Educational attainment, income, use of social benefits, crime rate and the general socioeconomic factor among 70 immigrant groups in Denmark

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Abstract

We obtained data from Denmark for the largest 70 immigrant groups by country of origin. We show that three important socioeconomic variables are highly predictable from the Islam rate, IQ, GDP and height of the countries of origin. We further show that there is a general immigrant socioeconomic factor and that country of origin national IQs, Islamic rates, and GDP strongly predict immigrant general socioeconomic scores.

Keywords: National IQs, group differences, country of origin, Denmark, immigration

1 Introduction

In our previous paper[1] we introduced the spatial transferability hypothesis, which is the proposition that when people migrate to other countries, they retain their traits, whether personality, cognitive or other. Regarding National IQs, a corollary of this hypothesis is that the known correlates of g are also retained such as average socioeconomic level. We have previously shown that the spatial transferability hypothesis holds with regards to fertility and crime rates in Denmark[2], crime rates in Norway[3], SAT and GPA scores at elite universities in the U.S., and PISA scores throughout the OCED [4, 5]. In this paper we examine new data from Denmark concerning educational level, income and use of social benefits.

2 Datasets and methods

We purchased three new datasets for Denmark from the official Danish statistics agency (Danmarks Statistik, http://dst.dk). All datasets concern the 71 largest immigrant groups by country of origin that one of us previously examined with respect to crime rates[2]. All datasets contain data from 2012 only. Dataset 1 contains information about the highest level of formal education reached by immigrant groups and is divided into age groups (15-19, 20-29, 30-39, 40-49, 50-59, >60). Dataset 2 contains the mean income levels per group by age groups. Dataset 3 contains the percentage of the groups who are on social benefits by age groups.

Our analytic strategy was similar to that used in previous studies. First, we extracted the data of interest and imported it into SPSS where we performed the statistical analyses. From the data files, we extracted: mean income levels, the percentage who have advanced tertiary education ("lang videregående uddannelse"), the percentage who had only basic schooling ("grundskole"), and the percentage on social benefits ("offentlig forsørgelse"). This was done for each age group.

The predictor variables were:

1. Lynn and Vanhanen's national IQs as given in [6] with an estimate of the former Yugoslavia's IQ from [7]

2. national GDPs per capita from the International Monetary Fond (2013) via Wikipedia[8, 9]

3. national rates of belief in Islam from Pew Research via Wikipedia[10, 11]

4. the average heights from Wikipedia[12][1]

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[1] As in previous studies, we picked the best and newest studies,

Table 1: Correlational matrix for predictors and basic schooling. The variable measures the proportion of an immigrant population who has attained only basic schooling.

Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	Basic_school_15_19	Basic_school_20_29	Basic_school_30_39	Basic_school_40_49	Basic_school_50_59	Basic_school_60plus
LV2012IQ		1	.612	-.486	.548	-.127	-.544	-.488	-.465	-.418	-.215
	Sig. (2-tailed)		.000	.000	.000	.298	.000	.000	.000	.000	.073
	N	205	182	68	53	69	70	70	70	70	70
GDPIMF2013		.719	1	-.414	.643	-.173	-.496	-.522	-.541	-.480	-.242
	Sig. (2-tailed)	.000		.001	.000	.172	.000	.000	.000	.000	.052
	N	182	186	65	52	64	65	65	65	65	65
Islam		-.571	-.453	1	-.421	.221	.592	.587	.489	.508	.384
	Sig. (2-tailed)	.000	.000		.002	.075	.000	.000	.000	.000	.001
	N	68	65	68	53	66	67	67	67	67	67
Height		.578	.675	-.325	1	-.036	-.467	-.476	-.500	-.472	-.222
	Sig. (2-tailed)	.000	.000	.018		.802	.000	.000	.000	.000	.113
	N	53	52	53	53	51	52	52	52	52	52
Basic_school_15_19		-.188	-.147	.085	-.004	1	.300	.220	.155	.136	.079
	Sig. (2-tailed)	.121	.246	.495	.979		.012	.069	.204	.264	.521
	N	69	64	66	51	69	69	69	69	69	69
Basic_school_20_29		-.620	-.554	.549	-.561	.262	1	.854	.782	.693	.488
	Sig. (2-tailed)	.000	.000	.000	.000	.029		.000	.000	.000	.000
	N	70	65	67	52	69	70	70	70	70	70
Basic_school_30_39		-.699	-.665	.574	-.508	.233	.844	1	.915	.838	.576
	Sig. (2-tailed)	.000	.000	.000	.000	.054	.000		.000	.000	.000
	N	70	65	67	52	69	70	70	70	70	70
Basic_school_40_49		-.674	-.650	.547	-.582	.116	.773	.898	1	.923	.710
	Sig. (2-tailed)	.000	.000	.000	.000	.341	.000	.000		.000	.000
	N	70	65	67	52	69	70	70	70	70	70
Basic_school_50_59		-.571	-.576	.484	-.506	.095	.675	.802	.909	1	.814
	Sig. (2-tailed)	.000	.000	.000	.000	.439	.000	.000	.000		.000
	N	70	65	67	52	69	70	70	70	70	70
Basic_school_60plus		-.352	-.302	.327	-.230	.056	.494	.556	.702	.769	1
	Sig. (2-tailed)	.003	.014	.007	.100	.650	.000	.000	.000	.000	
	N	70	65	67	52	69	70	70	70	70	70

Table 2: Correlational matrix for predictors and long tertiary education. The variable measures the proportion of an immigrant population who has attained tertiary education.

Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	Long_tert_edu_20_29	Long_tert_edu_30_39	Long_tert_edu_40_49	Long_tert_edu_50_59	Long_tert_edu_60plus
LV2012IQ		1	.612	-.486	.548	.385	.459	.547	.380	.037
	Sig. (2-tailed)		.000	.000	.000	.001	.000	.000	.001	.762
	N	205	182	68	53	70	70	70	70	70
GDPIMF2013		.719	1	-.414	.643	.402	.528	.517	.393	.024
	Sig. (2-tailed)	.000		.001	.000	.001	.000	.000	.001	.848
	N	182	186	65	52	65	65	65	65	65
Islam		-.571	-.453	1	-.421	-.432	-.543	-.493	-.357	-.176
	Sig. (2-tailed)	.000	.000		.002	.000	.000	.000	.003	.154
	N	68	65	68	53	67	67	67	67	67
Height		.578	.675	-.325	1	.355	.437	.516	.330	.120
	Sig. (2-tailed)	.000	.000	.018		.010	.001	.000	.017	.397
	N	53	52	53	53	52	52	52	52	52
Long_tert_edu_20_29		.535	.520	-.474	.424	1	.740	.471	.266	.132
	Sig. (2-tailed)	.000	.000	.000	.002		.000	.000	.026	.277
	N	70	65	67	52	70	70	70	70	70
Long_tert_edu_30_39		.559	.530	-.454	.437	.848	1	.760	.594	.411
	Sig. (2-tailed)	.000	.000	.000	.001	.000		.000	.000	.000
	N	70	65	67	52	70	70	70	70	70
Long_tert_edu_40_49		.646	.580	-.522	.528	.689	.837	1	.801	.491
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000		.000	.000
	N	70	65	67	52	70	70	70	70	70
Long_tert_edu_50_59		.525	.426	-.402	.388	.456	.669	.820	1	.589
	Sig. (2-tailed)	.000	.000	.001	.005	.000	.000	.000		.000
	N	70	65	67	52	70	70	70	70	70
Long_tert_edu_60plus		.055	-.017	-.162	.011	.288	.428	.501	.560	1
	Sig. (2-tailed)	.651	.894	.189	.941	.016	.000	.000	.000	
	N	70	65	67	52	70	70	70	70	70

3 Educational attainment

Correlational analysis for the proportion who have only basic schooling is shown in Table 1, while Table 2 shows the analysis for the proportion who have advanced tertiary degrees.

Regarding basic schooling, it is clear that age matters. First, at age 15-19 most people have not had enough time to finish secondary education and so clear patterns do not yet emerge. Second, the correlations are low for the older groups probably because they immigrated too late to the country and so were not able to take advantage of the Danish educational system which presumably in many cases is of higher quality than the ones in the home countries. The picture is much the same with regards to tertiary degree rates; regarding this variable, there was no data for the first age group as no one in that age range was old enough to attain a tertiary degree.

From the correlations it was apparent that there might be a general education factor. We performed principle component analysis (PCA) to extract latent variables. The component loadings are shown in Table 3. The first component was a large general factor while PC2 was not readily interpretable; PC2 probably represents a nonsense factor loaded with statistical noise. Kaiser-Meyer-Olkin (KMO) was .842, very good. Bertlett's test was p<.000, good.

The correlations with the predictors are shown in Table 4. All four predictors performed similarly for the PC1 variable which is surprising given that height seems to have no conceptual relevance to education. Correlations with PC2 were in the same direction but smaller.

4 Income

The correlations with the predictors and with average income levels are shown in Table 5. It is apparent that early income levels are not very predictable yet that later incomes are. Oddly national IQs did not predict income after age 60, but GDP and Islam continued to have sizable correlations. As might be expected from the conceptual link, GDP was the strongest predictor of income levels, but height also performed well.

As before we did a PCA to extract latent variables. 2 components were extracted. The first one was interpreted as a latent middle adulthood income variable with high loadings on income after age 30. The second was interpreted as an early income factor indexing the

and merged data for males and females using z-scores to obtain a sex-neutral average height for all available countries. See datafile for details. There is still a need for a meta-analysis that compiles average heights by country on a better basis than this.

Table 3: Factor loadings of income variables.

	Component	
	1	2
Basic_school_15_19	.210	.533
Basic_school_20_29	.846	.373
Basic_school_30_39	.917	.170
Basic_school_40_49	.922	-.053
Basic_school_50_59	.917	-.174
Basic_school_60plus	.770	-.453
Long_tert_edu_20_29	-.587	-.614
Long_tert_edu_30_39	-.849	-.301
Long_tert_edu_40_49	-.892	.056
Long_tert_edu_50_59	-.813	.346
Long_tert_edu_60plus	-.590	.527
Var%	61.387328	14.1677

incomes of those who left school early to earn money. Factor loadings are shown in Table 6. KMO was .645, okay. Bartlett's test was p<.000, good. Correlations with predictors are shown in Table 7.

While latent early income was not very predictable, latent adult income was highly so. Perhaps not surprisingly, national GDP was the strongest correlate of the latent migrant income variable.

5 Use of social benefits

Social benefits in Denmark include both a stipend for students and various payouts for people who for some reason cannot or won't work and receives money from the state to support themselves. The supplementary material has a detailed description of this variable (in Danish).

Like before, we performed a correlation analysis with the variables for each age group and the predictors. It is shown in Table 8.

Height is not a good predictor of the use of social benefits, IQ and GDP were both good predictors and Islam came out ahead again. The variable intercorrelations were high indicating a latent variable. We used PCA to extract latent variables. Loadings are shown in Table 10.

Table 4: Predictors and the latent educational attainment variable.

Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	PC1EdAtt	PC2EdAtt
LV2012IQ		1	.612	-.486	.548	-.494	-.223
	Sig. (2-tailed)		.000	.000	.000	.000	.066
	N	205	182	68	53	69	69
GDPIMF2013		.719	1	-.414	.643	-.527	-.217
	Sig. (2-tailed)	.000		.001	.000	.000	.086
	N	182	186	65	52	64	64
Islam		-.571	-.453	1	-.421	.570	.215
	Sig. (2-tailed)	.000	.000		.002	.000	.083
	N	68	65	68	53	66	66
Height		.578	.675	-.325	1	-.492	-.111
	Sig. (2-tailed)	.000	.000	.018		.000	.438
	N	53	52	53	53	51	51
PC1EdAtt		-.641	-.599	.530	-.561	1	.000
	Sig. (2-tailed)	.000	.000	.000	.000		1.000
	N	69	64	66	51	69	69
PC2EdAtt		-.265	-.261	.104	-.172	.016	1
	Sig. (2-tailed)	.028	.037	.406	.226	.898	
	N	69	64	66	51	69	69

Table 5: Predictors and income.

Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	Income_15_19	Income_20_29	Income_30_39	Income_40_49	Income_50_59	Income_60
LV2012IQ		1	.612	-.486	.548	-.083	-.127	.549	.566	.479	.064
	Sig. (2-tailed)		.000	.000	.000	.594	.297	.000	.000	.000	.614
	N	205	182	68	53	44	69	70	70	70	65
GDPIMF2013		.719	1	-.414	.643	-.218	-.395	.654	.735	.699	.360
	Sig. (2-tailed)	.000		.001	.000	.176	.001	.000	.000	.000	.005
	N	182	186	65	52	40	64	65	65	65	60
Islam		-.571	-.453	1	-.421	.081	-.049	-.608	-.606	-.598	-.564
	Sig. (2-tailed)	.000	.000		.002	.612	.692	.000	.000	.000	.000
	N	68	65	68	53	42	67	67	67	67	62
Height		.578	.675	-.325	1	-.014	-.087	.474	.453	.325	.167
	Sig. (2-tailed)	.000	.000	.018		.942	.542	.000	.001	.019	.250
	N	53	52	53	53	30	52	52	52	52	49
Income_15_19		-.147	-.287	.205	-.046	1	.633	.075	-.065	-.110	-.208
	Sig. (2-tailed)	.340	.073	.192	.809		.000	.629	.673	.476	.197
	N	44	40	42	30	44	44	44	44	44	40
Income_20_29		-.166	-.356	-.006	-.126	.664	1	.153	-.077	-.179	-.060
	Sig. (2-tailed)	.173	.004	.962	.373	.000		.210	.530	.141	.638
	N	69	64	67	52	44	69	69	69	69	64
Income_30_39		.666	.654	-.493	.514	-.028	.147	1	.915	.822	.557
	Sig. (2-tailed)	.000	.000	.000	.000	.857	.227		.000	.000	.000
	N	70	65	67	52	44	69	70	70	70	65
Income_40_49		.674	.715	-.550	.491	-.204	-.087	.906	1	.919	.612
	Sig. (2-tailed)	.000	.000	.000	.000	.185	.475	.000		.000	.000
	N	70	65	67	52	44	69	70	70	70	65
Income_50_59		.599	.664	-.489	.327	-.261	-.203	.778	.909	1	.695
	Sig. (2-tailed)	.000	.000	.000	.018	.087	.095	.000	.000		.000
	N	70	65	67	52	44	69	70	70	70	65
Income_60		.225	.351	-.484	.143	-.332	-.083	.529	.665	.695	1
	Sig. (2-tailed)	.072	.006	.000	.326	.036	.513	.000	.000	.000	
	N	65	60	62	49	40	64	65	65	65	65

Table 6: Factor loadings of income variables.

|	Component	
	1	2
Income_15_19	-.150	.892
Income_20_29	-.080	.904
Income_30_39	.916	.268
Income_40_49	.975	.052
Income_50_59	.976	-.020
Income_60	.866	-.081
Variance Explained	58.71%	28.24%

PCA resulted in only one factor. KMO was .817, very good. Bartlett's test was p<.000, good. The correlations with predictors are shown in Table 9. Islam was a very good predictor of use of social benefits with national IQ and GDP coming in about equally at second. Height was the weakest again.

6 General socioeconomic factor

In a previous paper [3], one of us speculated that there might be an immigrant general socioeconomic factor. That would be the case if there were correlations between the various socioeconomic variables. It is not immediately obvious that this will be true. Perhaps some immigrant groups have high relatively high crime rates but also have relatively high average incomes (like men compared with women). In the Norwegian data, this idea could not be properly tested because there were only two different socioeconomic variables making PCA impossible.

The present study has adequate data to answer the question. We ran a PCA on all the manifest variables previously mentioned as well as the two crime variables for age groups 15-19 and 20-29 from the previous study. The results of the PCA are shown in Table 12. PC1 was a large general factor while the other factors were not clearly interpretable. KMO was .728, good, and Bartlett's was p<.000, good.

Table 12 shows the predictors' correlations with the general socioeconomic factor. Islam was a very good predictor while IQ and GDP were merely good and height still good but somewhat worse. However, due to the number of missing values for some countries, we reran the PCA without the four variables that had the lowest sample size (income 15-19, social benefits 15-19, social benefits >60). This increased the sample size from 31 to 63. The correlation between the two components was .999 so clearly the removed variables were not important. Correlations with predictors did not change much with the new PC (also shown in Table 12). The appendix has a list of the 63 countries and their factor scores.
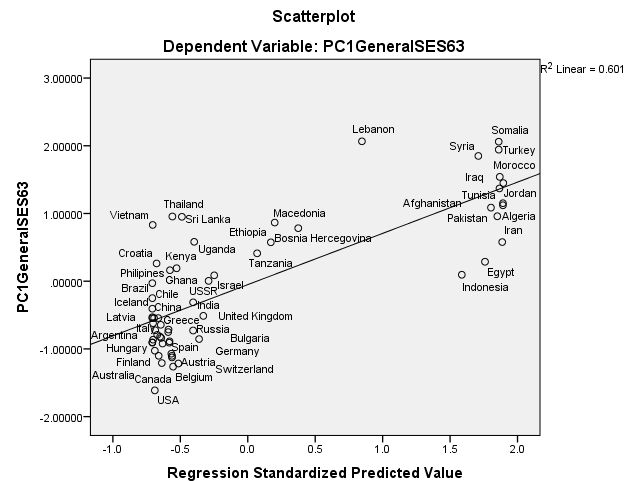
Figure 1: Regression plot for Islam on the general socioeconomic factor.
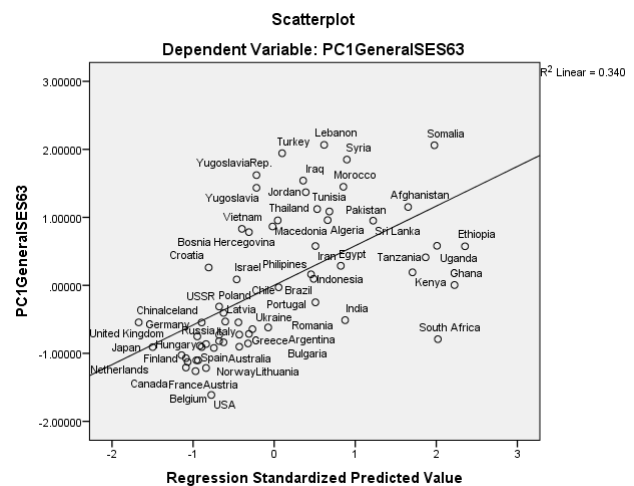
Figure 2: Regression plot for IQ on the general socioeconomic factor.

7 Multiple regression

We tested whether predictors could be combined to improve the prediction of the general socioeconomic factor with multiple regression. Results are shown in Table 13.

Like previously found in the studies of crime in Denmark and Norway[2, 3], IQ and GDP did not show independent effects. This is to be expected if there is a strong causal relationship between the two (in either direction or both). Some regression plots of interest are shown in Figures 1 - 5. The plots show the general socioeconomic factor and various predictors which are mentioned in the captions below the plots.

8 Partial correlations

Another way to test the robustness of two variables is to calculate the partial correlations controlling for

Table 7: Predictors and the latent income variables.

Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	Latent_adult_income	Latent_early_income
LV2012IQ		1	.612	-.486	.548	.565	.043
	Sig. (2-tailed)		.000	.000	.000	.000	.793
	N	205	182	68	53	40	40
GDPIMF2013		.719	1	-.414	.643	.820	-.221
	Sig. (2-tailed)	.000		.001	.000	.000	.196
	N	182	186	65	52	36	36
Islam		-.571	-.453	1	-.421	-.698	-.107
	Sig. (2-tailed)	.000	.000		.002	.000	.523
	N	68	65	68	53	38	38
Height		.578	.675	-.325	1	.540	-.002
	Sig. (2-tailed)	.000	.000	.018		.003	.992
	N	53	52	53	53	28	28
Latent_adult_income		.661	.697	-.613	.580	1	.000
	Sig. (2-tailed)	.000	.000	.000	.001		1.000
	N	40	36	38	28	40	40
Latent_early_income		-.019	-.195	.002	-.034	-.035	1
	Sig. (2-tailed)	.908	.254	.991	.862	.831	
	N	40	36	38	28	40	40

**Table 8:** Predictors and use of social benefits.

| Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	Social_benefits_16_19	Social_benefits_20_29	Social_benefits_30_39	Social_benefits_40_49	Social_benefits_50_59	Social_benefits_60plus
LV2012IQ		1	.612	-.486	.548	-.424	-.492	-.433	-.482	-.465	-.429
	Sig. (2-tailed)		.000	.000	.000	.005	.000	.000	.000	.000	.001
	N	205	182	68	53	43	69	70	70	70	54
GDPIMF2013		.719	1	-.414	.643	-.306	-.469	-.403	-.438	-.486	-.536
	Sig. (2-tailed)	.000		.001	.000	.059	.000	.001	.000	.000	.000
	N	182	186	65	52	39	64	65	65	65	50
Islam		-.571	-.453	1	-.421	.533	.670	.704	.710	.684	.747
	Sig. (2-tailed)	.000	.000		.002	.000	.000	.000	.000	.000	.000
	N	68	65	68	53	41	67	67	67	67	52
Height		.578	.675	-.325	1	-.276	-.250	-.173	-.251	-.192	-.293
	Sig. (2-tailed)	.000	.000	.018		.156	.074	.221	.073	.172	.059
	N	53	52	53	53	28	52	52	52	52	42
Social_benefits_16_19		-.457	-.338	.463	-.192	1	.776	.687	.629	.613	.533
	Sig. (2-tailed)	.002	.035	.002	.328		.000	.000	.000	.000	.002
	N	43	39	41	28	43	43	43	43	43	32
Social_benefits_20_29		-.634	-.584	.624	-.255	.730	1	.950	.909	.892	.776
	Sig. (2-tailed)	.000	.000	.000	.068	.000		.000	.000	.000	.000
	N	69	64	67	52	43	69	69	69	69	53
Social_benefits_30_39		-.547	-.491	.600	-.178	.720	.947	1	.963	.933	.848
	Sig. (2-tailed)	.000	.000	.000	.207	.000	.000		.000	.000	.000
	N	70	65	67	52	43	69	70	70	70	54
Social_benefits_40_49		-.683	-.646	.644	-.404	.797	.888	.903	1	.963	.883
	Sig. (2-tailed)	.000	.000	.000	.003	.000	.000	.000		.000	.000
	N	70	65	67	52	43	69	70	70	70	54
Social_benefits_50_59		-.635	-.580	.611	-.252	.755	.837	.843	.934	1	.926
	Sig. (2-tailed)	.000	.000	.000	.072	.000	.000	.000	.000		.000
	N	70	65	67	52	43	69	70	70	70	54
Social_benefits_60plus		-.487	-.505	.587	-.197	.620	.713	.772	.820	.866	1
	Sig. (2-tailed)	.000	.000	.000	.211	.000	.000	.000	.000	.000	
	N	54	50	52	42	32	53	54	54	54	54

Table 9: Predictors and the latent social benefit variables.

Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	PC1SocialBe nefits
LV2012IQ		1	.612	-.486	.548	-.580
	Sig. (2-tailed)		.000	.000	.000	.001
	N	205	182	68	53	32
GDPIMF2013		.719	1	-.414	.643	-.511
	Sig. (2-tailed)	.000		.001	.000	.005
	N	182	186	65	52	29
Islam		-.571	-.453	1	-.421	.850
	Sig. (2-tailed)	.000	.000		.002	.000
	N	68	65	68	53	31
Height		.578	.675	-.325	1	-.403
	Sig. (2-tailed)	.000	.000	.018		.063
	N	53	52	53	53	22
PC1SocialBe nefits		-.658	-.520	.653	-.377	1
	Sig. (2-tailed)	.000	.004	.000	.084	
	N	32	29	31	22	32

Table 10: Factor loadings for social benefits variables.

	Component 1
Social_benefits_16_19	.770
Social_benefits_20_29	.956
Social_benefits_30_39	.982
Social_benefits_40_49	.981
Social_benefits_50_59	.972
Social_benefits_60plus	.906
Variance Explained	86.67%
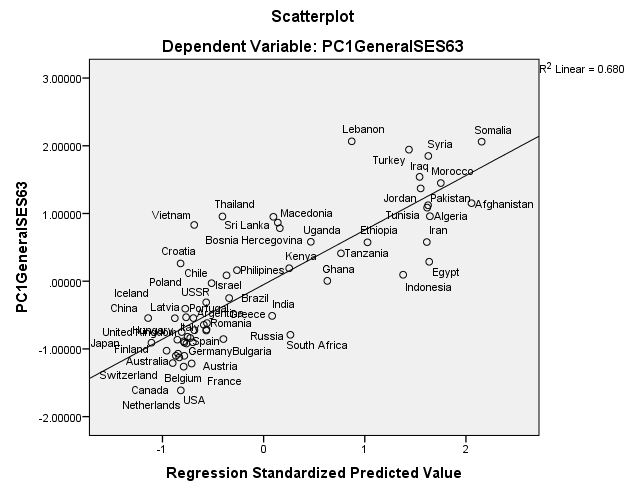
Figure 4: Regression plot for Islam+IQ on the general socioeconomic factor.
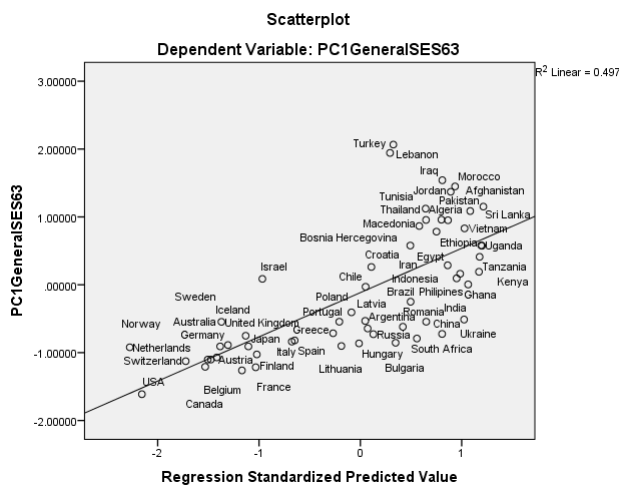
Figure 3: Regression plot for GDP on the general socioeconomic factor.
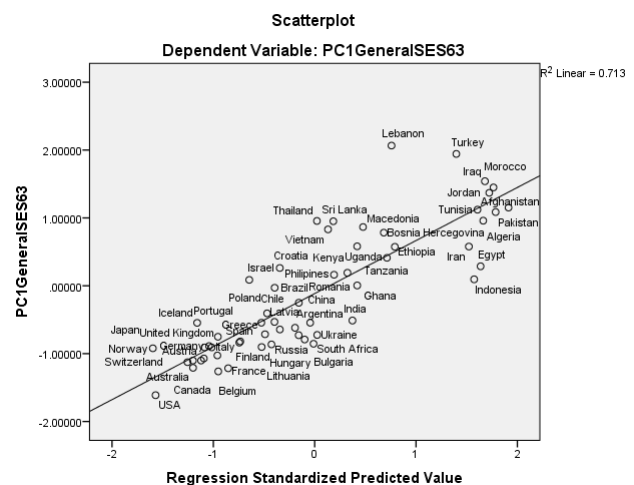
Figure 5: Regression plot for Islam+GDP on the general socioeconomic factor.

Table 11: Factor loadings of all socioeconomic variables.

	Component			
	1	2	3	4
Social_benefits_16_19	.585	.482	.160	.063
Social_benefits_20_29	.881	.325	.191	.106
Social_benefits_30_39	.890	.361	.187	.064
Social_benefits_40_49	.899	.313	.202	-.050
Social_benefits_50_59	.914	.217	.262	-.104
Social_benefits_60plus	.907	.010	.239	-.088
All_crime_age_15_19	.848	.158	.178	.033
All_crime_age_20_29	.889	.157	.230	.024
Income_15_19	.277	-.565	.465	.464
Income_20_29	.040	-.597	.591	.042
Income_30_39	-.756	-.409	.262	.129
Income_40_49	-.832	-.297	.100	.173
Income_50_59	-.875	-.214	-.033	.258
Income_60	-.837	-.124	-.102	.234
Basic_school_15_19	.114	.437	-.593	.481
Basic_school_20_29	.859	-.009	-.327	.207
Basic_school_30_39	.963	-.059	-.123	-.006
Basic_school_40_49	.838	-.361	-.276	-.157
Basic_school_50_59	.761	-.442	-.298	-.235
Basic_school_60plus	.616	-.601	-.330	-.146
Long_tert_edu_20_29	-.689	.028	.062	-.568
Long_tert_edu_30_39	-.850	.198	.092	-.313
Long_tert_edu_40_49	-.805	.468	.064	-.124
Long_tert_edu_50_59	-.681	.585	.115	-.002
Long_tert_edu_60plus	-.487	.680	.060	.143
Variance Explained	58.32%	14.40%	7.14%	5.03%

other variables. Specifically, we wanted to know whether the validity of IQ was due to Islamic countries having low IQs or whether it had independent validity. Results are shown in Table 14. The predictive validity of national IQs and GDPs cannot be explained as being wholly due to the indirect effects of Islam nor can Islam's predictive validity be explained as being wholly due to IQ and GDP.

Table 14: Partial correlations.

| Predictor	Controlling for	r^a
IQ	Islam	−0.487
GDP	Islam	−0.592
Islam	IQ, GDP	0.67

[a] With general socioeconomic factor.

9 Pearson vs. Spearman correlations

We note that while other predictors tended to outperform national IQs with Pearson correlations, the Spearman correlations were systematically higher often making national IQs the best predictor. The scatter plots do seem to indicate some non-linearity for IQ as the worst performing groups have IQs in the mid 80s.
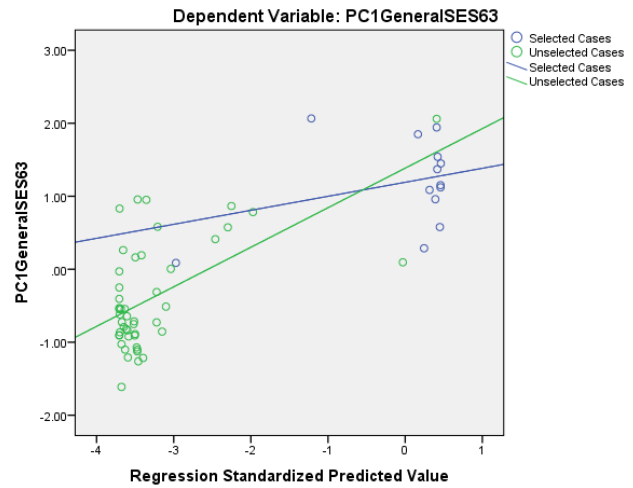
Figure 6: Regression plot for Islam in MENAP and non-MENAP countries for the general socioeconomic factor.
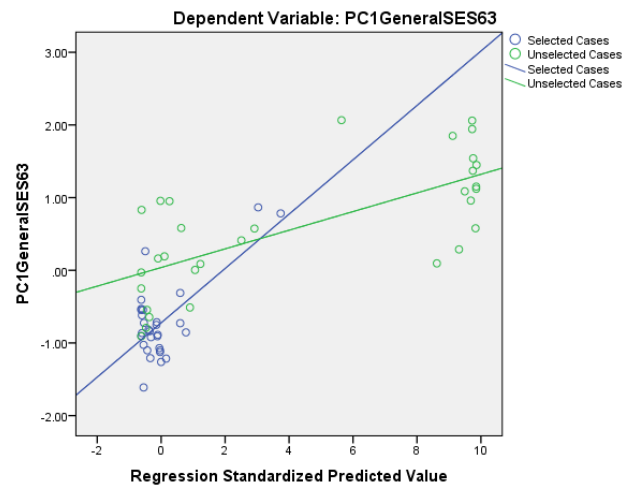
Figure 7: Regression plot for Islam on the general socioeconomic factor for Europeans vs. non-Europeans.

10 The predictive ability of Islam

A reviewer suggested that Islam's predictive ability is due to other facts having to do with the MENAP countries (Middle East, North Africa, Pakistan[13]).

There are different ways to test this hypothesis. One idea is to limit the sample to MENAP and non-MENAP sets to see whether Islam has predictive ability in these. It turns out that it does as seen in Figure 6. The r's for MENAP and non-MENAP are .314 (N=13) and .593 (=48) respectively.

One can also try the same but for other regions. Below are regression plots in Figures 7 and 8 show that Islam is still a predictor of worse socioeconomic performance in Denmark when looking European vs. non-European countries (r's = .688 and .700, N's = 30 and 31) and sub-Saharan countries vs. non-sub-Saharan countries (r's = .914 and .776, N's = 7 and 54).

Table 12: Predictors and the general socioeconomic latent variable.

Intercorrelations. Pearson above diagonal, Spearman below.		LV2012IQ	GDPIMF2013	Islam	Height	PC1General SES31	PC1General SES63
LV2012IQ		1	.612	-.486	.548	-.624	-.583
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	205	182	68	53	31	63
GDPIMF2013		.719	1	-.414	.643	-.664	-.705
	Sig. (2-tailed)	.000		.001	.000	.000	.000
	N	182	186	65	52	28	58
Islam		-.571	-.453	1	-.421	.824	.776
	Sig. (2-tailed)	.000	.000		.002	.000	.000
	N	68	65	68	53	30	61
Height		.578	.675	-.325	1	-.551	-.525
	Sig. (2-tailed)	.000	.000	.018		.008	.000
	N	53	52	53	53	22	48
PC1General SES31		-.725	-.693	.643	-.661	1	.999
	Sig. (2-tailed)	.000	.000	.000	.001		.000
	N	31	28	30	22	31	31
PC1General SES63		-.735	-.779	.629	-.596	.991	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	63	58	61	48	31	63

Table 13: Multiple regression results.

Model	R	R^2	R^2 adjusted
Islam+IQ+GDP+height	.844	.712	.685
Islam+IQ+GDP	.845	.714	.698
Islam+IQ	.825	.680	.669
Islam+GDP	.845	.713	.703
IQ+GDP+height	.735	.540	.508
IQ+GDP	.710	.505	.487
IQ+height	.628	.395	.368
GDP+height	.734	.539	.518
IQ	.583	.340	
GDP	.705	.497	
Islam	.776	.601	
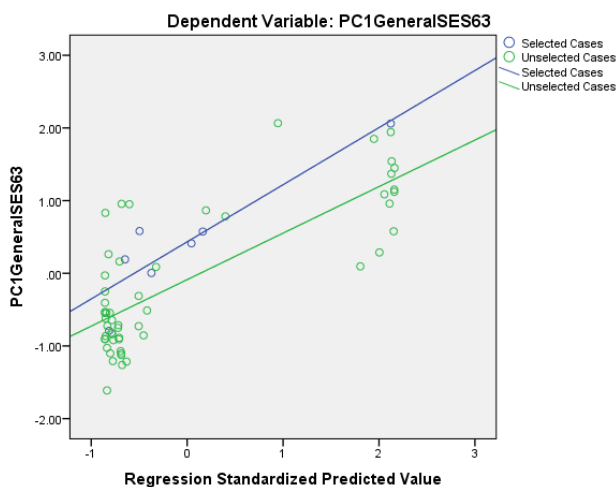
Figure 8: Regression plot for Islam on the general socioeconomic factor for sub-Saharan Africans vs. non-sub-Saharan Africans.

Another idea is to code countries by region and then enter this as well into multiple regression and see how the beta-coefficients come out. If there is something special about the MENAP countries, then the region variable will come out with a sizable co-efficient. Results are shown in Table 15. As one can see, the variable for MENAP is not sizable nor is it close to significance, and neither are the other regional variables.

Table 15: Multiple regression with world regions and Islam on the general socioeconomic factor in Denmark.

	R	R Square	Adjusted R Square	Std. Error of the Estimate		
	.849ᵃ	.722	.696	.53795		

| Model	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta	t	Sig.	
(Constant)	2.606	1.236		2.108	.040	
Islam	.011	.004	.421	2.700	.009	
LV2012IQ	-.033	.015	-.323	-2.182	.033	
IsAsian	.467	.370	.144	1.264	.212	
IsEuropean	-.153	.331	-.079	-.462	.646	
IsMENAP	.475	.408	.201	1.163	.250	

Dependent Variable: PC1GeneralSES63

So it seems that the predictive ability of Islam is quite robust for this dataset.

11 Discussion and conclusion

We have shown that how well an immigrant group does in 4 different areas of society is to a high degree predictable from country of origin factors. Furthermore, we have shown that these can be seen as part of a more general socioeconomic factor that broadly measures how well a group does in Denmark.

One might wonder what the effects of migrant generation are. The datasets employed here do not break

the variables down by immigrant generation. However, the reports *Immigrants in Denmark 2013* (*Invandrere i Danmark 2013[14]*) and *PISA Ethnic 2012* (*PISA Etnisk 2012[15]*) do break down some variables per generation (first and second). The first report does not group immigrants by their country of origin, but by macro-origin: western vs. non-western. Perhaps surprisingly, crime rates are higher in the second generation as shown in Figure 9.
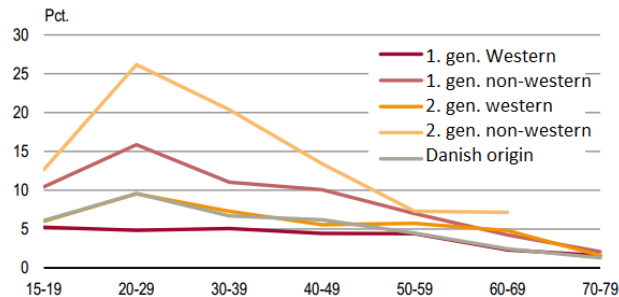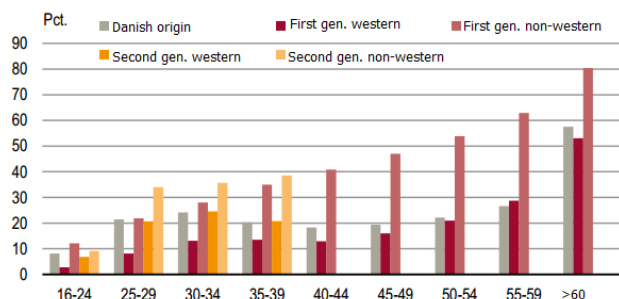

Figure 9: Crime rate for men per macro-origin, generation and age group, 2012. Adapted from Figure 5.3 in [14].

However, employment rate and percentage on social benefits improves from the first to second generation without reaching native levels see Figure 10 and 11.
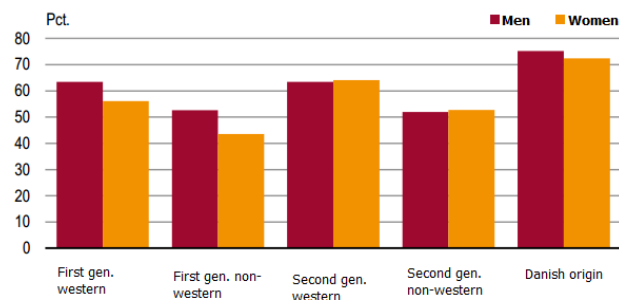
Figure 10: Employment rate by macro-origin and generation. Adapted from Figure 2.3 in [14].

Figure 11: Percentage on social benefits by macro-origin, age group and generation. Adapted from Figure 4.1 in [14]

In the second report, average PISA scores by immigrant generation are reported as shown in Table 16.

The scores improve about 20 points from first to second generation, but are still 61 points below the scores of children of Danish origin. This should be seen in light of the estimated IQ of 89.9 for the total immigrant population in Demark[7], which is about .67 standard deviations lower than Native Danish IQ. The PISA standard deviation in Denmark is around 80, so the standardized difference between second gen. immigrants and Danish origin natives is about .76.

Table 16: PISA scores by generation and origin. Adapted from Table 2.2 in [15]

Origin	PISA Score
All origins	500
Danish origin	508
First gen. immigrants	428
Second gen. immigrants	447

There is not yet reliable data for third generation immigrants due to small samples[14].

11.1 Future studies

Future studies should replicate the analyses done here, especially with regards to the existence of an immigrant general socioeconomic factor. It is known that Norway has the needed data, so it should be possible to buy them and replicate the analysis.

Further analysis should check whether Islam predicts performance in countries very different from Denmark (a mostly atheistic, nominally Christian country), e.g. Asian or South American countries.

One of our findings was that national rates of belief in Islam robustly predicted poor migrant socioeconomic outcomes. One interpretation of this association is simply that Islamic belief is directly causally related to poorer outcomes. This need not be the case, or course. Regarding crime, for example, a reviewer suggested another explanation. In most Muslim societies, the state has less effectively monopolized the use of violence, with the result that every adult male is expected to use violence as a legitimate way to resolve personal disputes and to defend "honor" or "face." Muslim immigrants thus tend to be more willing to commit violent acts that are criminalized in Western societies, particularly if these acts are targeted against non-kin. We were unable to test this and other interesting hypotheses and so remain agnostic as to the cause of the associations.

11.2 Error sources

The crime data used spanned multiple years (2000-2012) while the three new datasets concern 2012 data only. This might introduce error.

Lynn and Vanhanen's national IQs, while overall well validated, are estimates based on data from numerous years and are probably not exactly representative of some of the various countries' current average IQs.

Given our present data set, there is no way to detect or correct for selective migration which can both increase and decrease correlations.

Principle components analysis tends to overestimate the amount of variance explained by the latent trait, so the percents explained might be slightly inflated relative to the values which would be derived using other methods. [16].

12 Acknowledgment and funding

An earlier version of this paper had incorrectly stated both in the title and abstract that we had data for the 71 largest immigrant groups, whereas the true number is 70 because people whose country of origin is Denmark is not an immigrant group.

All data and other supplementary material is available at the Open Science Framework repository.

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A　Appendix - list of countries of origin by general socioeconomic latent variable in Denmark

Note that the factor is negatively coded, so those with the highest score are those who perform the worst.

Table 17: List of countries of origin by general socioeconomic latent variable in Denmark

Country	Score on the general socioeconomic factor
Lebanon	2.065 74
Somalia	2.060 59
Turkey	1.943 32
Syria	1.849 38
Yugoslavia, Republic	1.621 37
Iraq	1.540 85
Morocco	1.449 91
Yugoslavia	1.434 15
Jordan	1.370 48
Afghanistan	1.151 56
Tunisia	1.121 41
Pakistan	1.086 31
Algeria	0.958 93
Thailand	0.955 42
Sri Lanka	0.951 15
Macadonia	0.865 55
Vietnam	0.831 37
Bosnia-Hercegovina	0.783 19
Uganda	0.581 49
Iran	0.578 54
Ethiopia	0.574 87
Tanzania	0.411 46
Egypt	0.287 31
Croatia	0.261 94
Kenya	0.191 22
Philippines	0.162 04
Indonesia	0.095 43
Israel	0.086 93
Ghana	0.004 65
Chile	−0.028 97
Brazil	−0.249 62
Soviet Union	−0.311 77
Poland	−0.405 92
India	−0.512 08
Latvia	−0.532 51
Portugal	−0.543 86
China	−0.5447
Iceland	−0.545 89
Romania	−0.619 38
Argentina	−0.644 45
Greece	−0.714 16
Ukraine	−0.724 63
Russia	−0.728 04
United Kingdom	−0.751
South Africa	−0.791 53
Spain	−0.819 68
Italy	−0.837 56
	Continued on next page

Table 17 – continued from previous page

Country	Score on the general socioeconomic factor
Bulgaria	−0.854 29
Hungary	−0.8639
Germany	−0.887 94
Lithuania	−0.902 11
Sweden	−0.907 45
Japan	−0.908 57
Norway	−0.9214
Finland	−1.026 74
Netherlands	−1.070 91
Australia	−1.101 36
Austria	−1.102 13
Switzerland	−1.125 73
Canada	−1.208 67
France	−1.215 55
Belgium	−1.261 63
USA	−1.612 44