Smoking and its Relationship with National Net Income

My personal roots are very deeply ingrained in the Middle East. My mom is Lebanese, my dad is Egyptian, and I lived in Dubai, United Arab Emirates since I was 5 years old. Even though these are all classified as Arab countries, they are very different in many different ways. However, the one thing I noticed when visiting these countries is that they are all united by their love for smoking. Whether it comes in the form of shisha/hookah, cigarettes, cigars, dokha (pipe tobacco smoked in the UAE), or other forms, you will always smell a whiff of one or many of the above when walking down the streets of these countries.

Another thing that separates these countries is the varying amounts of wealth these countries have, so I thought it would be interesting to see if there was any correlation between the smoking prevalence and national net income between a multitude of different Arab countries.

Statement of Hypothesis/Argument

I was curious as to whether or not smoking prevalence had any correlation with how much net national Income a country has, so I wanted to see if an increase of net national income correlated to an increase in smoking. Smoking is an expensive hobby, and I wanted to see if the countries with a higher income also had a higher amount of smoking prevalence in that country.

Data:

Definition of Smoking Prevalence:

Prevalence of smoking is the percentage of men and women ages 15 and over who currently smoke any tobacco product on a daily or non-daily basis. It excludes smokeless tobacco use. The rates are age-standardized.

Source[***]

World Health Organization, Global Health Observatory Data Repository (http://apps.who.int/ghodata/).

Definition of Adjusted net National Income per capita: It is net income, but with fixed and natural capital depletion factored into the calculation.

Adjusted net national income is GNI minus consumption of fixed capital and natural resources depletion.	
Source[***]	World Bank staff estimates based on sources and methods described in "The Changing Wealth of Nations 2018: Building a Sustainable Future" (Lange et al 2018).

All data comes from the Worldbank, using the World Development Indicators Database. All of the data is from the year 2016. There is one scatter plot graph, and a table which shows the weighted averages for each country.

X-variable of scatter plot: Natural log of the Adjusted Net National Income per Capita.

Y-variable of scatter plot: The total smoking prevalence, total, from the ages of 15 and up.

Countries Included: I have included the countries Algeria, Israel, Morocco, Saudi Arabia, United Arab Emirates, Bahrain, Iran, Kuwait, Qatar, and Oman. There were a lot more countries I wished to use data for in this project (such as Egypt and Lebanon), but their data was incomplete or just outright missing for the topic I am writing this paper about, so I left them out.

Population weighted average: In the table below, I show the two population weighted averages I calculated for each country. For both weighted averages, the population weight is the same. This is because I calculated the weights using the sum of the total populations as their denominators and the country's individual total population as their numerators. The population weighted average for the Net National Income indicates the more a country makes relative to everyone else, so the higher the weighted average, the more net income the country makes. For the smoking weighted average, the higher the number, the more smoking prevalence there is in the country.

Tentative Conclusion:

In the scatterplot, the countries with the higher net incomes seem to also have a more prevalent smoking population. However, this does not conclude my hypothesis, as there can be multitudes of other factors that this can be attributed to. For example, Suadi Arabia, Kuwait, the U.A.E, and Qatar share a bunch of cultural similarities, such as meeting together in shisha/hookah lounges for a game of backgammon and a smoke. These countries also have the highest net incomes, so the population of these countries will be able to afford these outings with their friends. This in turn may lead to the higher number of smokers in the richer countries. I will conclude by saying that I believe that this data somewhat supports my hypothesis, but does not ultimately prove it.

Figure 1: This is the scatterplot showing the smoking prevalence on the x axis, and the adjusted net income on the y axis. This data is from 2016, from the Worldbank Database. The scatter plot was created in Google Spreadsheets using the data in Figure 2, and was pasted into here.

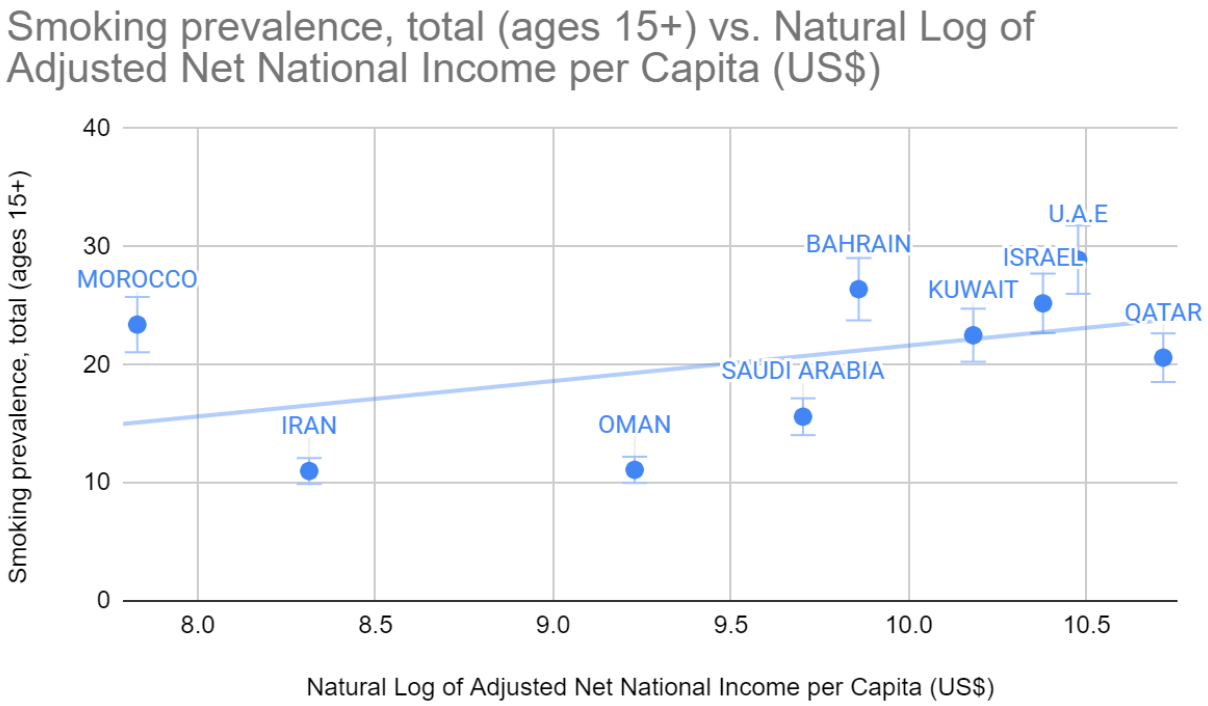

Figure 2: This is a spreadsheet showing different values of each of these countries. This table includes the population weighted average for both net national income and the smoking prevalence for the countries. Data is sorted based on Natural Log of Income per capita, in order to exemplify any patterns or prevalence.

YEAR	COUNTRY	Natural Log of Adjusted Net National Income per Capita (US$)	Smoking prevalence, total (ages 15+)	Population	Population Weights	Population Weighted Average for Smoking Prevalence	Population Weighted Average for Net National Income
2016	MOROCCO	7.829670166	23.4	35,126,296	0.1610503627	4.492019924	1.26097122
2016	ALGERIA	8.096817471	15.6	40,551,404	0.1859239107	3.457195614	1.505391968
2016	IRAN	8.313288383	11.0	79,564,016	0.3647926224	4.783027094	3.03262627
2016	OMAN	9.228897125	11.1	4,479,219	0.02053674673	0.2717182039	0.1895315228
2016	SAUDI ARABIA	9.702472353	15.6	32,442,572	0.1487457712	2.765880008	1.443201732
2016	BAHRAIN	9.859180325	26.4	1,425,791	0.006537101368	0.2057089823	0.06445046119
2016	KUWAIT	10.18149422	22.5	3,956,873	0.0181418454	0.486550686	0.1847110941
2016	ISRAEL	10.37757346	25.2	8,546,000	0.03918250872	1.176946953	0.4066193627
2016	U.A.E	10.47631285	28.9	9,360,980	0.04291910607	1.478470352	0.4496339825
2016	QATAR	10.71589446	20.6	2,654,374	0.01217002485	0.2988290367	0.1304127019