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AVAILABILITY OF KINDERGARTENS AND GENDER EQUALITY IN THE LABOUR MARKET

CORRELATION ANALYSIS AT MUNICIPAL LEVEL

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Title:

Availability of kindergartens and gender equality in the labour market
Correlation analysis at municipal level

Title of the original:

Доступност на градинки и родова еднаквост на пазарот на труд - Анализа на поврзаноста по општини

Publisher: Reactor - Research in Action

For the publisher: Tanja Ivanova

Editor: Tanja Ivanova

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Translated from Macedonian: Zana Gjorgjievska

Skopje, 2024

Free/Non-commercial Copy

This publication was produced with the financial support of the European Union and co-funded by Sweden. Its contents are the sole responsibility of Reactor - Research in Action and do not necessarily reflect the views of the European Union or Sweden.

CIP - Каталогизација во публикација

Национална и универзитетска библиотека "Св. Климент Охридски", Скопје

373.22:[305-055.1/.2:331.5(497.7)](047.31)

LESHOSKA, Vaska Availability of kindergartens and gender equality in the labour

market [Електронски извор] : correlation analysis at municipal level /

[authors Vaska Leshoska, Ana Bojchevska Mitrevska ; translated from

Macedonian Zana Gjorgjievska]. - Скопје : Реактор – Истражување во

акција, 2024

Начин на пристапување (URL):

<https://reactor.org.mk/publication-all/%d0%b4%d0%be%d1%81%d1%82%d0%b0%d0%bf%d0%bd%d0%be%d1%81%d1%82-%d0%bd%d0%b0-%d0%b3%d1%80%d0%b0%d0%b4%d0%b8%d0%bd%d0%ba%d0%b8-%d0%b8-%d1%80%d0%be%d0%b4%d0%be%d0%b2%d0%b0-%d0%b5%d0%b4%d0%bd%d0%b0%d0%ba/>

- Текст во PDF формат, содржи 33 стр., илустр. - Фусноти кон текстот. -

Наслов преземен од екранот. - Опис на изворот на ден 16.04.2024

ISBN 978-608-4684-54-1 а) Државни детски градинки -- Родова еднаквост -- Пазар на

труд --Македонија -- Истражувања

COBISS.MK-ID 63487749

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Introduction

The economic inequality between women and men in the Republic of N. Macedonia is still very high. According to the official state statistics, 38% of women of working-age are employed, compared to 56% of men¹. Most of the women of working-age in our country are actually neither employed nor unemployed and are registered as economically inactive. According to the official statistics, among the economically inactive women, 41% of them are housewives. By comparison, 0% of economically inactive men are homemakers².

The care for the home and children is still an “exclusive” female responsibility and it stands as a main reason for women of working-age to be excluded from the labour market³. An accessible and quality early childcare and education, provided through kindergartens and day-care centres, could enable redistribution of the care responsibilities and increase the women’s employment opportunities⁴. An improved access to systemic solutions for a quality and cost-effective early childhood care and education, would generate equal opportunities for creating a balance between private and professional life for both, women and men. It would also contribute to increasing the women’s carrier opportunities and decreasing the gap in salaries and pensions, as well. Many studies and reports have been published worldwide which confirm the (causal) connection amongst the access to a quality and available early childcare and education and the economic empowerment in addition to improved employment opportunities for women^{5,6,7,8}.

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- 1 [State Statistical Office \(2022\). Labour Force Survey 2022.](#)
 - 2 [State Statical Office \(05.4.2023\). Inactive population by categories, age and years. MakStat database.](#)
 - 3 [Leshoska, V., Jolevska, I., Koteska, B., Maleski, B. \(2022\). Gender-based discrimination and labour rights in North Macedonia. Skopje: Reactor – Research in Action.](#)
 - 4 [Reactor – Research in Action \(2021\). Men and Care \(MAC\): Caring Masculinity in North Macedonia – national report. Skopje: Reactor – Research in Action.](#)
 - 5 [Hojman, A., & Lopez Boo, F. \(2022\). Public Childcare Benefits Children and Mothers: Evidence from a Nationwide Experiment in a Developing Country. Journal of Public Economics, 212.](#)
 - 6 [Nandi, A., Agarwal, P., Chandrashekar, A., & Harper, S. \(2020\). Access to Affordable Daycare and Women’s Economic Opportunities: Evidence from a Cluster-Randomised Intervention in India. Journal of Development Effectiveness, 12\(3\), 219–239.](#)
 - 7 [European Commission Joint Research Centre. \(2023, March 8\). Increasing Early Childhood Education and Care Participation Can Promote Women’s Employment. Joint Research Centre - European Commission.](#)
 - 8 [Addati, L., & Cattaneo, U. \(2022\). Care at work: Investing in care leave and services for a more gender equal world of work. ILO.](#)

The economic simulations made by the European Commission Joint Research Centre confirm that measures taken for provision of formal early-childhood care and education services in the member states would result in improved participation of women in the labour force⁹. The estimates show that, the outcomes would be greater for countries with a lower participation of women in the paid labour market and countries where the formal childcare rate is low.

These analyses confirm the European Union (EU) strategic commitments to increase the women`s participation in the paid labour market by improving the access to systemic solutions for early childhood care and education. In 2022, as a part of the European Care Strategy¹⁰, the European Commission (EC) proposed a revision of Barcelona targets on providing early childhood education and care, originally adopted in 2002¹¹. Following the EC`s proposal, the Council recommended the member states to remove obstacles for women`s participation in the labour market by 2030 considering the requirements for care and childcare services, and to ensure childcare provision for at least 96% of children at the age of 3 up to the compulsory school-going age, and no less than 45% of children under the age of 3¹².

Improvement of the access to early education and care should certainly be considered in terms of far-reaching implications on the child development. A quality education and early childhood care promote the physical, cognitive, and social development of children and improve the educational outcomes in the long term¹³. Integration of children through systemic solutions for care and early education further reduces the risk of social exclusion and makes it possible to break the cycle of poverty. Therefore, it is essential to ensure a quality and available early care and education for all, particularly for the most marginalized groups.

9 [European Commission Joint Research Centre. \(2023, March 8\). Increasing Early Childhood Education and Care Participation Can Promote Women's Employment. Joint Research Centre - European Commission.](#)

10 [European Commission. \(2022, September 7\). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the European care strategy.](#)

11 [European Council \(2002\). Presidency Conclusion, Barcelona European Council 15–16 March 2002, \(SN 100/1/02 REV1\)](#)

12 [The Council of the European Union. \(8 December 2022\). Council Recommendation on early childhood education and care: the Barcelona targets for 2030 \(2022/C 484/01\).](#)

13 [European Commission. \(2022, September 7\). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the European care strategy.](#)

The early childcare and education in our country, according to the child protection system¹⁴, is implemented through public and private institutions – kindergartens and centres for early childhood development. The Ministry of Labour and Social Policy reports on the efforts made to increase the preschool childcare and education capacities through founding new kindergartens and centres for early childhood development, construction of new facilities as an internal component of the existing ones or by adjacent premises for enrolling new groups of children¹⁵.

According to data obtained from the SSO, during the period of 2018 to 2022, it might be noticed a certain alteration in the overall number of care providers in 2022 only, when the total number of caregivers is increased from 104 (2021) to 113 (2022), and this progress is based mainly on proliferation of private kindergartens that still remain with a lower coverage¹⁶. For instance, in 2022 there were only 1266 children cared for in the private kindergartens, compared to the number of 34356 children in the state kindergartens¹⁷. Moreover, the official statistics data on the rate of children cared for indicates that we are far away from reaching the EU average, as well as of achieving the Barcelona goals. The European average (EU-27) on the percentage of childcare for children aged 3 to the age of starting compulsory education is 92,2%, while this percentage in our country is 39,8%¹⁸. The European average (EU-27) for children cared for at the age of 3 is 87,3%, whereas the percentage in our country is 31,2%¹⁹.

National rates undoubtedly “camouflage” the fluctuations in rates in different country regions. A distinguished observation of the situations by municipalities is of a particular importance if we take into account the decentralization of responsibilities for organizing preschool childcare and early childhood education (ECE). Along with the national provisions, public kindergartens are to be established by the Municipal council and the Government of the Republic of North Macedonia, upon a recommendation given by the Ministry of Labour and Social

14 [Law on Child Protection \(„Official Gazette of the Republic of Macedonia” No.23/13, 12/14, 44/14, 144/14, 10/15, 25/15, 150/15, 192/15, 27/16, 163/17, 21/18, 198/18 and „Official Gazette of the Republic of North Macedonia” No.104/19, 146/19, 275/19 и 311/20\)](#)

15 [Ministry of Labour and Social Policy \(last approached 15.11. 2023\). Increasing the capacities for care and education](#)

16 [State Statistical Office \(16.5.2023\). Number of children and institutions for childcare and ECE - kindergartens/centres for early childhood development](#)

17 Ibid.

18 [Eurostat \(last update: 19/10/2023\). Pupils from age 3 to the starting age of compulsory education at primary level by NUTS2 regions - % of the population of the corresponding age. Last available data for North Macedonia 2018.](#)

19 [Eurostat \(last update: 19/06/2023\). Pupils in early childhood and primary education by education level and age - as % of corresponding age population](#)

Policy, under conditions determined by the Law on Child Protection²⁰. In this regard, municipalities hold the responsibility to recognize the needs and formalize the requests for organizing childcare and ECE services. Decentralization might have the potential to respond more effectively to the local requirements, but municipalities with a limited budget and restricted capacities may find themselves disadvantaged in terms of opportunities to provide childcare facilities, as well as quality early care and education²¹. Therefore, it is crucial to consider the requirements at local level.

This analysis provides an empirical examination of the connection between the accessibility of public kindergartens at local level and women`s employment opportunities. The calculations are based on administrative data and data collected from the Census of Population, Households and Dwellings in the Republic of North Macedonia, 2021 (Census 2021) conducted in 2021, obtained during the groundwork for Gender Equality Index of Municipalities in the R. of North Macedonia²². The data relating to public institutions for care and childcare are obtained from the State Statistical Office (SSO), while the calculations regarding employment equality between women and men, as well as the rates of employed women and housewives, are made upon data obtained from the Census 2021, conducted by the SSO.

20 [Law on Child Protection \(„Official Gazette of the Republic of Macedonia“ No.23/13, 12/14, 44/14, 144/14, 10/15, 25/15, 150/15, 192/15, 27/16, 163/17, 21/18, 198/18 и „Official Gazette of the Republic of North Macedonia“ No.104/19, 146/19, 275/19 и 311/20\)](#)

21 [Addati, L., & Cattaneo, U. \(2022\). Care at work: Investing in care leave and services for a more gender equal world of work. ILO.](#)

22 Gender Equality Index of Municipalities in the R. N. Macedonia (www.rodovindeks.mk)

Availability of kindergartens – overview of the situation in the municipalities in North Macedonia

Availability of state kindergartens

The availability of state kindergartens has been analysed through data obtained from the State Statistical Office, by request for free access to public information, relating to the number of public institutions for childcare and ECE of children – kindergartens – centres for early childhood development by municipalities²³, and data concerning the number of preschool-aged children in the municipality as well²⁴. Initially, we analyse the state of affairs in municipalities without any state kindergartens, and then we look into the municipalities where there is at least one kindergarten.

Table 1 displays the rank of municipalities without any state kindergarten, in line with the number of children in the municipality under the age of 6 and need to be cared for. In 21 municipalities in the R. N. Macedonia, there is no public institution for childcare and ECE – kindergarten. All of these municipalities are rural ones. There is a private kindergarten in only one of the municipalities without state kindergartens and it is located in the municipality of Brvenica. Although the municipalities of Konche and Mogila have no state kindergartens, there is a public centre for early childhood development, respectively.

The table displays a list of municipalities without any state kindergarten, according to the number of children in the municipality who, along with their age, need care. The situation is most alarming in the municipality of Studenicani where this basic public service is not available for more than 3000 children. Altogether, along with the estimates made for 2021, more than 17.000 children under the age of 6 live in a municipality without a single state kindergarten.

23 Data for the reference year are obtained by purchasing information from the SSO that are not available in the public domain. "Reactor – Research in Action" has the data available for further analysis. Otherwise, the State Statistical Office publishes data on [institutions for childcare and ECE of children – kindergartens/centres for early childhood development](#).

24 [State Statistical Office \(2022\). Total resident population, households and apartments in the Republic of North Macedonia, CENSUS 2021.](#)

Table 1. Municipalities without state kindergartens, listed according to the number of children in the municipality who need care

Municipalities without a state kindergarten	Number of children under the age of 6	Number of settlements
Studenichani	3079	19
Bogovinje	1943	16
Zhelino	1894	18
Arachinovo	1602	4
Tearce	1474	13
Dolneni	1165	37
Brvenica	1034	10
Chashka	926	42
Bosilovo	752	16
Chucher - Sandevo	724	12
Plasnica	301	4
Mogila	300	23
Mavrovo i Rostushe	292	42
Zelenikovo	289	14
Centar Zhupa	288	23
Rankovce	253	18
Gradsko	230	16
Staro Nagorichane	206	39
Debarca	203	30
Lozovo	171	11
Konche	157	14
Total	17283	421

Percentage of children cared for in state kindergartens

The percentage of children cared for is a measure of the available care facilities and the degree of their utilization because it displays the actual situation – how many of the overall number of children in the municipality, under the age of 6, are cared for in a state kindergarten.



In table 2, the municipalities are listed according to the percentage of children cared for in public kindergartens within the municipality. The coverage is the largest in the municipality of Centre since there are 4 public kindergartens, where 64.3% of the children, under the age of 6, are cared for. The smallest coverage is shown in the municipalities of Shuto Orizari and Lipkovo, where the percentage of children cared for is less than 3%. Apart from the municipality of Centre, the percentage of children cared for does not exceed 50% in any other municipality and, in slightly more than half of the municipalities, the percentage of children cared for is below 30%.

Table 2. Municipalities with state kindergartens listed by the percentage of children cared for

LGUs	Number of state kindergartens in 2021	Percentage of children cared for in state kindergartens in 2021	Number of children cared for in state kindergartens in 2021	Children up to the age of 6 in 2021
Centar	4	64.3%	2006	3122
Zrnovci	1	48.5%	47	97
Gevgelija	1	47.6%	693	1457
Pehchevo	1	46.6%	89	191

LGUs	Number of state kindergartens in 2021	Percentage of children cared for in state kindergartens in 2021	Number of children cared for in state kindergartens in 2021	Children up to the age of 6 in 2021
Bogdanci	1	46.4%	212	457
Karposh	4	44.7%	2071	4630
Negotino	1	43.8%	545	1244
Delchevo	1	41.3%	305	739
Berovo	1	41.2%	223	541
Kavadarci	1	40.7%	1009	2477
Kisela Voda	2	40.0%	1784	4463
Makedonska Kamenica	1	39.6%	143	361
Probishtip	1	39.0%	271	694
Demir Kapija	1	37.9%	91	240
Cheshinovo-Obleshevo	1	37.6%	112	298
Vevchani	1	37.1%	43	116
Shtip	2	36.9%	1126	3051
Rosoman	1	35.2%	87	247
Veles	1	35.0%	1132	3237
Sveti Nikole	1	34.1%	315	925
Demir Hisar	1	33.2%	106	319
Ilinden	1	32.8%	426	1300
Valandovo	1	32.6%	219	671
Vinica	1	32.5%	297	915
Aerodrom	2	30.3%	1858	6139
Butel	1	30.2%	967	3203
Kriva Palanka	1	29.6%	272	918
City of Skopje	20	27.9%	12311	44138
Gazi Baba	2	27.8%	1468	5281
Prilep	1	26.6%	1165	4382
Kochani	1	26.1%	507	1946
Makedonski Brod	1	25.9%	82	316

LGUs	Number of state kindergartens in 2021	Percentage of children cared for in state kindergartens in 2021	Number of children cared for in state kindergartens in 2021	Children up to the age of 6 in 2021
Kratovo	1	25.8%	83	322
Gjorche Petrov	1	25.5%	805	3162
Strumica	1	25.4%	990	3905
Radovish	1	25.3%	480	1899
Dojran	1	25.3%	47	186
Resen	1	24.1%	196	812
Novo Selo	1	23.2%	64	276
Ohrid	1	22.0%	729	3310
Debar	1	21.7%	290	1336
Bitola	2	21.4%	1179	5517
Novaci	1	21.0%	29	138
Krivogashtani	1	20.1%	59	293
Chair	2	17.0%	1109	6514
Karbinci	1	17.0%	49	288
Kumanovo	1	16.5%	1263	7637
Petrovec	1	15.4%	129	835
Kichevo	1	15.4%	405	2626
Gostivar	1	14.6%	654	4485
Struga	1	12.9%	519	4013
Krushevo	1	11.7%	69	592
Vasilevo	1	10.1%	83	825
Tetovo	1	8.9%	672	7543
Jegunovce	1	5.6%	35	621
Sopishte	1	4.7%	30	633
Vrapchishte	1	3.8%	61	1608
Saraj	1	3.5%	159	4542
Shuto Orizari	1	2.7%	84	3082
Lipkovo	1	2.0%	44	2176

Employment – overview of the situation in the municipalities in North Macedonia

Equality between women and men in terms of employment

The (in)equality in employment of women and men at municipal level has been analysed through data obtained from the census conducted by the State Statistical Office in 2021.

The equality is measured as a ratio between the numbers of employed women and employed men in the municipality and accordingly, a value less than 1 indicates that there are more men employed in the municipality whereas, the value higher than 1 indicates that more women are employed in the municipality.

WHAT IS THE EMPLOYMENT RATIO IN AN AVERAGE MUNICIPALITY?



In table 3, municipalities are ranked according to the evaluation of employment equality between women and men. On average, the employment ratio between women and men is 0.67 indicating that for every 10 employed men in the municipality there are only 7 employed women.

Out of 81 municipalities, in only 3 the number of employed women surpasses the number of employed men. Taking into account the data obtained from the Census 2021 which indicates that slightly more women than men live in these three municipalities, this data is open to interpretation.²⁵ Put differently, the greater representation of female residents in these municipalities correlates with a heightened presence of employed women²⁶.

25 Centar - 53% women, ratio 1.01; Aerodrom - 52% women, ratio 1.01; Karposh - 53% women, ratio 1.01

26 $r(81) = 0.323, p = 0.003$

Table 3. Municipalities ranked according to the evaluation of employment equality between women and men

LGUs	Employment equality in 2021	Employment equality in 2016
Centar	1.07	1.05
Aerodrom	1.02	1.01
Karposh	1.02	1.02
Vevchani	0.99	1
Kisela Voda	0.97	0.94
Kochani	0.97	1.04
Shtip	0.96	1.06
Delchevo	0.94	0.9
Gjorche Petrov	0.94	1
Ohrid	0.93	0.9
Vinica	0.90	0.93
Prilep	0.90	0.81
Gevgelija	0.89	0.9
City of Skopje	0.87	0.86
Zrnovci	0.86	0.79
Veles	0.86	0.87
Bitola	0.86	1.05
Sveti Nikole	0.85	0.96
Gazi Baba	0.84	0.79
Strumica	0.83	0.9
Berovo	0.83	0.82
Cheshinovo-Obleshevo	0.82	0.74
Kavadarci	0.82	0.88
Probishtip	0.82	0.87
Bogdanci	0.81	0.9
Ilinden	0.80	0.68

LGUs	Employment equality in 2021	Employment equality in 2016
Kumanovo	0.78	0.72
Negotino	0.77	0.76
Resen	0.77	0.83
Butel	0.75	0.79
Krivogashtani	0.73	0.53
Chucher - Sandevo	0.72	0.57
Dojran	0.71	0.74
Karbinci	0.70	0.85
Demir Hisar	0.70	0.57
Valandovo	0.70	0.53
Pehchevo	0.69	0.74
Radovish	0.69	0.67
Kriva Palanka	0.68	0.69
Demir Kapija	0.68	0.7
Krushevo	0.68	0.63
Sopishte	0.67	0.3
Konche	0.67	0.51
Petrovec	0.66	0.21
Makedonski Brod	0.66	0.48
Dolneni	0.66	0.58
Kratovo	0.65	0.52
Jegunovce	0.65	0.64
Kichevo	0.64	0.52
Zelenikovo	0.64	0.57
Makedonska Kamenica	0.63	0.42
Rosoman	0.63	0.64
Debarca	0.63	0.57
Bosilovo	0.62	0.61
Struga	0.62	0.59

LGUs	Employment equality in 2021	Employment equality in 2016
Brvenica	0.62	0.61
Tetovo	0.61	0.62
Novo Selo	0.60	0.61
Debar	0.58	0.49
Chair	0.57	0.6
Gostivar	0.57	0.57
Gradsko	0.54	0.45
Rankovce	0.53	0.39
Lozovo	0.52	0.53
Mogila	0.52	0.38
Vasilevo	0.48	0.44
Tearce	0.48	0.41
Shuto Orizari	0.48	0.41
Novaci	0.46	0.31
Chaska	0.44	0.36
Staro Nagorichane	0.43	0.25
Mavrovo i Rostushe	0.36	0.27
Bogovinje	0.33	0.3
Lipkovo	0.32	0.25
Vrapchishte	0.31	0.38
Saraj	0.29	0.27
Arachinovo	0.25	0.19
Centar Zhupa	0.25	0.17
Zhelino	0.22	0.25
Studenichani	0.17	0.16
Plasnica	0.15	0.13

Employed women as a rate of the working-age population

Women's employment rate, as a percentage of employed women out of the total working-age women in the municipality, was not taken into consideration by the Local Gender Equality Index of Municipalities, but then, additional calculations were made for the purpose of this analysis. The number of employed women per municipality, including the capacity of working-age women, are extracted from the available data from the State Statistical Office, obtained from the cCensus in 2021.²⁷

WHAT IS THE EMPLOYMENT RATE OF WOMEN IN AN AVERAGE MUNICIPALITY?



In table 4, the municipalities are ranked according to the employment rate of women in the municipality.

In an average municipality, 31.2% of the working-age women are employed. This rate differs from 51.7% of employed women in the municipality of Aerodrom and 51.1% in the municipality of Karposh, to slightly less than 5% of employed women in the municipalities of Plasnica and Centar Zhupa. In most of the municipalities, the rate of employed women does not exceed 40%.

27 *IBID*

Table 4. Municipalities ranked according to the rate of employed women

LGUs	Percentage of employed women out of the working-age women (15+) 2021	Percentage of employed men out of the working-age men (15+) 2021
Aerodrom	51.7%	56.7%
Karposh	51.1%	57.6%
Centar	49.6%	55.3%
Kisela Voda	49.4%	55.4%
Gjorche Petrov	48.0%	54.0%
Krivogashtani	47.6%	59.8%
Konche	47.1%	62.4%
Gevgelija	45.9%	52.4%
Shtip	45.8%	49.6%
Ilinden	44.8%	56.8%
Kavadarci	44.8%	55.0%
Dolneni	44.7%	61.9%
Vevchani	43.1%	43.1%
Ohrid	42.4%	48.1%
Negotino	42.2%	54.8%
Bogdanci	42.0%	50.1%
Bitola	41.7%	51.1%
Kochani	41.2%	43.8%
Probishtip	41.1%	48.3%
Sveti Nikole	39.5%	44.9%
Prilep	39.4%	45.3%
Gazi Baba	39.2%	48.6%
Veles	38.8%	46.1%
Karbinci	38.7%	51.6%
Cheshinovo-Obleshevo	38.6%	45.8%
Vinica	38.0%	42.9%

LGUs	Percentage of employed women out of the working-age women (15+) 2021	Percentage of employed men out of the working-age men (15+) 2021
Valandovo	37.8%	50.8%
Strumica	37.7%	47.2%
Delchevo	37.3%	39.4%
Chucher-Sandev	37.2%	48.5%
Dojran	37.0%	50.1%
Demir Hisar	36.7%	49.3%
Makedonski Brod	34.9%	47.8%
Demir Kapija	34.6%	47.8%
Sopishte	34.5%	50.9%
Zelenikovo	34.3%	51.4%
Butel	33.7%	46.7%
Rosoman	33.7%	50.5%
Mogila	33.1%	56.9%
Pehchevo	33.0%	46.3%
Bosilovo	33.0%	52.1%
Resen	32.8%	42.7%
Berovo	32.6%	39.1%
Zrnovci	31.7%	36.5%
Kratovo	30.9%	44.7%
Makedonska Kamenica	30.6%	44.8%
Kumanovo	30.1%	39.5%
Radovish	29.9%	42.7%
Kriva Palanka	29.9%	41.3%
Petrovec	29.4%	43.7%
Lozovo	28.7%	47.6%
Novo Selo	28.2%	46.3%
Novaci	28.0%	55.0%

LGUs	Percentage of employed women out of the working-age women (15+) 2021	Percentage of employed men out of the working-age men (15+) 2021
Kichevo	28.0%	43.4%
Gradsko	27.7%	46.2%
Krushevo	27.5%	39.4%
Jegunovce	26.9%	41.1%
Debarca	25.3%	38.9%
Struga	24.8%	41.3%
Vasilevo	23.8%	46.6%
Chair	23.1%	42.2%
Tetovo	22.9%	40.1%
Gostivar	22.1%	41.3%
Debar	21.4%	37.7%
Brvenica	20.8%	34.8%
Rankovce	18.8%	31.2%
Staro Nagorichane	18.5%	35.4%
Shuto Orizari	16.7%	34.7%
Tearce	15.3%	32.2%
Mavrovo i Rostushe	13.5%	39.6%
Chashka	12.6%	27.3%
Saraj	11.5%	39.8%
Bogovinje	10.2%	31.7%
Vrapchishte	10.2%	35.4%
Lipkovo	6.6%	20.8%
Arachinovo	6.0%	22.3%
Studenichani	6.0%	34.0%
Zhelino	5.7%	28.3%
Centar Zhupa	4.9%	21.3%
Plasnica	4.7%	31.7%

Labour market exclusion (housewives)

Working-age women excluded from the labour market (housewives)

Calculations on the percentage of women who belong to the category of working-age females (15+) and are excluded from the labour market (housewives), are based on data obtained from the State Statistical Office, i.e. on the Census 2021²⁸. In this section we analyse the number of housewives per municipality and the capacity of working-age women. Table 5 gives an overview of the situation across municipalities and ranks them in descending order.

In an average municipality, 26.3% of women of working-age are excluded from the paid labour market as housewives, while the average for men in the same category, of economically inactive persons because of caregiving or homemakers, is less than one percent. **Apparently, this is one of the major gender gaps.** In nine of the municipalities, there are more than half of the women of working-age being housewives, and this rate reaches up to 66% in Zhelino and 65% in Plasnica. The lowest rate is recorded in the municipality of Centar (3%), Karposh (4%) and Shtip (4%).

Table 5. Municipalities ranked according to the rate of housewives

LGUs	Percentage of women excluded from the labour market (housewives) of the working-age women (15+) 2021	Percentage of men excluded from the labour market (homemakers) of the working-age men (15+) 2021
Zhelino	66%	1%
Plasnica	65%	1%
Centar Zhupa	62%	0%
Arachinovo	61%	1%
Vrapchishte	61%	1%
Saraj	59%	5%
Studenichani	59%	6%

LGUs	Percentage of women excluded from the labour market (housewives) of the working-age women (15+) 2021	Percentage of men excluded from the labour market (homemakers) of the working-age men (15+) 2021
Chashka	54%	0%
Bogovinje	54%	0%
Lipkovo	45%	1%
Brvenica	43%	2%
Tearce	42%	0%
Vasilevo	40%	1%
Shuto Orizari	39%	2%
Gostivar	38%	1%
Mavrovo i Rostushe	37%	0%
Tetovo	36%	1%
Chair	35%	1%
Struga	35%	1%
Mogila	33%	0%
Lozovo	32%	1%
Staro Nagorichane	32%	0%
Rosoman	32%	2%
Bosilovo	32%	0%
Petrovec	31%	0%
Novaci	31%	1%
Novo Selo	31%	0%
Zelenikovo	30%	1%
Sopishte	29%	0%
Krushevo	29%	4%
Jegunovce	29%	3%
Kichevo	29%	1%
Cheshinovo-Obleshevo	28%	2%

LGUs	Percentage of women excluded from the labour market (housewives) of the working-age women (15+) 2021	Percentage of men excluded from the labour market (homemakers) of the working-age men (15+) 2021
Gradsko	27%	0%
Debar	27%	1%
Debarca	27%	3%
Makedonska Kamenica	27%	1%
Rankovce	26%	0%
Dolneni	26%	1%
Zrnovci	25%	0%
Radovish	24%	2%
Konche	24%	0%
Kumanovo	23%	1%
Chucher – Sandevo	22%	0%
Krivogashtani	21%	1%
Butel	21%	0%
Ilinden	21%	1%
Karbinci	21%	3%
Gazi Baba	19%	1%
Makedonski Brod	19%	0%
Valandovo	18%	1%
Demir Hisar	17%	0%
Dojran	17%	0%
Vinica	17%	0%
Demir Kapija	17%	1%
City of Skopje	16%	1%
Kriva Palanka	16%	1%
Kratovo	16%	0%
Resen	15%	1%

LGUs	Percentage of women excluded from the labour market (housewives) of the working-age women (15+) 2021	Percentage of men excluded from the labour market (homemakers) of the working-age men (15+) 2021
Probishtip	15%	0%
Strumica	14%	0%
Negotino	14%	1%
Kochani	14%	0%
Bogdanci	14%	1%
Veles	14%	1%
Berovo	13%	1%
Kavadarci	13%	0%
Pehchevo	12%	1%
Prilep	12%	1%
Vevchani	11%	1%
Bitola	10%	0%
Ohrid	10%	0%
Delchevo	10%	0%
Sveti Nikole	10%	1%
Gjorche Petrov	8%	0%
Gevgelija	8%	2%
Kisela Voda	7%	0%
Aerodrom	5%	0%
Karposh	4%	0%
Shtip	4%	1%
Centar	3%	0%

Significant correlations

The equality between women and men in terms of employment is higher in municipalities with at least one state kindergarten

In municipalities with at least one state kindergarten, women are more likely to be employed. This probability follows on the finding of a statistically significant difference between municipalities with at least one state kindergarten²⁹ and municipalities without any kindergarten³⁰, in terms of employment equality³¹, which actually indicates the ratio between the numbers of employed women to men in the municipality. In municipalities with at least one kindergarten, the ratio between the numbers of employed women to men comes to an average of 0.74, while in municipalities without any kindergarten this ratio is 0.46. On average, the value of this ratio is progressive in the municipalities with kindergartens since the number of employed women is higher. Therefore, it can be concluded that the availability of state kindergartens in the municipality increases the opportunity of women`s employment. According to the conventions for differential measuring, the effect impact is large³² in this case, indicating that there is a statistically significant difference.



**IS THE EMPLOYMENT
INEQUALITY LOWER IN
MUNICIPALITIES WITH STATE
KINDERGARTENS?**



29 M= 0.46, SD=0.2

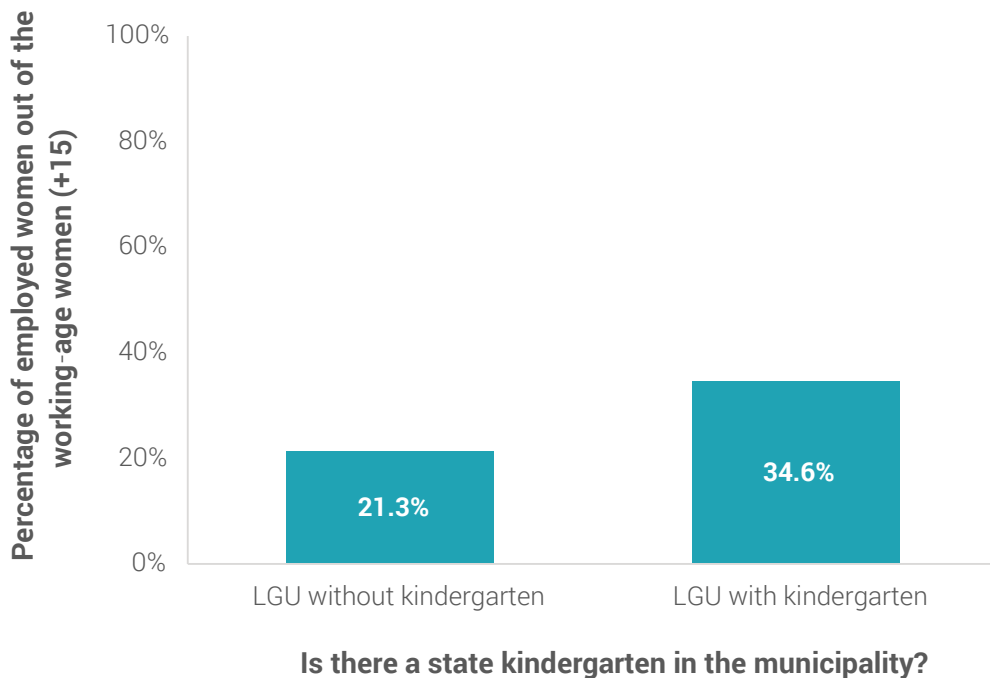
30 $t(79)= 6.23, p = .00$.

31 Cohen's $d = 1.39$ (Effect size is a quantitative measure of the magnitude of the experimental effect. The larger the effect size the stronger the relationship between two variables. According to [Kohen](#), all values above 0.5 are considered large).

32 $t(79)= 4.786, p = .000$.

The rate of employed women is higher in municipalities with at least one state kindergarten

A more immediate confirmation of the insight that availability of childcare services increases the opportunity for women's employment is the finding that municipalities with at least one state kindergarten have a higher rate of women's employment. In municipalities with at least one kindergarten, the percentage of employed women is 34.6% on average, while the percentage of employed women in municipalities with no kindergarten is 21.3%. The difference is statistically significant³³ and the impact of this effect is large³⁴, which indicates that this factor is significant.



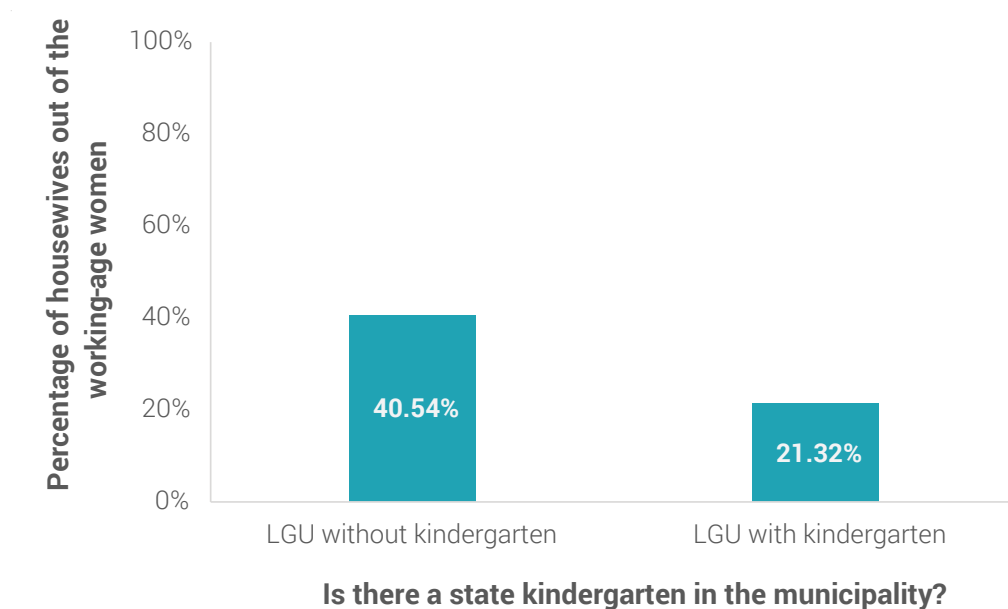
Graph 1. Difference in the average rate of women's employment between municipalities with at least one state kindergarten and municipalities without any kindergarten.

33 $t(79) = 4.786, p = .000.$

34 Cohen's $d = 1.12$

The rate of women excluded from the paid labour market due to care responsibilities (housewives) is lower in municipalities with at least one state kindergarten

The unavailability of state kindergartens is also associated with a higher rate of housewives. The rate of women excluded from the labour market due to care responsibilities (housewives) in municipalities with no state kindergartens is 40% on average, whereas this percentage is commonly 21% in municipalities with at least one state kindergarten. The difference is statistically significant³⁵, the impact of this effect is large³⁶ which indicates that this factor is significant.



Graph 2. Difference in the average rate of housewives between the municipalities with at least one state kindergarten and municipalities without any kindergarten

35 $t(79) = -5.77, p < .001$.

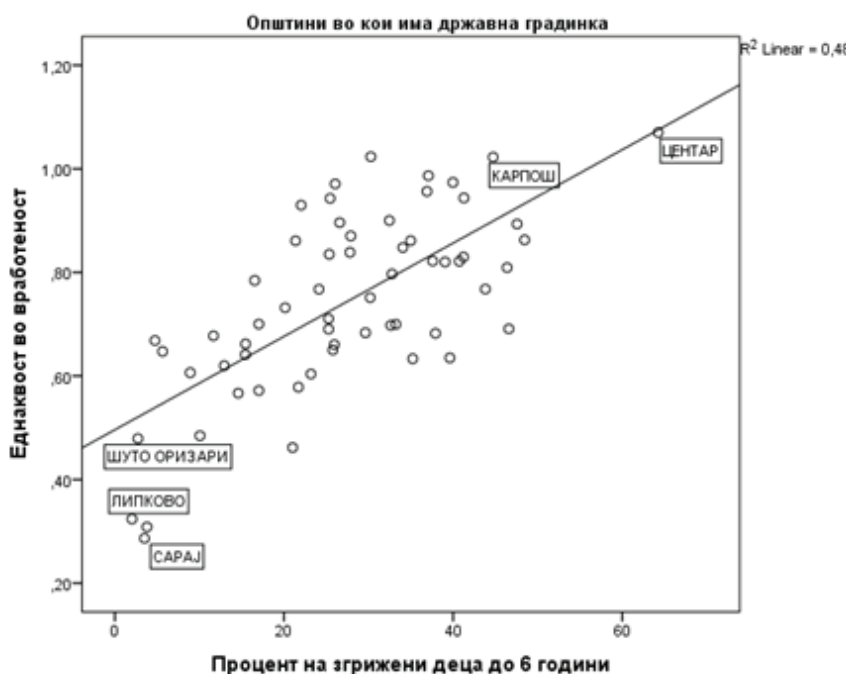
36 Cohen's $d = 1.39$

The equality in employment is higher in municipalities with a higher percentage of children cared for in state kindergartens

The percentage of children cared for is a measure of the available care facilities and the degree of their utilization since it illustrates the actual situation – how many of the total number of children in the municipality, under the age of 6, are cared for in a state kindergarten.

The employment equality between women and men is higher in municipalities with a higher percentage of children cared for in state kindergartens.³⁷ The extent of this effect, according to the conventional values, refers to a great impact.

38 39



Graph 3. Connection amongst the percentage of children cared for in state kindergartens and the employment equality between women and men

On graph 3 it is obvious that in municipalities with kindergartens, which increases the percentage of children cared for, the value of the employment rate

37 $r(58) = 0.69$ $p < 0.0001$

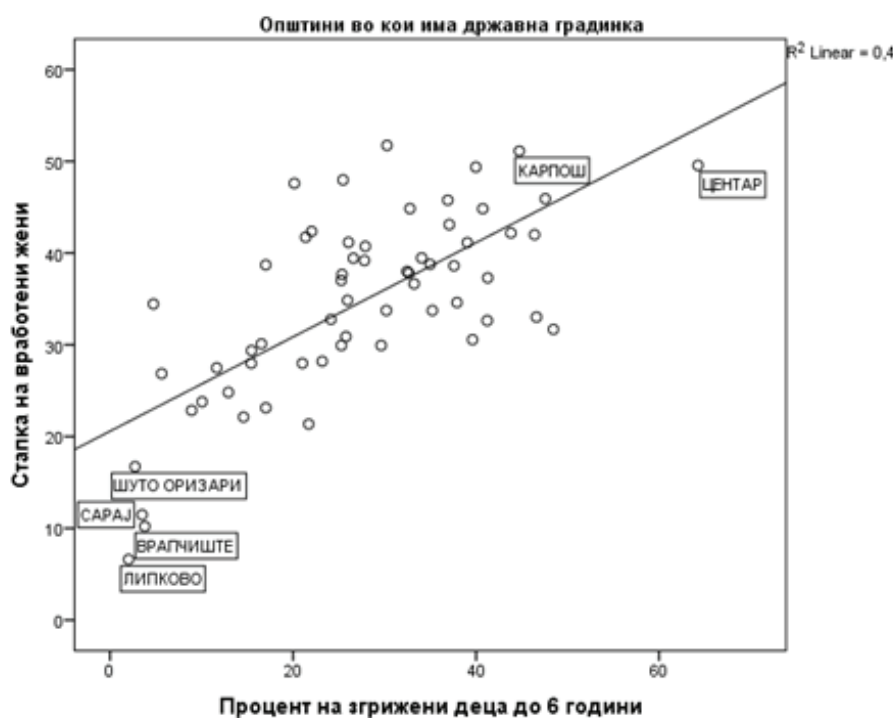
38 $(r > 0.50)$

39 Specifically, the percentage of children cared for clarifies 48% of the variability in employment equality ($R^2 = 0.48$).

between women and men is also improved. In the municipality of Centar, where the percentage of children cared for is the highest (64.25%), the employment ratio between women and men is slightly higher than 1 (1.07), and it refers to an achieved equality in employment.

The rate of employed women is higher in municipalities with a higher percentage of children cared for in state kindergartens

By increasing the percentage of children cared for in a state kindergarten in the municipality, the percentage of employed women improves too.⁴⁰ The size of this effect, according to the conventional values, refers to a moderate impact ($r < 0.50$).⁴¹



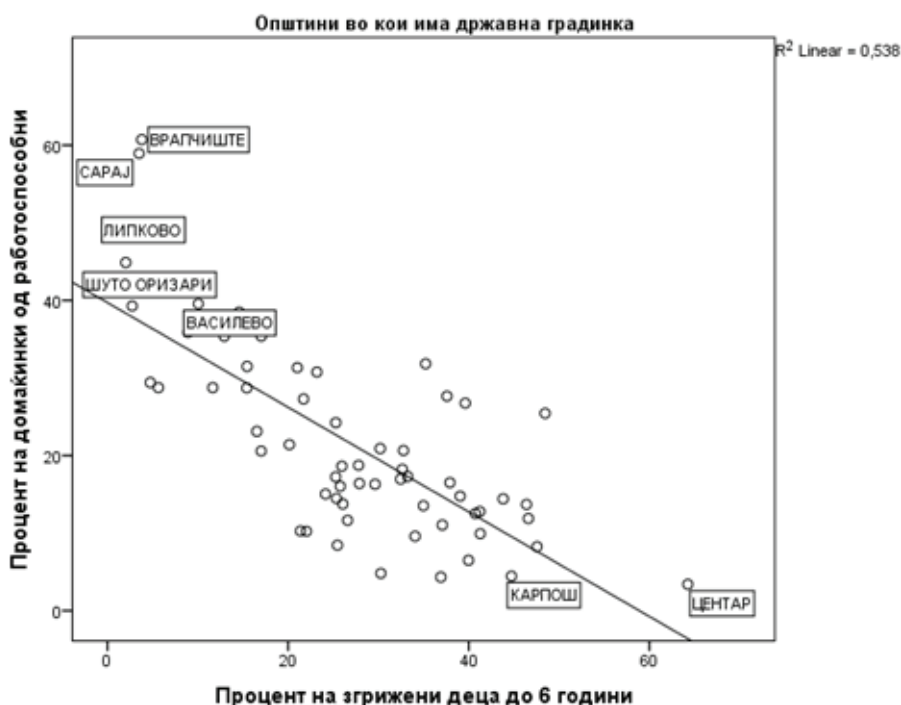
Graph 4. Connection between the percentage of children cared for in state kindergartens and the employment rate of women in the municipality

40 $r(58) = 0.70, p < 0.0001$

41 The percentage of children cared for clarifies 46% of the variability in the employment equality ($R^2 = 0.48$).

The rate of women excluded from the paid labour market due to care responsibilities (housewives), is lower in municipalities with a higher percentage of children cared for in state kindergartens

By increasing the percentage of children cared for in a state kindergarten in the municipality, the percentage of women excluded from the paid labour market due to care responsibilities or housewives - as listed in the official statistics, is getting decreased⁴². The dimension of this effect, according to the conventional values, refers to a huge impact ($r > 0.50$).⁴³



Graph 5. Connection between the percentage of children cared for in state kindergartens and the percentage of women excluded from the labour market as housewives in the municipality

42 $r(58) = -0.73, p < 0.0001$

43 The percentage of children cared for clarifies 54% of the variability in the rate of housewives ($R^2 = 0.54$).

Conclusions and recommendations



- In accordance with the child protection system in our country, every child has the right to childcare and ECE, which does not correspond to the reality. The access to public services for early childcare and education, measured by the availability of state kindergartens and coverage of children cared for, differs significantly per municipality. Altogether, according to the estimates for 2021, **more than 17 000 children, under the age of 6, live in a municipality without a single state kindergarten.**
- The coverage is the largest in the municipality of Centar, where there are 4 public kindergartens with a coverage of 64.3% of children under the age of 6 that are cared for. **The smallest coverage of children is in the municipalities of Shuto Orizari and Lipkovo where the percentage of children cared for is less the 3%.** Apart from the municipality of Centar, the percentage of children cared for does not exceed 50% in any other municipality, and in somewhat **more than half of the municipalities, the percentage of children cared for is less than 30%.**
- Paid labour opportunities for women, measured through the rate of employment, proportion of the number of employed women to men and by the percentage of women excluded from the labour market as housewives, significantly differs per municipality.
- **In an average municipality, 31.2% of women of working-age are employed, but this rate varies from 51.7% of employed women in the municipality**

of Aerodrom and 51.1% in the municipality of Karposh, to slightly less than 5% of employed women in the municipalities of Plasnica and Centar Zhupa. In most of the municipalities, the rate of employed women does not exceed 40%.

- **In an average municipality, 26.3% of women of working-age are excluded from the paid labour market as housewives**, while the average for men in the same category of economically inactive persons, because of caregiving responsibilities or homemakers, is less than one percent. Apparently, this is one of the biggest gender gaps. **In nine of the municipalities, more than half of the women of working-age are housewives, and this rate reaches up to 66% in the municipality of Zhelino and 65% in municipality of Plasnica.** This rate is the lowest in the municipalities of Centar (3%), Karposh (4%) and Shtip (4%).
- This analysis confirms the correlation between the availability of public childcare services and women's paid work opportunities. **On average, the percentage of employed women in municipalities with at least one kindergarten is 34.6%, whereas in municipalities without any kindergarten the percentage of employed women is 21.3%.**
- **In municipalities with at least one state kindergarten, for every 10 employed men there are 7 employed women, whereas in the municipalities without any state kindergarten, for every 10 employed men there are 5 employed women.**
- **In municipalities without any state kindergarten, the rate of women excluded from the labour market because of caregiving and household responsibilities (housewives) is 40% on average, whereas in municipalities with at least one state kindergarten this percentage is 21%, on average.**
- **In municipalities with a higher percentage of children cared for in state kindergartens, the employment inequality between women and men is lower - the rate of employed women is improved and the percentage of women excluded from the paid labour market as housewives is lower.**

Recommendations:

- Responsible authorities should ensure access to early childcare and education for all. Taking into consideration the strong correlation, a priority should be given to the municipalities without any kindergartens and municipalities where the rate of women excluded from the labour market is high due to caregiving responsibilities.
- Taking into consideration that municipalities have the responsibility to recognize the needs and formalize requests for opening kindergartens, the Ministry of Labour and Social Policy, in coordination with the Government, should find ways to strengthen up the municipal capacities for initiating procedures along with the positive prioritization of the most disadvantaged municipalities in terms of access.
- In municipalities with existing kindergartens, efforts should be made to increase the coverage of children in order to approach the Barcelona goals for a coverage of at least 96% of children aged 3 to the age of starting the compulsory education, and a coverage of no less than 45% of children under the age of 3.⁴⁴
- The policies used for active employment measures should be supported by appropriate strategies and procedures for creating balance between the private and professional life⁴⁵, and the barriers related to the inaccessibility of public services for early childhood care and education should also be considered. In this context, alternative solutions should be found to promote kindergartens regarding the needs of employees, within the structure of legal entities, in a state or private ownership.
- Additional analyses are required to consider the availability of early childcare and education from the aspect of program quality for early childhood learning and development, and in terms of public service charges in the context of the structure of parents' monthly incomes. Such analyses should necessarily have an intersectional approach in order to enable breaking of the cycle of poverty for the most marginalized groups.

44 The Council of the European Union. (8 December 2022). Council Recommendation on early childhood education and care: the Barcelona targets for 2030 (2022/C 484/01).

45 [European Parliament & Council of the European Union. \(2019\). Directive \(EU\) 2019/1158 of the European Parliament and of the Council on Work-life balance for parents and carers. Official Journal of the European Union, L 188/79.](#)