Gender Inequalities

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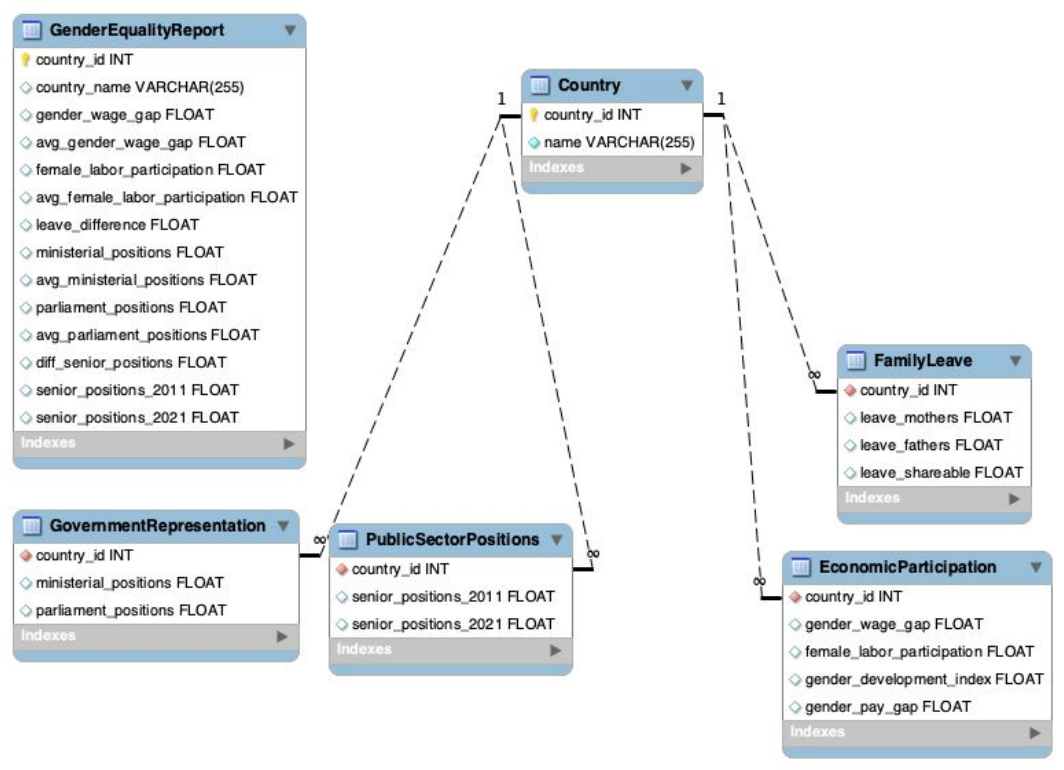
Introduction

- Gender inequality affects economic, political, and social areas worldwide.
- Focuses on factors like workplace representation, pay gaps, and leave policies.
- gender_development_database helps analyze trends and provide insights.
- Data on leadership roles, parliament representation, and labor force participation.
- Automates updates for accuracy and connects key areas to tackle inequality.

Database Design



Data Sources and Methods: Front End

- We used reliable data sources such as World Bank, UN Women, and OECD
    - Official government and NGO reports
- Manual web scraping from verified sources
- Data cross-verified for accuracy and completeness

Data Sources and Methods: Front End

- Removed duplicates, standardized formats
- Organized everything into key variables
  - Public sector positions
  - Government representation
  - Economic participation
  - Family leave policies
- Exported data to CSV, scalable dataset compatible with SQL for analysis

gender_inequality - Sheet2

Country	Share of women in senior positions in the public sector (%)	Share of women in senior positions in the public sector (%)	% of women in ministerial positions	% of women in parliament	% of median wages of men, 2023 or latest available year	% female labor force participation	gender development index	gender pay gap	Earmarked for mothers	Earmarked for fathers	Shareable (most often taken by mothers)
Category	2011	2021			gender wage gap				Duration of earmarked and shareable paid family leave entitlements, in weeks, 2022		
Australia									12	2	6
Austria	31.2	40.5	25	40.4	12.14369704	56.75	0.972	12.1	24.66667	12.99667	35.33333
Belgium	11.9	25.3	57.1	42.7	1.106777696	50.55	0.975	1.1	32.33333	20.333	0
Canada									21	5	30
Chile									30	1	0
Colombia									18	2	0
Costa Rica									17.32	1.6	0
Czechia	27.8	28.3	7.1	26	13.17041983	51.95	0.988	13.6	28	2	40.62595
Denmark	22.2	26.4	31.8	43.6	5.837088593	59.52	0.981	5.8	18	2	32
Estonia	41.9	48.5	42.9	27.7	20.52092235	61.14	1.022	20.5	14.28571	4.285714	57.85714
Finland	24.4	56.3	64.3	45.5	17.51685939	57.72	0.989	14.6	17.5	9	143.53
France	30.1	31.1	35.3	37.8	11.55821121	52.78	0.986	9.3	42	31	0
Germany	15.6	30.2	50	35.1	14.38013219	56.45	0.966	14.4	22.6666	8.7	35.3334
Greece	41.7	56.4	10.5	21	8.084190385	45.19	0.969	8.1	51.6666	11.4666	0
Hungary	26	18.7	9.1	13.1	13.33555556	53.98	0.989	12.7	24	1	136
Iceland	39.5	50	41.7	47.6	8.694318758	70.07	0.975	8.7	26	20	6
Ireland	22.1	33.3	23.1	23.1	7.47080145	59.87	0.991	2	31	7	0
Israel									15	0	0
Italy	31.5	32.1	26.7	32.3	3.288573384	41.27	0.969	3.3	21.7	2	26
Japan									58	52	0
Korea									64.85714	54	0
Latvia	50	55	42.9	29	24.91472638	-	1.022	24.9	16	1.428571	78
Lithuania	45.4	52.2	42.9	28.4	10.34326718	57.08	1.028	10.3	18	4	44
Luxembourg	15	28.1	37.5	35	0.441188426	57.82	0.993	-	46	28	0
Mexico									12	1	0
Netherlands	26.1	39.9	50	40.7	14.76032273	61.72	0.96	14.8	16	6	0
New Zealand									26	0	0
Norway	35	39.7	50	46.2	4.520089286	61.77	0.986	4.5	18	15	68
Poland	40.8	45.2	17.6	28.3	10.17097458	51.58	1.009	10.2	20	2	32
Portugal	39	50.8	41.2	36.1	6.097238154	55.29	0.998	6.1	23.28571	22.28571	6.854286
Slovak Rep.	53.1	49.8	14.3	22	13.80819465	56.29	1.002	13.8	34	28	102
Slovenia	55.3	57.1	38.5	37.8	8.318273352	53.85	0.999	8.3	19.33	4.285714	32.81
Spain	39.9	43.1	63.6	42.4	6.722083413	52.63	0.988	6.7	16	16	0
Sweden	44.8	48.9	47.8	46.4	7.297297297	63.38	0.983	7.7	12.85714	14.28571	42.85714
Switzerland									14	2	0
Türkiye	5.3	17.7	5.9	17.4	9.980806142	35.35	0.941	-	16	1	0
United Kingdom	27.8	34.8	33.3	34.5	13.25517241	-	0.976	14.5	39	2	0
United States			33.3	29.4	16.38935108	-	1.005	17	0	0	0

Data Sources and Methods

- Data was broken down into variables.
- Structured insert statements based on the preprocessed data.

```sql
INSERT INTO Country (country_id, name) VALUES (1, 'Australia');
INSERT INTO Country (country_id, name) VALUES (2, 'Austria');
INSERT INTO Country (country_id, name) VALUES (3, 'Belgium');
INSERT INTO Country (country_id, name) VALUES (4, 'Canada');
INSERT INTO Country (country_id, name) VALUES (5, 'Chile');
INSERT INTO Country (country_id, name) VALUES (6, 'Colombia');
```

```sql
CREATE TABLE if not exists Country (
    country_id INT AUTO_INCREMENT PRIMARY KEY,
    name VARCHAR(255) NOT NULL UNIQUE
);

CREATE TABLE if not exists PublicSectorPositions (
    country_id INT NOT NULL,
    senior_positions_2011 FLOAT,
    senior_positions_2021 FLOAT,
    FOREIGN KEY (country_id) REFERENCES Country(country_id)
);
```

Data Sources and Methods

- Each category encompassed a wide variety of individual values that correlate to certain values.
- Values not found - NULL.
- Troubleshooting and struggles: delete statements at the end

```
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (29, 17.6, 28.3);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (30, 41.2, 36.1);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (31, 14.3, 22.0);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (32, 38.5, 37.8);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (33, 63.6, 42.4);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (34, 47.8, 46.4);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (35, NULL, NULL);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (36, 5.9, 17.4);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (37, 33.3, 34.5);
INSERT INTO GovernmentRepresentation (country_id, ministerial_positions, parliament_positions) VALUES (38, 33.3, 29.4);
```

```
senior_positions_2021) VALUES (1, NULL, NULL);
senior_positions_2021) VALUES (2, 31.2, 40.5);
senior_positions_2021) VALUES (3, 11.9, 25.3);
senior_positions_2021) VALUES (4, NULL, NULL);
senior_positions_2021) VALUES (5, NULL, NULL);
senior_positions_2021) VALUES (6, NULL, NULL);
senior_positions_2021) VALUES (7, NULL, NULL);
```

```
-- DELETE FROM FamilyLeave;
-- DELETE FROM EconomicParticipation;
-- DELETE FROM GovernmentRepresentation;
-- DELETE FROM PublicSectorPositions;
-- DELETE FROM Country;
```

User Cases Part 1

- Procedure 1 ‘gender_equality_report’ - user inputs country name; gets report on gender equality in country in relation to the database's average data of all countries.
- Procedure 2 ‘countriesfamilyleaveforboth’ - user inputs country name; gets table of equal/unequal days in family leave for mothers and fathers.
- Compares countries with small versus large disparities/ gender inequalities.

country_id	country_name	gender_wage_gap	avg_gender_wage_gap	female_labor_participation
2	Austria	22.2	11.1273	46.71
21	Korea	17.3	11.1273	54.25
30	Portugal	7.7	11.1273	51.33
33	Spain	5.2	11.1273	57.46

parliament_positions	avg_parliament_positions	diff_senior_positions	senior_positions_2011	senior_positions_2021
41	33.575	9.3	31.2	40.5
27.2	33.575	NULL	NULL	NULL
35.7	33.575	11.8	39	50.8
45.6	33.575	3.2	39.9	43.1

avg_female_labor_participation	leave_difference	ministerial_positions	avg_ministerial_positions
54.7632	11.67	26	34.5036
54.7632	10.8571	21	34.5036
54.7632	1	44.1	34.5036
54.7632	0	61.4	34.5036

```sql
-- Test Case 1
UPDATE economicparticipation
SET
    gender_wage_gap = 22.2,
    female_labor_participation = 46.71
WHERE country_id = (SELECT country_id FROM country WHERE name = 'Austria');
```

```sql
UPDATE governmentrepresentation
SET
    ministerial_positions = 26,
    parliament_positions = 41
WHERE country_id = (SELECT country_id FROM country WHERE name = 'Austria');
```

country	leave_mothers	leave_fathers	message
China	NULL	NULL	No data found for the given country in the database, so cannot identify if family leave days are equal for both mothers and fathers. Therefore, disparities might exist.

country	leave_mothers	leave_fathers	message
Spain	16	16	The family leave days are equal for both mothers and fathers, so disparities might not exist.

User Cases Part 2

Question 12. Ranking Gender Equality in Leadership

- Rank countries by the combined average of the share of women in senior positions (2021),
- women in ministerial positions, and women in parliament.
- Display their rank along with their names and scores.

```sql
SELECT c.name AS country,
       (p.senior_positions_2021 + g.ministerial_positions + g.parliament_positions) / 3 AS average_score
FROM PublicSectorPositions p
JOIN GovernmentRepresentation g ON p.country_id = g.country_id
JOIN Country c ON p.country_id = c.country_id
ORDER BY average_score DESC;
```

Question 14. Combined Inequity Score

- Created a custom "inequity score" for each country as follows: (100 - % female labor force participation)
- + (gender pay gap) + (100 - % of women in senior positions in 2021) + (100 - % of women in parliament).
- Rank the countries by this score to find the top 5 with the greatest inequities.

```sql
SELECT c.name AS country,
       (100 - e.female_labor_participation) +
       (100 - e.gender_pay_gap) +
       (100 - p.senior_positions_2021) +
       (100 - g.parliament_positions) AS inequity_score
FROM EconomicParticipation e
JOIN PublicSectorPositions p ON e.country_id = p.country_id
JOIN GovernmentRepresentation g ON e.country_id = g.country_id
JOIN Country c ON e.country_id = c.country_id
ORDER BY inequity_score DESC
LIMIT 5;
```

User Cases 2 Results

Q. 12

country	average_score
Finland	55.36666742960612
Spain	50.03333282470703
Sweden	47.70000076293945
Iceland	46.43333307902018
Norway	45.300000508626304
Slovenia	44.46666590372721
Netherlands	43.53333409627279
Portugal	43.53333282470703
Latvia	42.300000508626304
Belgium	41.699999491373696
Lithuania	41.16666730244955
Estonia	39.70000076293945
Germany	38.43333307902018
Austria	35.833333333333336
France	34.73333295186361
United King...	34.199999491373696
Denmark	33.933332443237305
Luxembourg	33.53333346048991
Poland	30.366666793823242
Italy	30.366666158040363
Greece	29.3000005086263
Slovak Rep.	28.699999809265137
Ireland	26.5
Czechia	20.466666380564373
Türkiye	13.666666825612387
Hungary	13.633333841959635
New Zealand	NULL
Costa Rica	NULL
Israel	NULL
Japan	NULL
Korea	NULL
Australia	NULL
Canada	NULL
Chile	NULL
Switzerland	NULL
Mexico	NULL
Colombia	NULL
United States	NULL

Q. 14

country	inequity_score
Hungary	301.51999950408936
Italy	291.0300018787384
Ireland	281.73000144958496
Belgium	280.3500007390976
Czechia	280.1499996185303

Conclusions

- Fueled by interest in gender differences in the workforce
- Developed a SQL database to analyze these values that were important.
- Created backend, queries, and ER diagrams
- A step towards addressing gender inequality by raising awareness of disparities.

References

- We created our own mock data for the app by using the pre-existing data from other datasets and merged them into a google spreadsheet.
- https://docs.google.com/spreadsheets/d/1QvSmy6hDkjJYBw8emDY0nW7A8ZF_RdUNzlLQ_X8ubE/copy?gid=1515532805#gid=1515532805
- “Gender Equality and Work.” *OECD*, www.oecd.org/en/topics/gender-equality-and-work.html. Accessed 25 Nov. 2024. We used the First and Second graph to make excel sheet.

Thank You for watching!!