Title: Relationship between female's income and numbers of children in family.
Domain: Communities. Human Right
Introduction:
The report identifies the relationship between number of children and female's income in the family, thus identify the role of women in wealth family and poor family with many children to find any difference. The social value of this research is to see whether women's role is limited by the number of children in a family, and if so, what support should the government provide to protect their right.
This report analyzes 32 Local Government Areas(LGA) within the Metropolitan Melbourne area, in the 2011 census survey.

It seeks to answer the following research questions:
1relationship between women's income and numbers of children in a family.
2relationship between women's unpaid house work and numbers of children
3Whether female in wealthy family is more economic independent that female in poor family, given both have children more than 3.

Dataset:
Working Population Profile from Australian Bureau of Statistics(ABS):
http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/communityprofile/LGA21110?opendocument&navpos=100
Basic Community Profile from (ABS):
http://www.censusdata.abs.gov.au/census_services/getproduct/census/2011/communityprofile/LGA21110?opendocument&navpos=100
1, Using datasheet B24, Number of Children Ever Born by Age of Parent
2, Using datasheet B02, selected Medians and Averages.
3. Using datasheet B17, Total personal income (weekly) by age by sex
The above two dataset's link are just from 1 Local Government Areas. The research using data from 32 LGAs.

Processing Process:
Extracting the percentage of family with more than 2 children in each LGA.
Extracting the median income in each LGA.
Selecting top 5 richest area and bottom 5 poorest area based on the percentage of family in that LGA with more than two children.
Looking into that area, seeing the female weekly income by age.
Plotting female weekly income against the number of children in the selecting area

Conclusion:

The result show a strong negative relation (R = - 0.845) such that family with female higher income is less likely to have multi children, which implies that female's economic independence is limited by number of children.

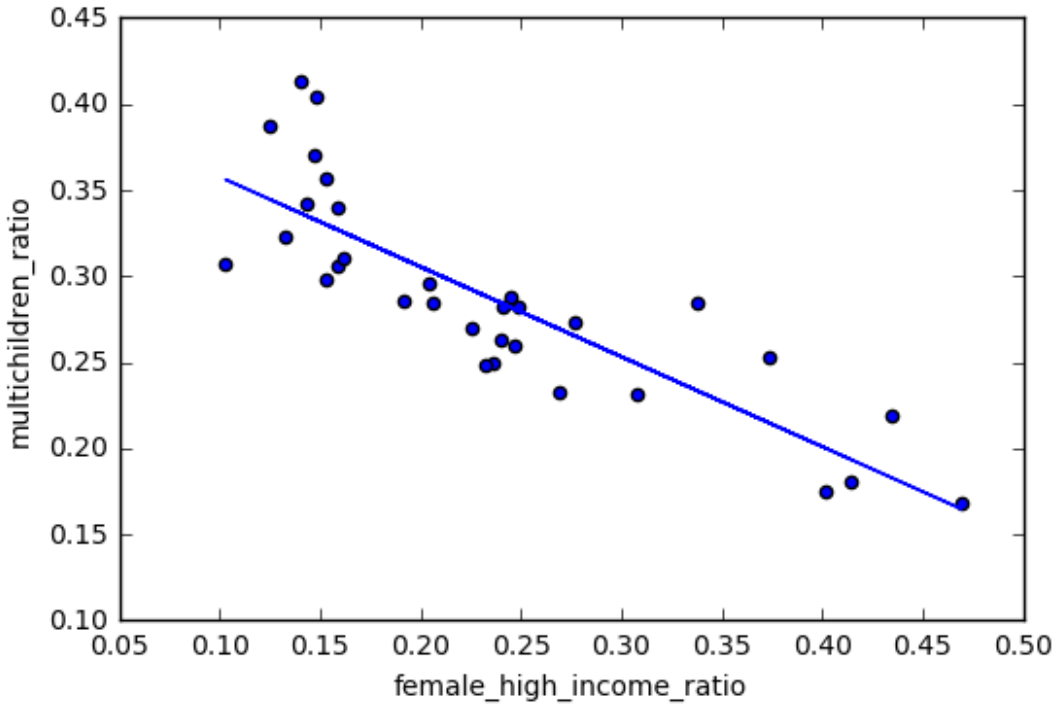
However, further investigation still needed. For instance, we haven't separate the wealthy family and poor family case. Data for unpaid childcare, unpaid housework are also not integrated into the dataframe.

Initial Investigation

In the initial Investigation, we have extracted data from 32 LGA basic community profile. To simplify, we defined high_income to be weekly earning greater than 1000 dollars, and multi_children to be family greater than or equal to 3 children.

The ratio of this to is defined to be the number that fits the definition divides by the total number in each LGA.

And we find the Pearson Correlation between female_high_income_ratio and multichildren_ratio

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In [149]: data["female_high_income_ratio"].corr(data["multichildren_ratio"],
                                                 method = 'pearson')
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Out[149]: -0.84472203555062986
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	LGA	family_income	female_high_income_ratio	multichildren_ratio
0	Ballarat	1272.0	0.153195	0.356918
1	Banyule	1731.0	0.248560	0.282384
2	Bayside	2426.0	0.337527	0.284894
3	Boroondara	2505.0	0.373322	0.252526
4	Brimbank	1195.0	0.132423	0.323166
5	Casey	1450.0	0.158984	0.305969
6	Darebin	1438.0	0.236422	0.249198
7	Frankston	1396.0	0.161740	0.310526
8	Glen Eira	1925.0	0.307937	0.231557
9	Greater Bendigo	1245.0	0.147051	0.370281
10	Greater Dandenong	1050.0	0.102919	0.306856
11	Greater Geelong	1341.0	0.158812	0.339905
12	Greater Shepparton	1206.0	0.140484	0.413015
13	Hobsons Bay	1568.0	0.241297	0.281670
14	Hume	1309.0	0.143136	0.341659
15	Kingston	1625.0	0.225184	0.269944
16	Knox	1610.0	0.191816	0.285728
17	Latrobe	1236.0	0.124975	0.386930
18	Manningham	1713.0	0.244737	0.287935
19	Maribyrnong	1525.0	0.268870	0.232813
20	Maroondah	1615.0	0.204058	0.295897
21	Melbourne	1962.0	0.401682	0.175464
22	Monash	1549.0	0.232097	0.248610
23	Moonee Valley	1776.0	0.277087	0.273113
24	Moreland	1452.0	0.247134	0.259902
25	Port Phillip	2371.0	0.469172	0.168328
26	Stonnington	2465.0	0.434068	0.219071
27	Warrnambool	1296.0	0.148014	0.404491
28	Whitehorse	1682.0	0.239567	0.263197
29	Whittlesea	1375.0	0.152854	0.297640
30	Wyndham	1556.0	0.205949	0.284175
31	Yarra	2198.0	0.414399	0.180265