WHO IS IN THE MIDDLE CLASS:
A New Conceptual and Measurement Framework

Sagit Azary Viezel
&
Itai Sened

Tel Aviv University

September 30, 2014

Prepared for Presentation at the APPAM
workshop on the Decline of the Middle Class
Segovia, Spain September 30 2014

Aristotle's Politics (350 B.C., Book IV, 11ᵗʰ paragraph)

- Thus it is manifest that the best political community is formed by citizens of the middle class, and that those states that are likely to be well-administered in which the middle class is large, and stronger if possible than both the other classes ... Great then is the good fortune of a state in which the citizens have a moderate and sufficient property; for where some possess much and others nothing, there may arise an extreme democracy, or a pure oligarchy ...but it is not so likely to arise out of the middle constitutions and those akin to them (1295-6).

The middle class and sustainability

- The middle class depends and is able to support an institutional structure to protect itself and help sustain the society around it
- The middle class saves and consumes more wisely
- The middle class cannot go anywhere nor can they really keep their money in tax shelters
- The middle class is politically active
- The rich 'don't care' (Romney, January 2012)
- The poor struggle to survive and cannot shoulder or be burdened with the sustainability of society.

An Economic Theory of Social Class and Sustainability

Economic Endowment ⟷ Values, Norms, and Aspirations ⟷ Behaviors

The Poor

- Endowment = No (or very minimal) human capital, financial capital, traditional capital, or land
- Hence, they must sell their labor to survive, cannot borrow money, and cannot accumulate capital
- Values = present biased, little emphasis on savings, investment, education
- Aspiration = meet basic needs
- Policy preferences = transfers to those in need

The Middle Class

- Endowment = some capital (mostly human capital)
- Hence, they sell their labor, but they can borrow money to manage peaks/troughs, and can accumulate capital
- Values = hard work, thrift, investment in HC/education
- Aspiration = the "middle class bundle" (house, car, vacations, retirement, healthcare, etc.)
- Policy preferences = favor public goods, such as parks, schools, recycling, invest in the environment, etc.

The Rich

- Endowment = large amounts of capital (of all sorts)
- Hence, they do not need to work to survive (or perhaps even to consume the MC bundle), and they can borrow at rates near the risk free rate
- Values =conserve, protect, work for intrinsic reasons
- Aspiration = entrench privilege
- Policy preferences = secure wealth, reduce taxes, oppose public goods, (publicize risk, privatize gain)

Conceptual Model of Membership to the Middle Class
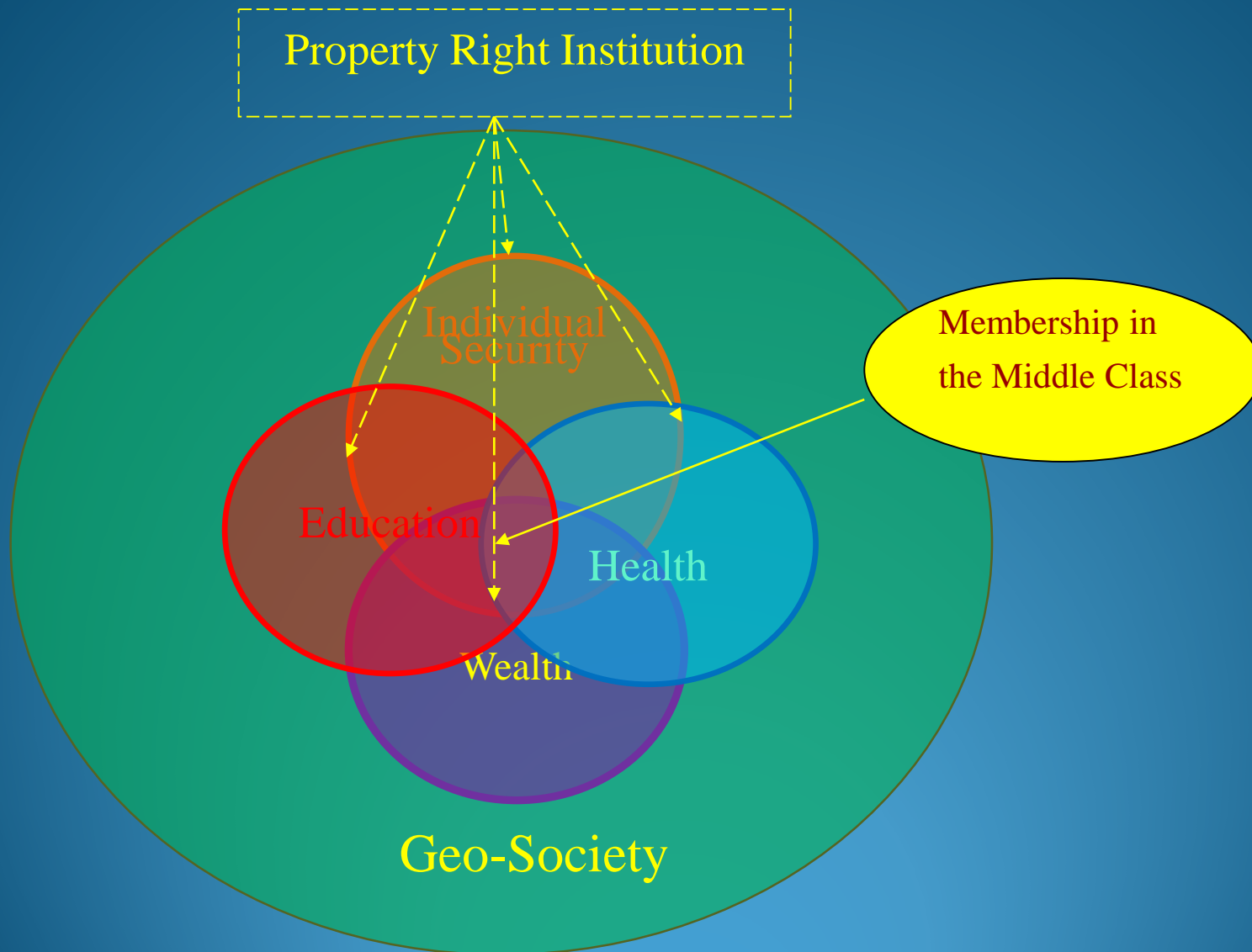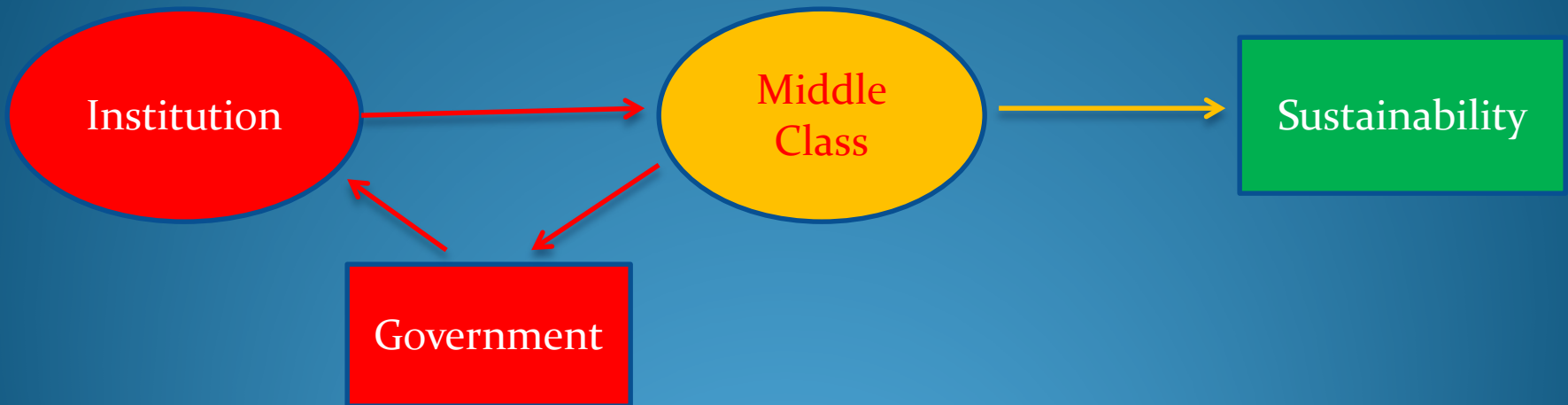
Previous Results: correlation between middle class and GDP

Correlation Coefficients:

		Middle class	GDP Growth
Middle class	Pearson Correlation	1	.781**
	Sig. (2-tailed)		.003
	N	13	12

		Middle class	GDP Per Capita
Middle class	Pearson Correlation	1	.740**
	Sig. (2-tailed)		.004
	N	13	13

**p<.01

LCA- a special case of latent variable modeling (LVM)

A latent variable (LV) is a

 (i) random variable that has - or could be assumed to have/thought of as:

 (ii) having -individual (subject) realizations in any sample or population of interest, but

 (iii) these random realizations are not observed

The basic formal idea of LCA

we will take C to be the random variable that is defined as class membership, with range 1, 2, …, k. Y is an observed response variable

we get the following equation (*j* next ranges from 1 through *k*):

$$P(Y = y) = \Sigma_j\, P(C = j)P(Y = y \mid C = j)$$

y is the observed response on *Y*

$$= \Sigma_j\, P(\text{Class } j)\, .\ P(\text{response } y \text{ on } Y \mid \text{Class } j)$$

P(response y on Y | Class j) = probability of response y by a subject who belongs to Class j (j = 1, …, k)

The basic formal idea of LCA

suppose we are interested not in 1 but in l (l > 1)
generally interrelated observed variables, Y1, Y2, …, Yl in a studied population.

Based on the *local independence assumption* : Within each class, the random variables *Y1, Y2, …, Yl* are independent of one another.

$$P(\underline{Y} = \underline{y}) = \Sigma_j\, P(C = j).P(\underline{Y} = \underline{y}|C = j)$$

$$= \Sigma_j\, P(C = j).P(Y_1{=}y_1|C{=}j).P(Y_2{=}y_2|C{=}j) \dots P(Y_l{=}y_l|C{=}j)$$

$\underline{Y} = \underline{y}$ vector notation

The probabilities P(C = j) in the Equation are often referred to as latent prevalences,

while P(Ys = ys | C = j) as item response probabilities

The basic formal idea of LCA

In LCA, we explain individual differences in response patterns in terms of

(i) the individual differences in class membership, and

(ii) the cross-class differences in conditional (i.e., class-specific) item response probabilities – the probabilities for individual *possible responses on the items.*

.

Preliminary empirical results

classes	BIC
C=1	157545
C=2	147343
C=3	142884
C=4	139955

(a) lowest BIC,

(b) significant value of the Lo-Mendell-Rubin
)likelihood ratio test (LRT
(c) Smallest misclassification probabilities

According to these conditions we choose the 3 class solution

Results in probability scale

categorical variables

	Lower class	Middle class	Upper class
size	**52.2%**	**43%**	**4.7%**
Home owner	57%	84%	85%
Home value	17%	64%	60%
employment	53%	73%	86%
Academic degree	15%	44%	71%
Private health	10%	48%	65%

MODEL RESULTS

Continuous variables , means in thousand of shekels

	Lower class	Middle class	Upper class
General Expenditure	3.76	7.68	8.42
Education exp	0.17	0.33	0.58
pension	0.06	0.14	1.11
Income deciles	3.27 (1-5)	7.88 (6-10)	8.43 (7-10)

*all values are significant in 0.05

Income Distribution by
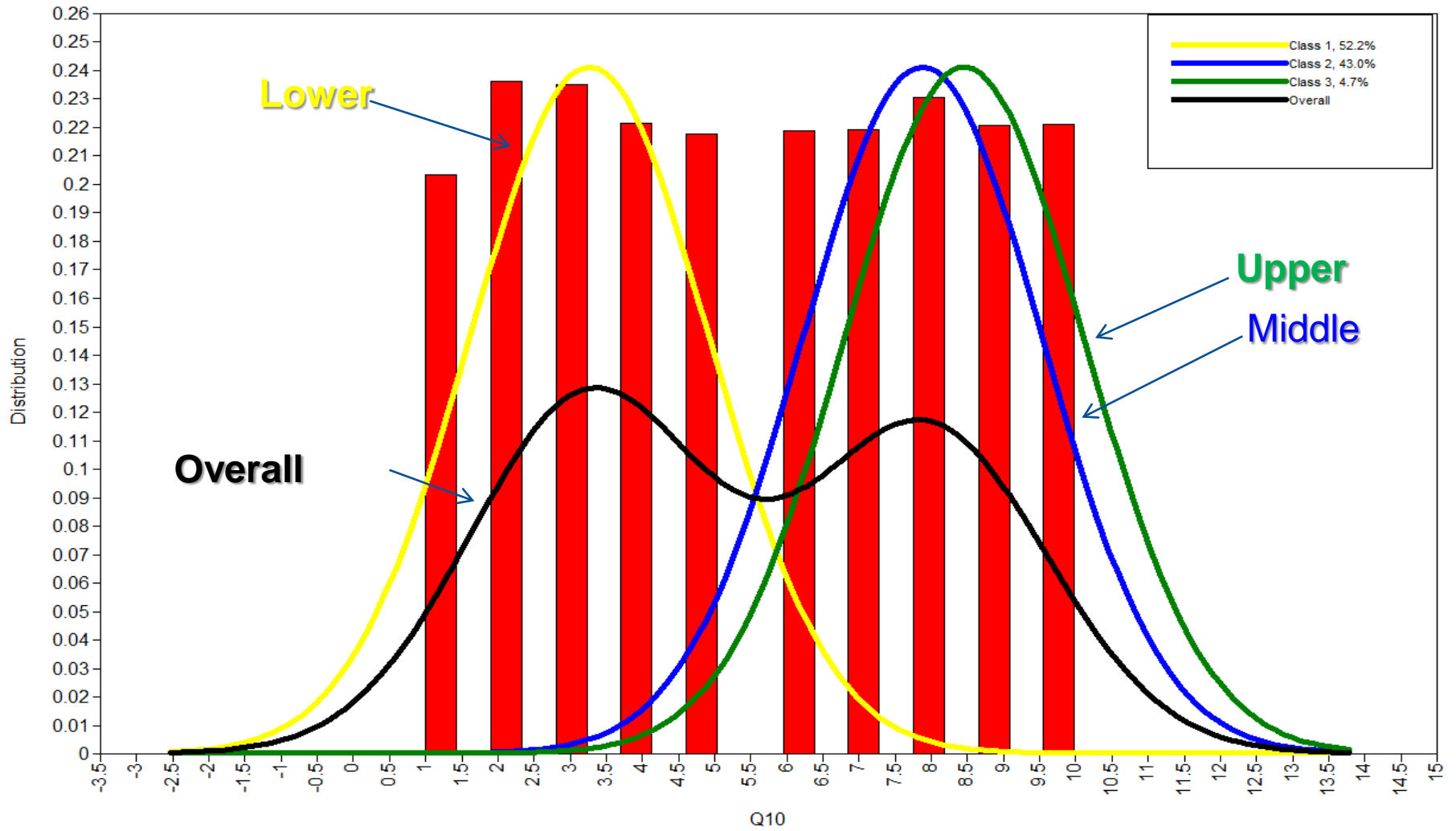
Income Distribution
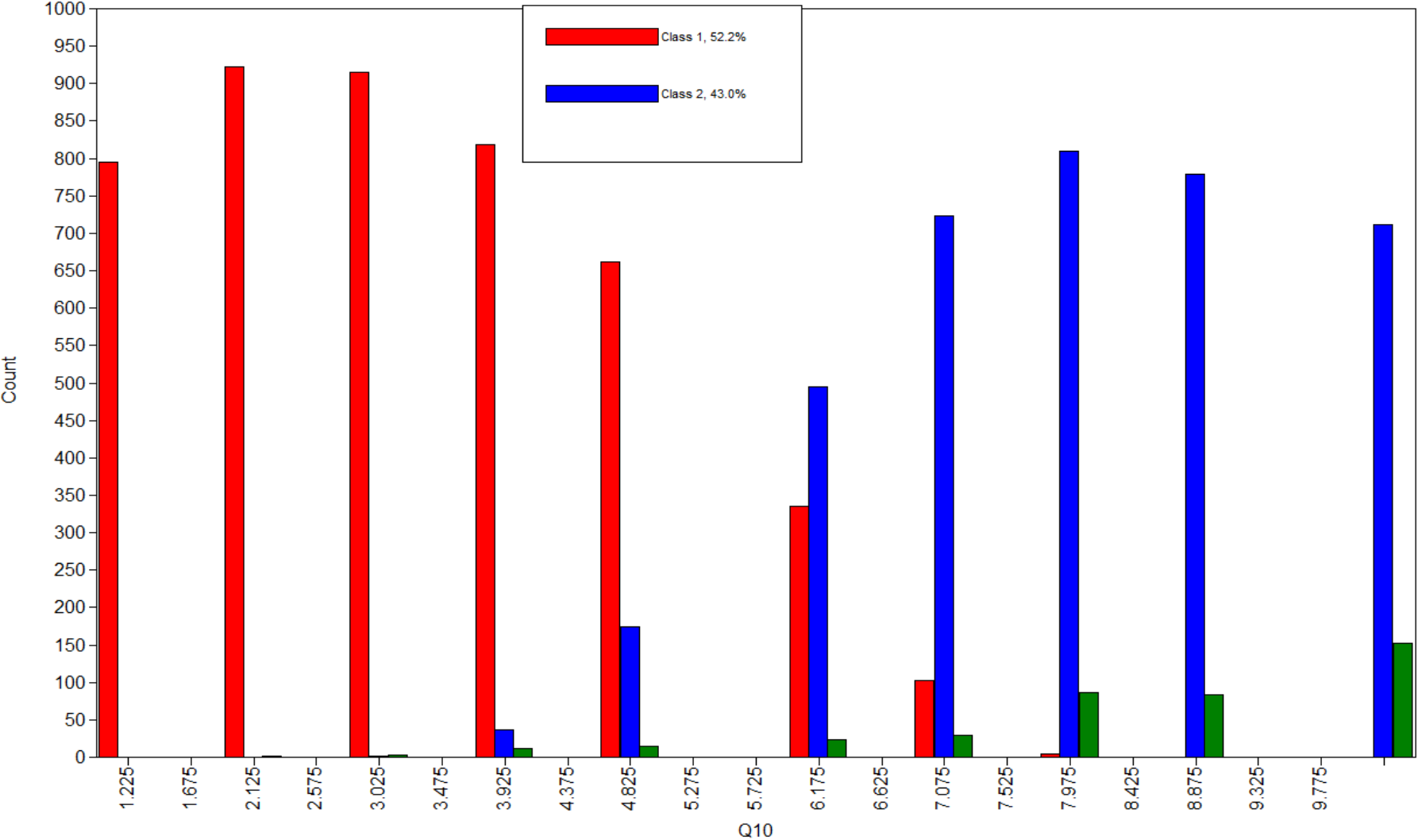
Average Latent Class Probabilities for Most Likely Latent Class Membership by latent class