertical, where the level of education is lower or higher than that required to perform a job, or horizontal, where the education is not related to the work individuals do.[1] This study focuses on horizontal mismatch only.

Factors that may have an impact on horizontal mismatch include gender, age, marital status, area of residence, ethnicity, education, as well as the chosen industry. Moreover, in certain educational and vocational fields, gender differences in the labor market may have a higher impact on the mismatch. Gender difference means the unequal distribution of men and women on the labor force. Worldwide, women's occupations are focused more on low-productivity sectors, as well as low-productivity industries within those sectors.[2]

In this study, GAP Institute analyzes the individuals' perceived mismatch between the field of education and occupation, with a focus on the structural breakdown of vocations by gender. The findings of this research show that gender, age, and area of residence predict horizontal mismatch as demographic factors. In addition, the problem with the mismatch comes as a result of more fundamental differences of professional industries and educational fields. An example are women who have earned degrees in engineering or law, or are working in industries such as agriculture, manufacturing, and commerce, and have a higher mismatch than the men in those fields and industries. This study also shows sector divisions in the employment and education of men and women, where it can be noted that men are employed in more productive industries of the economy, and that men and women attend educational fields historically dominated by each - men in engineering, women in education and healthcare. As a result, GAP Institute recommends informing current students on post-education employment opportunities, and providing post-graduate training based on labor market demands, in order to update the skills of graduate jobseekers. Moreover, in order to increase gender equality in the most productive sectors of Kosovo's economy and break professional stereotypes in the labor market, students in general and girls in particular, should be informed on occupations in the most productive economic sectors, as well as occupations that have historically been intended for men and women, respectively.

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1   International Labor Office, 'Skills Mismatch in Europe: Statistics Brief,' (Geneva: ILO, 2014), 7. Source: https://bit.ly/374NXrP
2   Smita Das and Aphichoke Kotikula, 'Gender-Based Employment Segregation : Understanding Causes and Policy Interventions' (The World Bank, 1 January 2019). Source: http://bit.ly/38kF1Q9

Horizontal mismatch structure in Kosovo

In order to identify the determinants of the horizontal mismatch in the Kosovo population, this report relies on the data generated by the Millennium Challenge Corporation's survey "Kosovo Labor Force and Time Use Study".[3] The objective of the survey was to collect structural information on Kosovo's workforce, such as the level of formal and non-formal education, correlation between the field of education and employment, as well as the reason for unemployment. The survey was conducted in the period March 31, 2017 - August 4, 2017.[4],[5]
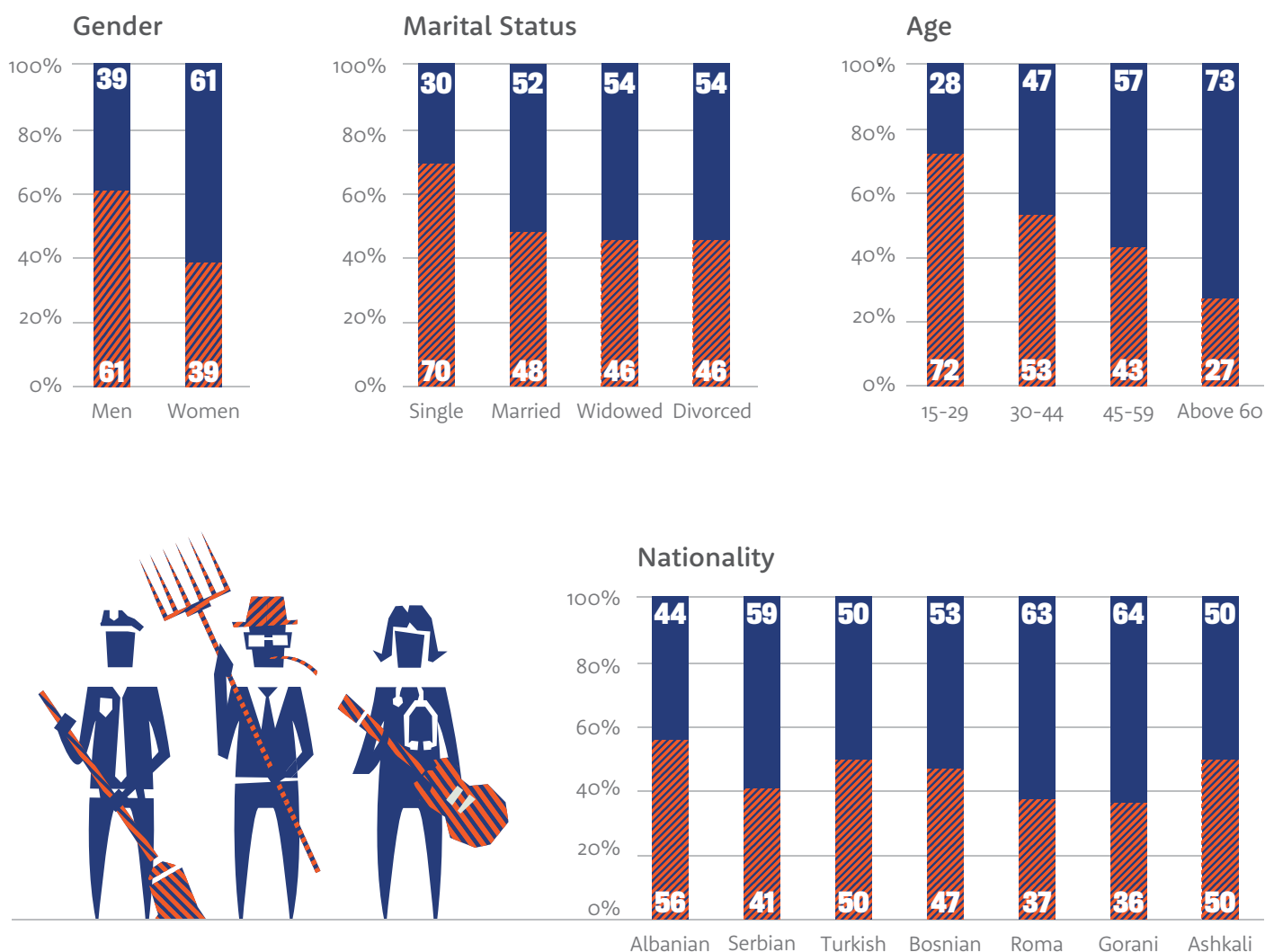
GAP Institute analysis finds that 54% of respondents face horizontal mismatch. The structure of this mismatch is further identified based on various demographic, educational, and industrial characteristics of the respondents. The results in Figure 1 indicate that 61% of men and only 39% of women in the analyzed data have horizontal mismatch. It is further found that single people have higher horizontal mismatch (70%) than married individuals (46%), divorcees (46%) or widowers (46%). This may be because single people may be at a life stage where they experience higher professional instability than individuals with a different marital status. A similar result occurs when we divide respondents by age, with 72% of individuals aged 15 to 29 years having horizontal mismatch, which decreases over the lifetime of an individual. The age trend can be reasonably explained, where horizontal mismatch decreases with older individuals since they have spent a longer time in the labor market and have more professional stability. In terms of ethnicity, individuals belonging to non-Albanian communities do not have significant horizontal mismatch compared to Albanians, which indicates that ethnicity does not play a major role. .

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3   . Siddiqui, A. Gashi, J. Higgins, B. Dasgupta, M. Pucilowski, 'MCC Kosovo Labor Force and Time Use Study (LFTUS),' DDI-MCC-KOS-LFTUS-2017-v01, 2017 Arlington, VA: Social Impact Inc. www.socialimpact.com

4   The survey compiled by Social Impact Inc. and executed by IDRA Research and Consulting used as data unit individuals over the age of 15, who are part of a household in 7 regions, 854 enumeration areas, and 8540 households in Kosovo, with a total of 11,682 respondents

5   Although the Kosovo Agency of Statistics (KAS) publishes data on the Kosovo workforce since 2001, KAS does not provide open data on the individual workforce, as well as on individual perceptions of the horizontal mismatch, which would render such analysis difficult. In addition, due to KAS not updating individual data, this analysis relies on earlier data from 2017, rather than the years that might be relevant for this analysis today. Therefore, to analyze the determinants of the individual horizontal mismatch, this study relies on the data from the Millennium Challenge Corporation, whereas for aggregated information on KAS data

Figure 1. Mismatch of education and vocation of respondents by gender, marital status, age, and ethnicity

Gender

	Men	Women
Match	39	61
Mismatch	61	39

Marital Status

	Single	Married	Widowed	Divorced
Match	30	52	54	54
Mismatch	70	48	46	46

Age

	15-29	30-44	45-59	Above 60
Match	28	47	57	73
Mismatch	72	53	43	27

Nationality

	Albanian	Serbian	Turkish	Bosnian	Roma	Gorani	Ashkali
Match	44	59	50	53	63	64	50
Mismatch	56	41	50	47	37	36	50

% of horizontal mismatch by category
■ Match
▨ Mismatch

Source: Millennium Challenge Corporation, Kosovo Labor Force and Time Use Study.

Calculation: GAP Institute

Figure 2 shows that the differences in education are also significant. Three university fields most frequently associated with horizontal mismatch are general programs (88%), exact sciences (including physics, chemistry, and earth sciences) (76%), and agriculture and veterinary (78%). By comparison, the two university domains least associated with horizontal mismatch are education (13%) and health and welfare (17%). There may be different explanations for differences by education, one of them being the dynamics of the labor market. The labor market demand for graduates from exact sciences, or agriculture and veterinary may be small compared to that for graduates from education, or health and welfare. In terms of industries where respondents are predominantly employed, the highest horizontal mismatch exist in agriculture, forestry and fishing (62%), construction (83%), wholesale and retail, and repair of motor vehicles and motorcycles (77%), and other services (69%), while the least horizontal mismatch exists in education (9%).

Figure 2. Mismatch of education and vocation of respondents by field of education and occupation of respondents
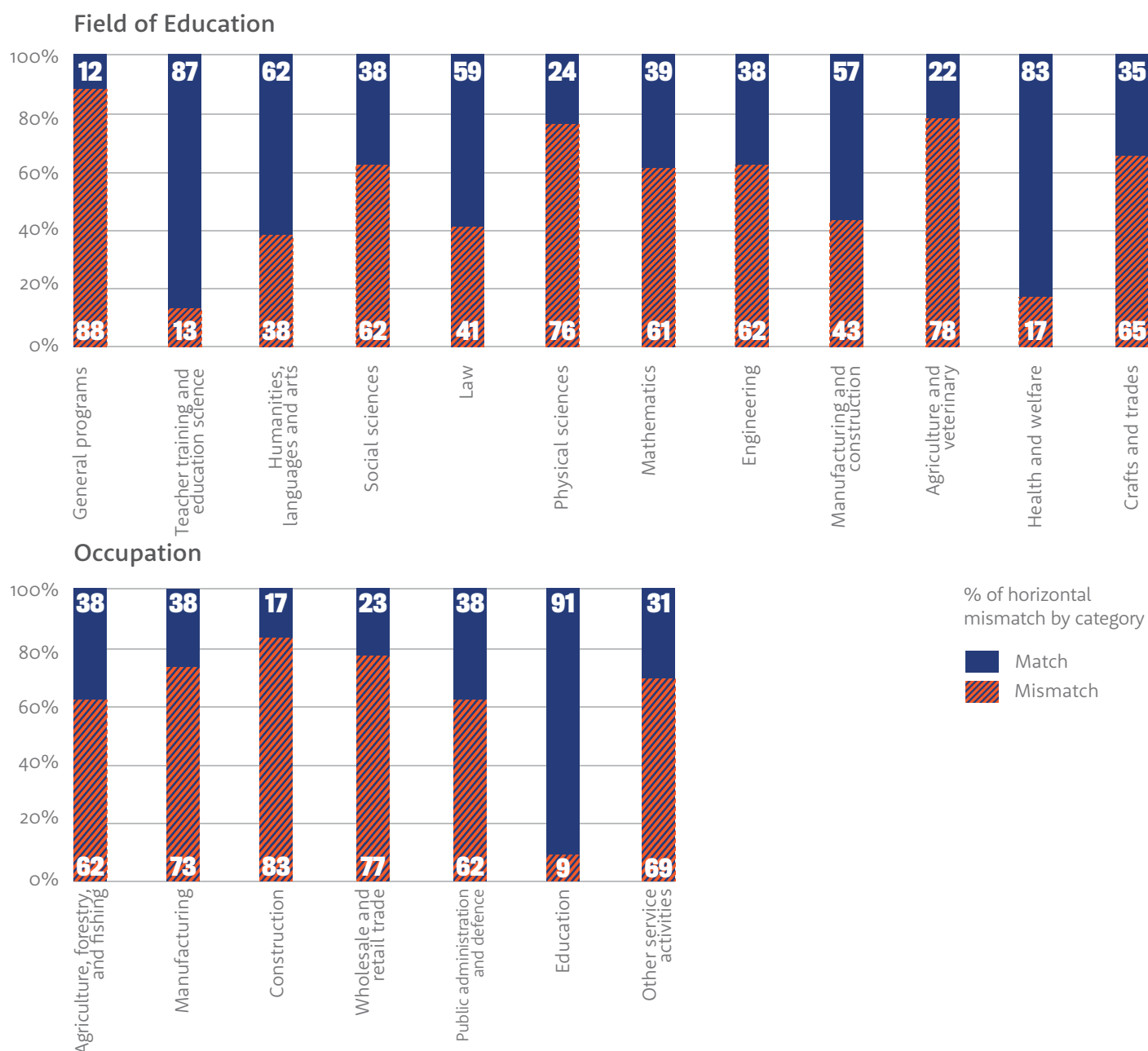
Field of Education

Occupation

% of horizontal mismatch by category

- Match
- Mismatch

Source: Millennium Challenge Corporation Kosovo Labor Force and Time Use Study.

Calculation: GAP Institute

Further, Figure A1 in Annex 1 also indicates that 49% of respondents in urban areas face horizontal mismatch compared to 61% of those in rural areas, which may be explained by a lack of a higher diversity of occupations in rural areas. Broken down by the highest level of education, 90% of respondents in secondary education have horizontal mismatch, followed by respondents with vocational secondary education (69%), higher vocational education (35%), university education (22%), and respondents with Master or postgraduate studies (11%). Figure A2, Annex 1, indicates that sector-based horizontal mismatches represent a fragmented structure, with 25% of respondents in the public sector having horizontal mismatch, 32% of those in state-owned enterprises, 74% in the private sector, 63% in international organizations, 47% in non-governmental,

non-profit, or humanitarian organizations, 59% self-employed, and 86% other private individuals. Finally, the length of daily working hours indicates that 53% of respondents working full time have horizontal mismatches, compared to 74% of those working part time.

What determines the mismatch between education and occupation?

Table A2 (Annex 3) serves to identify the most important determinants of the horizontal mismatch. This section aims to answer the question of what causes the mismatch between the field of education and the occupation of an individual.[6]

According to this analysis, GAP Institute finds that gender predicts a lower probability of a mismatch between the field of education and occupation when the individual is a woman. This implies that women mainly work jobs that fit their field of education, more so than men. However, this positive difference for women in general weakens for those who have pursued education in fields such as law or engineering, and who work in industries such as agriculture, manufacturing, and wholesale and retail. Therefore, although women generally suffer less from horizontal mismatch than men, in certain industries they face more problems than men. This result can be explained by the high criteria that women face when seeking jobs, suitable and unsuitable, which may lead to a lower participation of women in the labor market in general, more so than men, whereas employment criteria for men may be more lenient, which makes finding suitable and unsuitable jobs for them easier. The age indicator shows that individuals over the age of 45 have mainly lower horizontal mismatches than younger individuals, which is normal since there is a higher expectation for older individuals to be working in an industry that is compatible with the field of their education. An important determinant of horizontal mismatch is the area of residence of individuals, indicating that if they reside in a rural area there will be a higher mismatch, than for those in urban areas. This study shows that marital status is of minor importance for horizontal mismatch, and that ethnicity of individuals plays no role.

This analysis also shows that the field and level of education are crucial determinants of horizontal mismatch. Individuals that complete studies in fields such as engineering, manufacturing and construction, healthcare, crafts, commerce, or administration, as opposed to social sciences, will more likely have an occupation in an industry that matches their field of education. However, for women in engineering, this probability drops. In contrast, if individuals that complete general education, or agriculture and veterinary fields, the probability of a match with occupation declines, and these effects are also statistically significant. This phenomenon may become an issue in the future if the number of graduates in agriculture or general programs continues to grow without a simultaneous job growth in the relevant sectors. The level of education is also statistically significant, where any completed level that is higher than secondary education or gymnasium will lead to a higher probability of a match between the field of education and occupation.

The analysis also shows statistical significance for indicators related to the individuals' occupation industry. Similar to the field of education, certain industries or sectors will also predict horizontal mismatch. The length of daily working hours of individuals is another determinant. Individuals employed in a number of specific areas such as: manufacturing, water supply and water management, construction, wholesale

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6 It should be noted that due to the type of categorical indicators, we derive from each such category as a comparative basis, as presented in Table A2.

and retail, transportation, accommodation activities, real estate and administrative activities, public administration, arts, and other services, compared to the education industry will have a lower probability of a match between education and occupation industry. This probability is even lower for women in manufacturing and wholesale and retail. Moreover, when comparing these industries with education, there is no field that increases the probability of horizontal compatibility. In addition to the superficial problem of the horizontal mismatch, in a number of professional industries the mismatch is self-perpetuating due to the high cost of switching jobs and the lack of extracurricular trainings for professional skills retraining.

The employment sector also plays a role in determining the horizontal mismatch. Individuals working in the private sector, international organizations, NGOs and for-profit organizations and other private individuals, contrary to those working in the public sector, have a higher probability of horizontal mismatch. In terms of the duration of working hours, individuals working part-time are more likely to have a lower match, compared to those working full time. Industry determinants are important due to complex labor market dynamics, which may reflect in a higher demand for workers of certain fields, and employment opportunities that employers can offer to workers who may not have a match of education and job duties.

Gender Differences in Education and Occupation

Using the MCC survey data, the analysis of horizontal mismatch in the population of Kosovo shows, inter alia, that the mismatch in the field of education and occupation is lower among women than men in general, but not in all cases. In certain industries, the probability of horizontal mismatch for women increases significantly. Thus, GAP Institute also explores the sectoral differences between men and women to look into the participation of men and women in certain industries or sectors in Kosovo.

Demographic estimates show that men have a higher percentage of labor market participation than women, but with a slight difference. The most significant difference is in the active population, with 2018 data showing that about two-thirds of working-age men, while only 18.4 percent of working-age women are active.[7] This imbalance is expected to deepen in the coming years (2021-2051), and the economic potential of women will continue to be largely underutilized.[8]

Kosovo's economy is mostly based on services (about 30%), of which 13% are in wholesale and retail trade, and repair of motor vehicles and motorcycles, while 7.8% are in public administration, social protection and mandatory insurance. The 12 industries that comprise the service category, employ around 59% of men and 77% of women, compared to other industries that employ a fewer number, but are more productive.[9]

The KAS data shown in Table 1 indicate that men are employed in more productive

7   Kosovo Agency of Statistics (KAS). Labor Force Survey 2018. Source: https://bit.ly/2UFMZ2G
8   Kosovo Agency of Statistics (KAS) (2013) 'Projection of the population of Kosovo'. Source:
     https://bit.ly/38ëK7Jb
9   Kosovo Agency of Statistics, (KAS) 2018. Data platform. Data processed by authors. Source:
     http://bit.ly/377yjfË

industries of the economy. These industries include supply of electricity, gas, steam and air conditioning, financial and security activities, transportation, public administration and defense, manufacturing, and professional, scientific and technical activities. Whereas, women in Kosovo have a higher employment in wholesale and retail trade, education, health and social work.[10]

Table 1.   Gender-based employment in 2018, ranked by highest productivity

Industry	Labor productivity in 2018	Employment of men	Employment of women
Real estate activities	€ 1,675,449	0.1%	0.0%
Mining and quarries	€ 47,457	1.1%	0.1%
Agriculture, Forestry and Fishery	€ 42,592	4.2%	0.9%
Supply of electricity, gas, steam and air conditioning	€ 35,404	2.3%	0.1%
Finance and insurance	€ 32,767	1.7%	3.2%
Transport and storage	€ 21,526	3.8%	1.5%
Public administration and defense, mandatory social security	€ 21,484	7.1%	6.5%
Manufacturing	€ 20,387	11.4%	6.1%
Professional, scientific and technical Activity	€ 16,185	1.5%	2.6%
Wholesale and retail trade, vehicle and motorcycle repair	€ 14,590	16.8%	17.7%
Construction	€ 13,519	14.8%	1.2%
Activities of water supply, sanitation, waste management and land revitalization	€ 11,067	1.5%	0.4%
Information and communication	€ 10,236	3.5%	3.1%
Education	€ 6,455	8.5%	21.8%
Human health and social work activities	€ 6,213	3.7%	13.4%
Art, entertainment and recreation	€ 5,868	1.5%	0.8%
Administrative and supporting activities	€ 4,489	2.9%	2.8%
Accommodation and food service activities	€ 3,467	7.7%	3.6%
Other service activities	€ 785	4.7%	5.1%
Activities of households as employers;	€ -	0.4%	6.9%

Source: Labor productivity in Kosovo is calculated using KAS data on gross domestic product and employment.[11]

Gender-based employment data were obtained by the KAS Labor Market Survey – Kosovo 2018.[12]

Gender differences are also observed in the selection of academic careers of students. Data indicate that men and women choose their study majors that are identified by social stereotypes. For instance, women tend to study medicine or social sciences, such as education and foreign languages, while men generally opt for exact sciences, such as engineering, technology or construction.

These differences are visible both in public and private universities. Figure 3 shows that about 87% of students of mechanical engineering are men, while 92% of those enrolled in education are women. In medicine, 74% of students are women, while in the Faculty of Philosophy the percentage of women enrolled in the academic years 2017/2018 and 2018/2019 was 71% and 68% respectively. An interesting exception is the Faculty of Natural Sciences, where about 61%

10   Ibid.
11   Kosovo Agency of Statistics (KAS). Gross Domestic Product (GDP). Source: https://bit.ly/2v8lKTv
12   Kosovo Agency of Statistics (KAS). 'Labor Force Survey 2018.' Source: https://bit.ly/37iQK1ë

of enrolled students are women. Differences in educational selection are also reflected in employment.

Figure 3. **Number of students enrolled in respective fields, by gender (expressed as a percentage).**
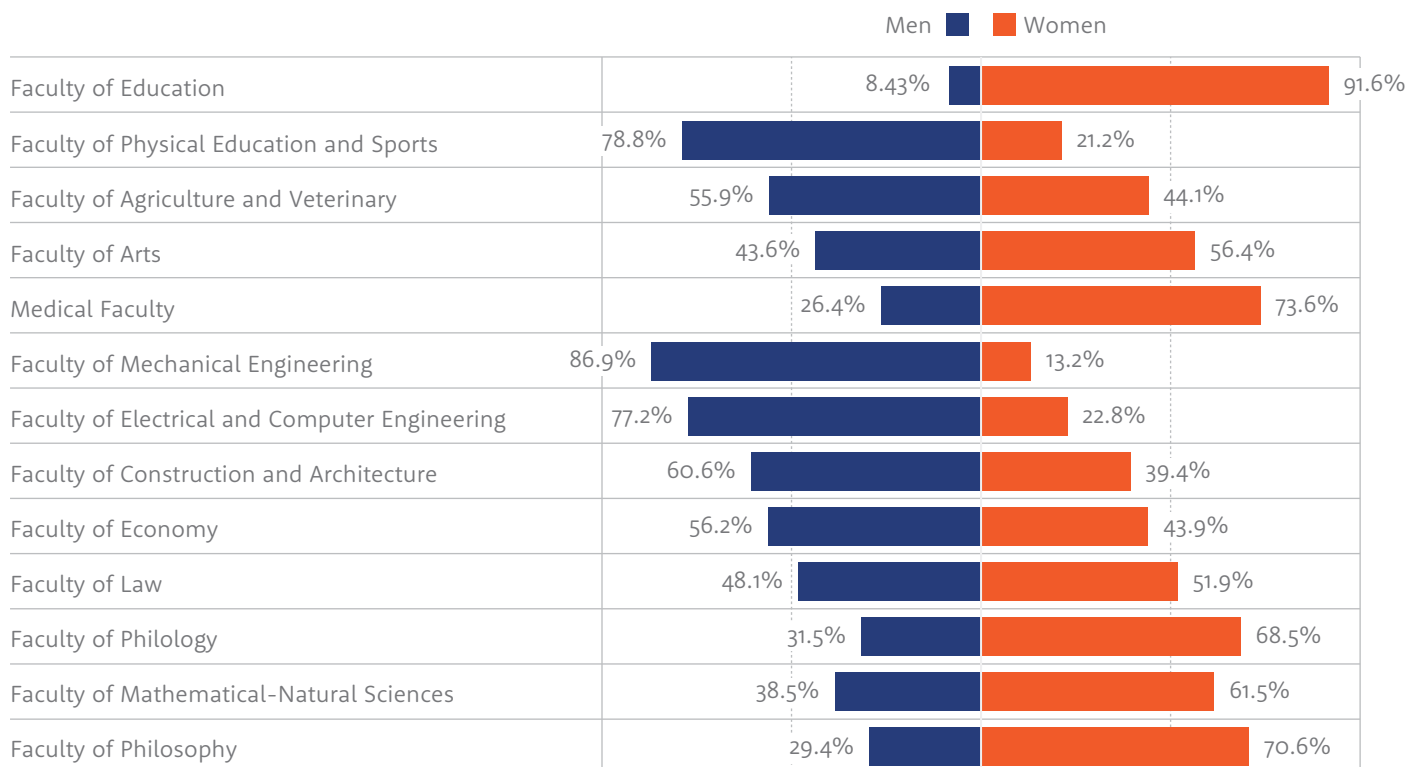
Source: Chart prepared by GAP Institute. The data include the number of students enrolled in public universities and private colleges for the 2017/2018 and 2018/2019 academic years, from the University of Prishtina and the Ministry of Education, Science and Technology.

These indicators of the field of education and industries highlight that men and women, both in education and vocation, focus differently. While men are more likely to be employed in construction and manufacturing, women are more likely to be employed in education, and healthcare and welfare. The same trend also applies in the fields of education, with men more likely to complete studies in engineering and computer science, and women in fields such as education and health. It is clear that in the industry of education and healthcare there is less mismatch, which implies that the mismatch is lower amongst women.

This imbalance of horizontal mismatch can also be explained by social factors. Research shows that gender stereotypes are evident in Kosovo. Women in Kosovo hold far fewer management positions than men, both in the public and private sectors, and are much less employed because of the social norms that dictate them to hold the primary responsibility of household chores.[13] In fact, the main reason for women working part-time is the need to care for family members, while for men is the lack of a full-time job.[14]

Women in Kosovo are also discriminated in the language used in job vacancies, which may discourage them from applying for management positions. To test the potential disincentive as a result of the vacancy drafted in masculine or

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13 GAP Institute (2017). "Discrimination in the workplace: Impact of competitions on gender inequality". Source: http://bit.ly/3aorQQ6
14 Kosovo Agency of Statistics, (KAS) 2018. Labor Force Survey 2018. Source: http://bit.ly/2R4Oipq

feminine, a social experiment was conducted requiring five (female) interns , or five (neutral + masculine) interns, with 69% of women applying in the first competition (since it was written in feminine), and 79% men in the second (since it was written in neutral + masculine).[15]

Conclusions and Recommendations

Horizontal mismatch, or the phenomenon where the field of education is not related to the work that individuals do, is a major issue in the Kosovo workforce. Horizontal mismatch varies depending on individual characteristics: demographic, educational, and professional. According to the data collected from the Millennium Challenge Corporation survey, this study shows that in Kosovo there are mostly horizontal mismatches among men (61%), single individuals (70%), young people aged 15-29 (72 %), and individuals living in rural areas (61%). In terms of education indicators, individuals who have completed general programs have 88% horizontal mismatch, and those with only secondary education 90%. In the construction industry, workers demonstrate that 83% of them have a mismatch between the field of education and occupation, whereas those working part-time have a mismatch of 74%, and individuals who work in the private sector 86%.

This analysis of mismatch determinants indicates that demographic factors such as gender, age, and residence have a key role in the horizontal mismatch. Furthermore, the issue of the mismatch also comes a result of more significant differences within professional industries and fields of education, where women face a higher mismatch in engineering and law, as well as vocations such as agriculture, manufacturing, and wholesale and retail.

Given the economic and social importance of having e match between the field of education and occupation, and the lack of such analysis, GAP Institute recommends:

- In order to further improve labor force data, the Kosovo Agency of Statistics should provide more detailed individual data that enable a more thorough analysis of the workforce in Kosovo;

- The Ministry of Education and relevant universities or colleges should inform future students on post-university employment opportunities in fields that are appropriate to their education;

- In the short term, public universities provide post-graduate training, based on the market demand, in order to update the know-how of individuals and ensure their skills are as close as possible to their occupation.

- In order to increase gender equality in the most productive sectors of Kosovo's economy and break professional stereotypes in the labor market, pre-university institutions should inform and support children students, particularly girls, as early as possible, to pursue professions in productive sectors, and sectors that were historically perceived as for men, respectively women.

15   GAP Institute (2017). "Discrimination in the workplace: Impact of competitions on gender inequality". Source: http://bit.ly/3aorQQ6
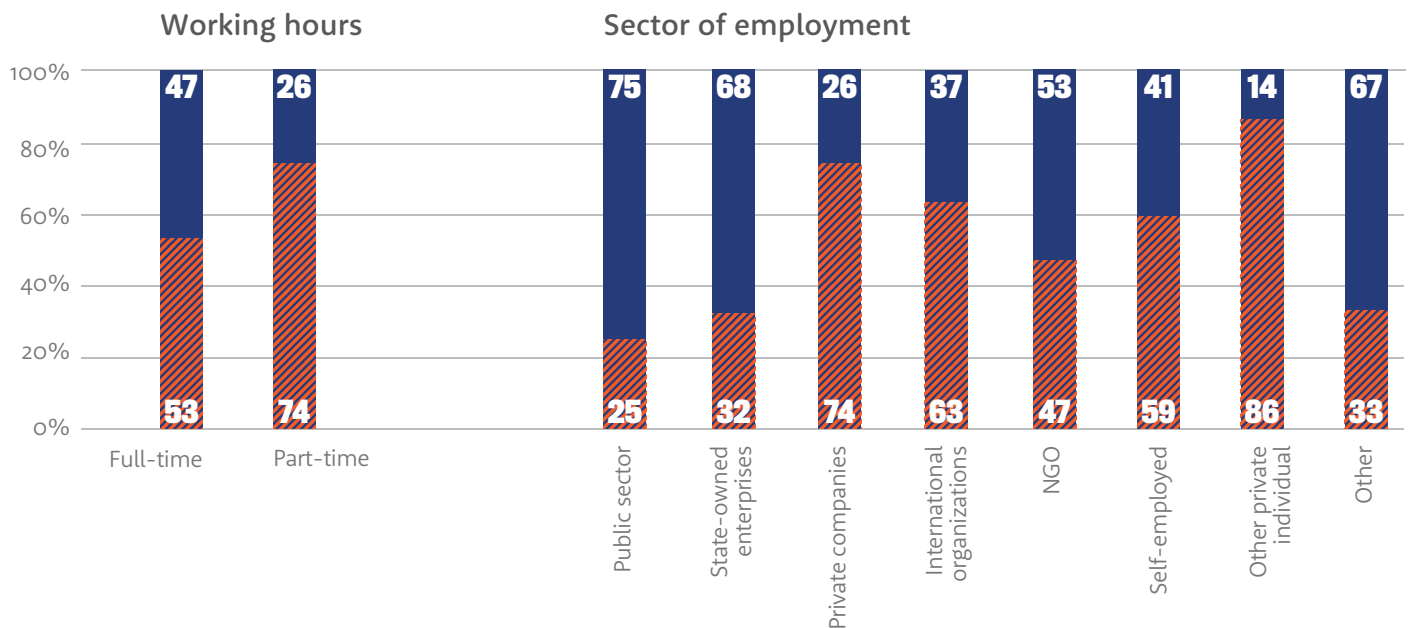
Annexes

Annex 1.

Figure A 1. Mismatch of education and vocation of respondents based on place of residence and level of education
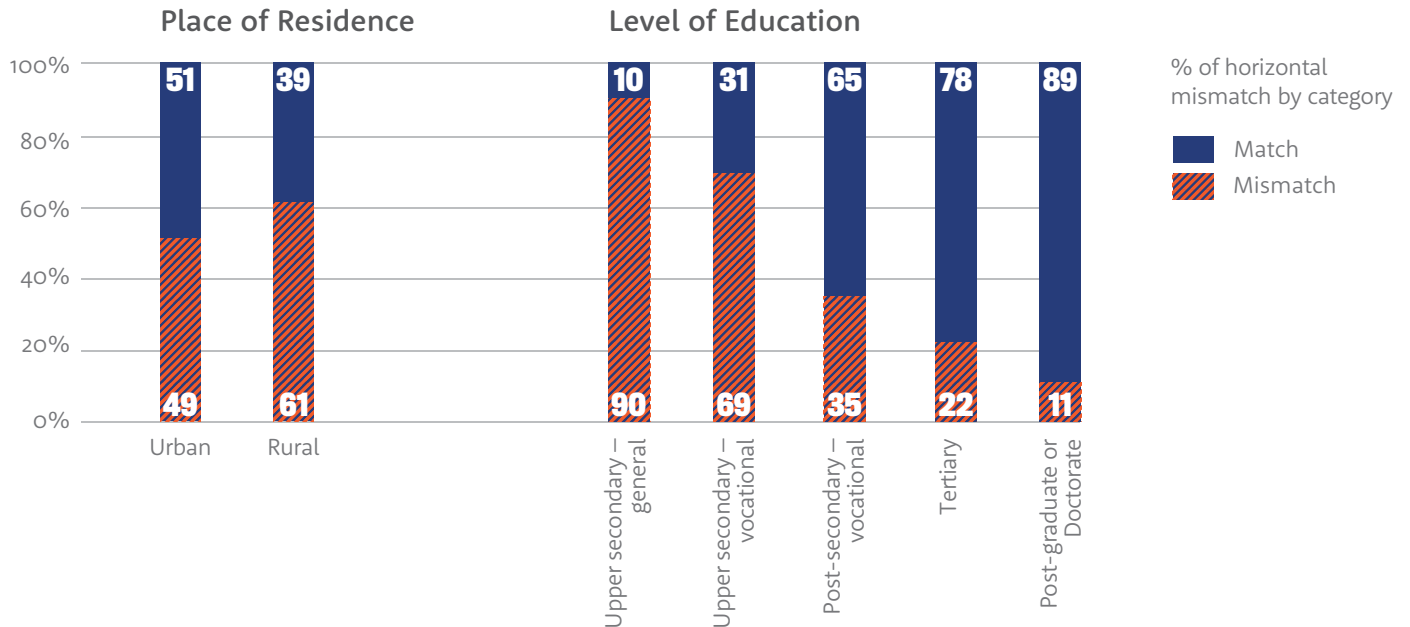
Source: Millennium Challenge Corporation Kosovo Labor Force and Time Use Study.

Calculation: GAP Institute

Figure A 2. Mismatch of education and vocation of respondents based on working hours and sector of employment

Source: Millennium Challenge Corporation Kosovo Labor Force and Time Use Study.

Calculation: GAP Institute

Annex 2.

Table A 1.   Descriptive data on used indicators

	(1)	(2)	(3)	(4)	(5)
Variables	**Observations**	**Mean**	**Standard deviation**	**Minimum**	**Maximum**
Horizontal Mismatch	5,233	0.452	0.498	0	1
Woman	5,233	1.282	0.450	1	2
Marital Status	5,233	1.716	0.511	1	4
Rural	5,233	1.510	0.500	1	2
Ethnicity	5,233	1.168	0.752	1	11
Age	5,233	2.070	0.907	1	4
Field of Education	5,233	8.524	5.221	1	18
Education Level	5,233	5.587	1.223	4	8
Industry	5,233	11.72	5.644	1	22
Part-time	5,233	1.078	0.269	1	2
Sector	5,233	2.480	1.349	1	8

Source: Millennium Challenge Corporation Kosovo Labor Force and Time Use Study

Annex 3.

Table A 2.   Determinants of horizontal mismatch

Independent variables	**(1) Econometric Model**	* p<0.1 ** p<0.05 *** p<0.01,
Woman	0.371*	(0.218)
Age (cb 15-29)		
45-59	0.359***	(0.0778)
Above 60	0.540***	(0.120)
Marital Status (cb Single)		
Married	0.113*	(0.0652)
Ethnicity (cb Albanian)		
Rural	-0.140***	(0.0463)
Field of education (cb Social sciences)		
General programs	-0.321**	(0.148)
Engineering	0.245***	(0.0870)
Manufacturing and Construction	0.843***	(0.172)
Agriculture and Veterinary	-0.450***	(0.161)
Health and Well-being	0.738***	(0.187)
Crafts and trades	0.378***	(0.0921)
Administration and Office Work	0.763**	(0.355)

Independent variables	(1) Econometric Model	* p<0.1 ** p<0.05 *** p<0.01,
Field of education amongst women		
Law X Woman	–0.421*	(0.255)
Physical sciences (including physics, chemistry and earth science) X Woman	0.447*	(0.236)
Engineering X Woman	–0.792***	(0.290)
Education level (cb Gymnasium)		
Vocational High School (3-4 years)	0.430***	(0.0894)
Post-secondary education - vocational high school 4-5 years or vocational post-secondary education 1-2 years	0.842***	(0.127)
University	1.543***	(0.0956)
Masters / Postgraduate or Doctorate Studies	1.858***	(0.137)
Industry (cb Education)		
Production	–0.512***	(0.150)
Water supply, wastewater, waste management	–0.693***	(0.231)
Construction	–0.889***	(0.144)
Wholesale and retail trade, vehicle and motorcycle repair	–0.559***	(0.151)
Transport and storage	–1.197***	(0.184)
Accommodation and catering activities	–0.898***	(0.161)
Real estate activities	–1.113*	(0.591)
Administrative and supporting activities	–0.539***	(0.194)
Public administration and defense, mandatory social security	–1.298***	(0.131)
Art, entertainment and recreation	–0.619***	(0.210)
Other service activities	–0.672***	(0.137)
Activities of extra-territorial institutions and organizations	–0.690**	(0.303)
Others	–1.017***	(0.303)
Industry amongst Women		
Agriculture, forestry and fishery X Woman	–1.777***	(0.679)
Manufacturing X Woman	–0.643**	(0.293)
Wholesale and retail trade, vehicle and motorcycle repair Women X Woman	–0.769***	(0.238)
Sector (c.b. Government, public sector or security sector)		
Private company or enterprise	–0.632***	(0.0734)
International organization	–0.699***	(0.199)
NGO, non-profit or humanitarian organization	–0.577**	(0.227)
Another private individual	–0.877***	(0.158)
Part-time	–0.181**	(0.0912)
Constant	–0.276*	(0.161)
Observations	5,223	
Pseudo R-Squared	0.413	

Note: Robust standard error in parentheses. cb = comparative basis.

Source:Millennium Challenge Corporation Kosovo Labor Force and Time Use Study.

Calculation: GAP Institute. Statistically insignificant categories were redacted in order to compress the study. The ethnicity indicator does not contain any statistically significant categories.

INSTITUTI GAP
GAP INSTITUTE

GAP Institute is a Think Tank established in October 2007 in Kosovo. GAP's main goal is to attract professionals to create an environment of professional development and research, as seen in similar institutions in Western countries. This also provides Kosovars with opportunities to research, develop and implement projects in order to advance the Kosovo society. Priority for this Institute is the mobilization of professionals to address the country's economic, political and social challenges. GAP's main goals are to fill the gaps between government and citizens, and between problems and solutions.

www.institutigap.org

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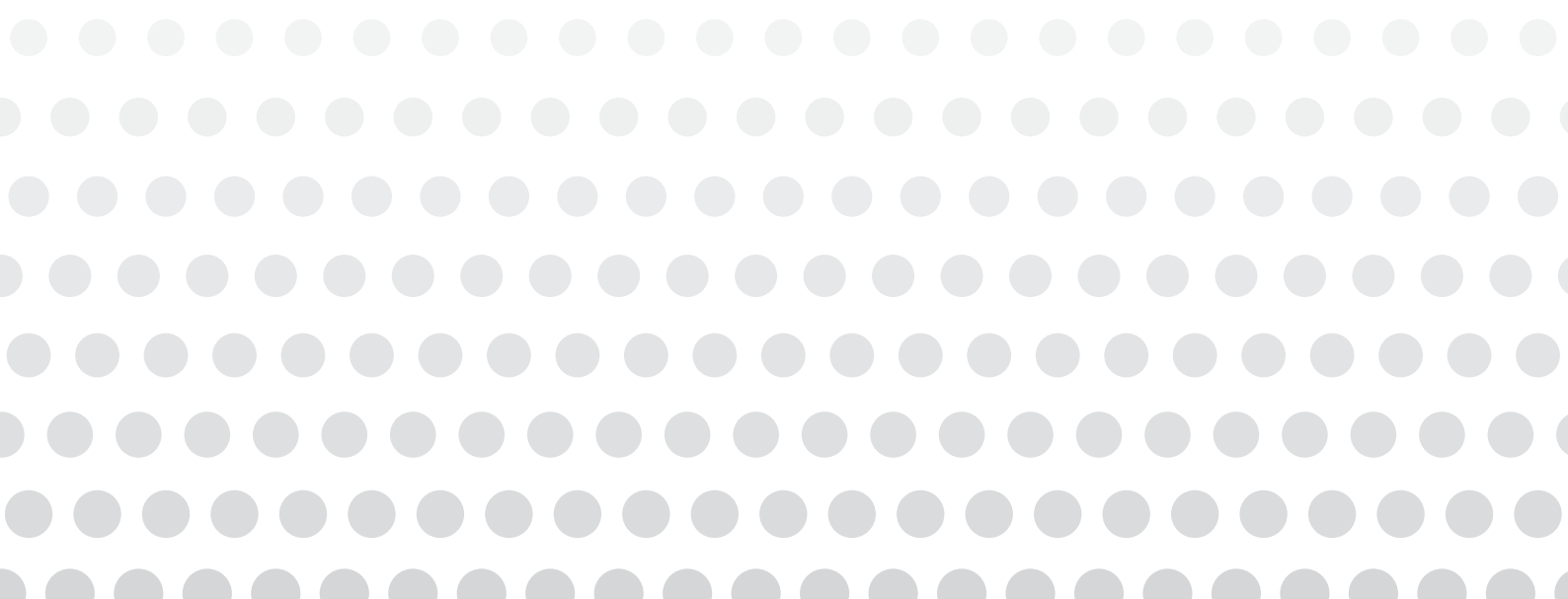
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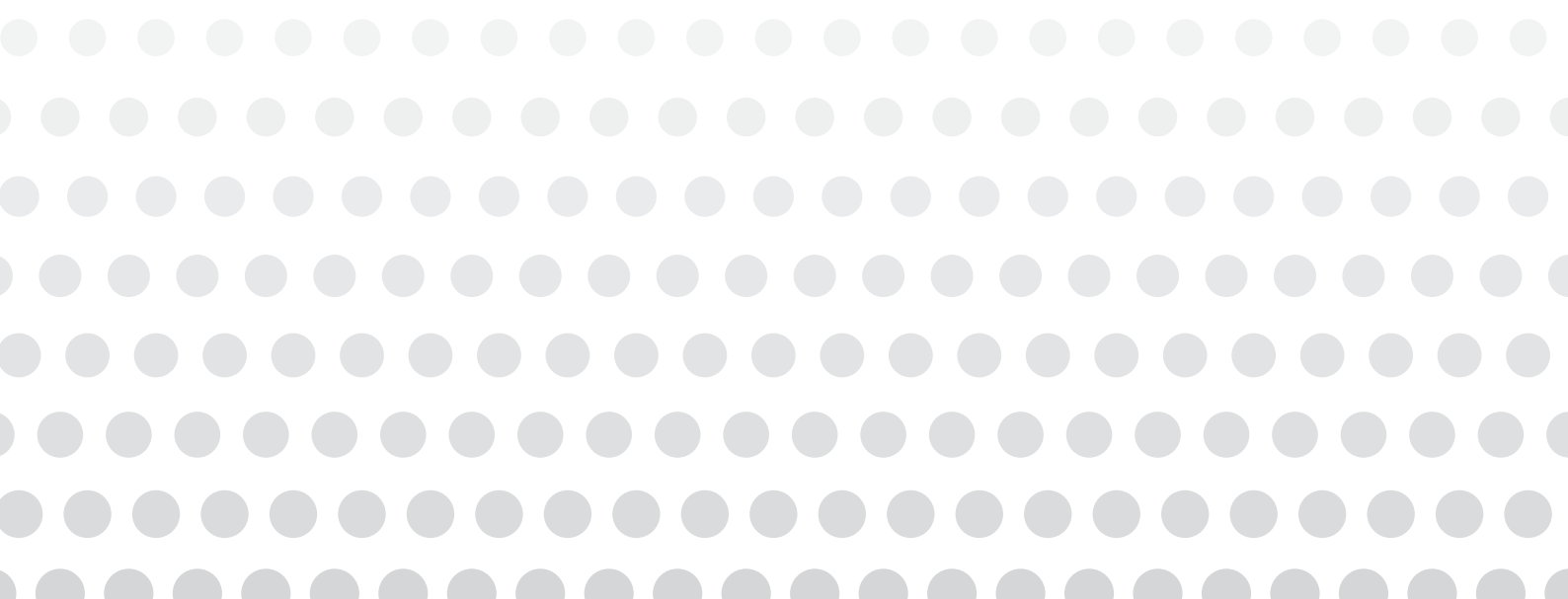
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