Predicting Attitudes Towards Universal Basic Income in EU

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Research Question

- What determines people's attitudes towards UBI in developed country?
  - 1. H1: Human Basic Value
  - 2. H2: Social Trust, Media Framing and Political Spectrum
  - 3. H3: Preference and Belief of Social Justice
  - 4. H4: Attitudes towards Welfare
  - 5. H5: Demographic Features, Economic Status and Employment Concern

Why we need to study this question?

- The rising of generative AI, platform economic leading to automation, cobotization and digitization regarding future work
- Technocrats including Andrew Yang, Elon Mask and Sam Altman propose UBI as renewal of social contract
- Concern: Rights to work; National UBI and global justice, Essence of value creation and the purpose of life

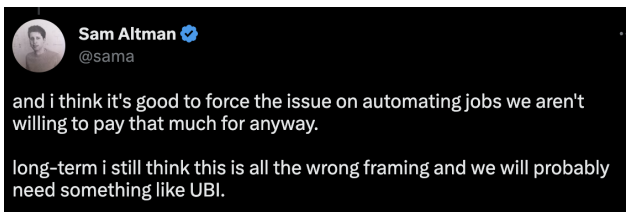


Abbildung 1: Sam Altman's Twitter supporting UBI

Abbildung 2: World-coin project launching in Africa

Main Arguments of Both Sides

- Favor UBI
  1. Affords so-called 'real freedom' allowing recipients choose the way to live
  2. Compensate all citizens at adulthood affecting by distribution structure (Paine 1997)
  3. Effective in targeting the most poor (Hayek; Friedman)
  4. Reduce the stigma associated with receipt of unilateral transfers (Williamson, 1974)
  5. Cut Överheadänd "Bureaucrats" fee of assistance programs

- Against UBI
  1. "Calcify poverty and class structure . . . even more than the present arrangements." (Rivers, 2019)
  2. Potentially threaten democratic traditions - tyranny of the majority (Nelson, 2018)
  3. Not prevent net recipients from consuming (Goolsbee, 2018)
  4. Global justice: Malibu surfers are not entitled to public funds, source of UBI for LDC
  5. Wage as the reward of game theory, violence control machine

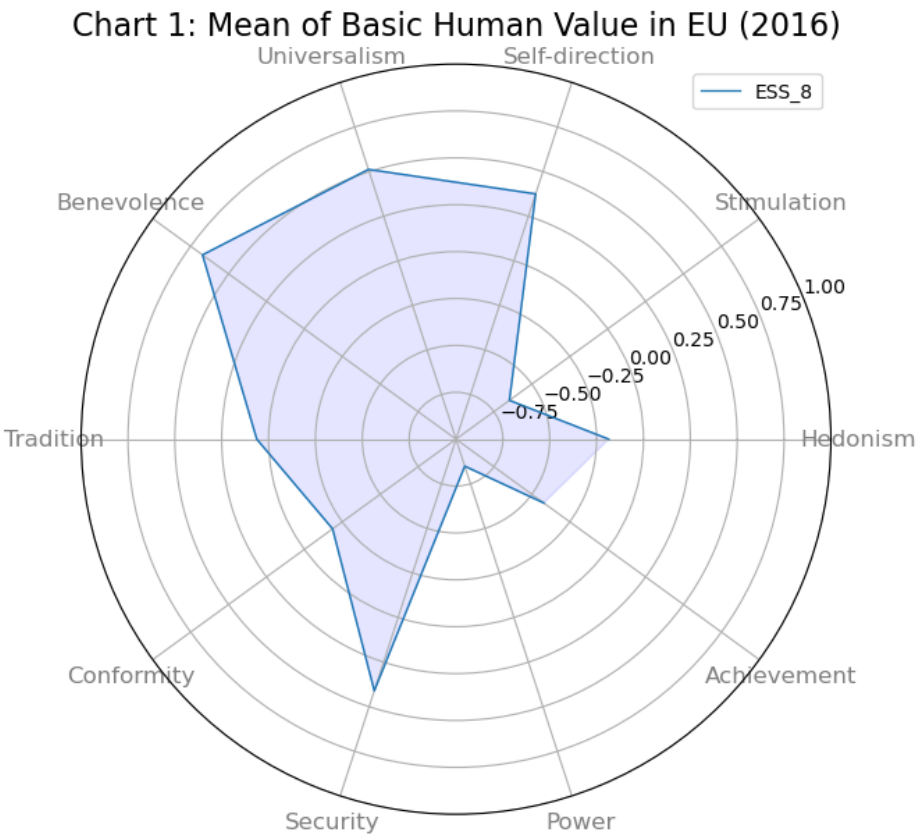
Data Source and Variable of Interest

- Data Source
  - 1. ESS round 8, which covers the period from August 2016 to December 2017
  - 2. Including 44387 observations at individual level and 23 observations at national level
- Main variable of interest
  - Ordinal variable of support towards UBI, which is indicated by the survey questions asking candidates whether they are against or in favor of a basic income scheme
  - '1' represents strongly against and '4' represents strongly in favor.
  - Construct a binary indicator: '1' and '2' against, '3' and '4' favor

Human Value as Potential Indicator

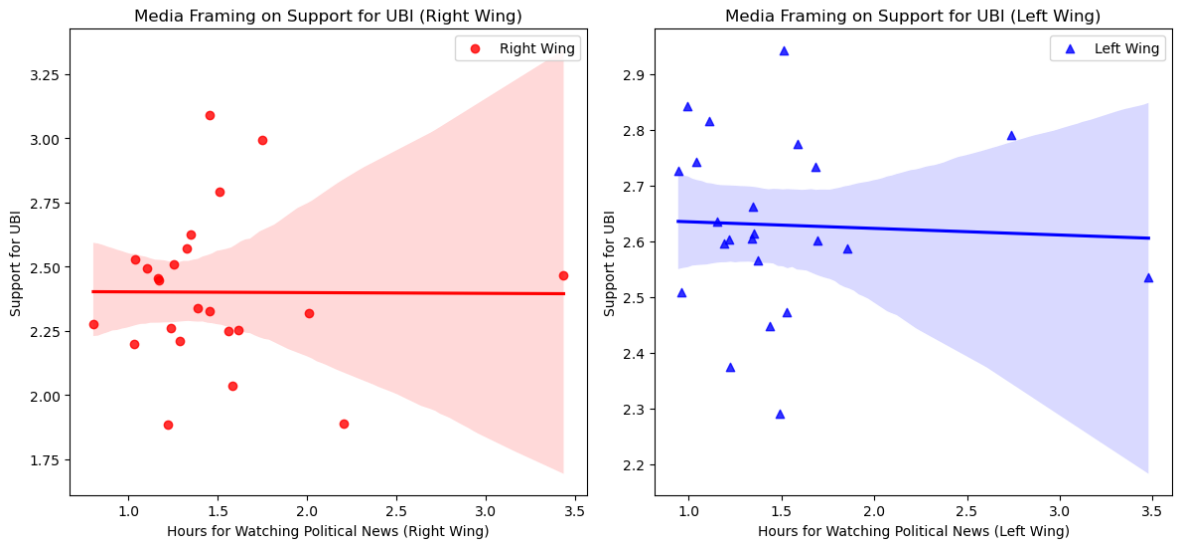
Schwartz method to construct 10 scores of human basic

- Choi (2019): individual universalism is positive and significant associated with support of UBI, while benevolence has negative impacts
- method:using 21 variables in the ESS 8 survey to obtain an overview of the mean of 10 basic values



Media Framing, Social Trust and Political Spectrum

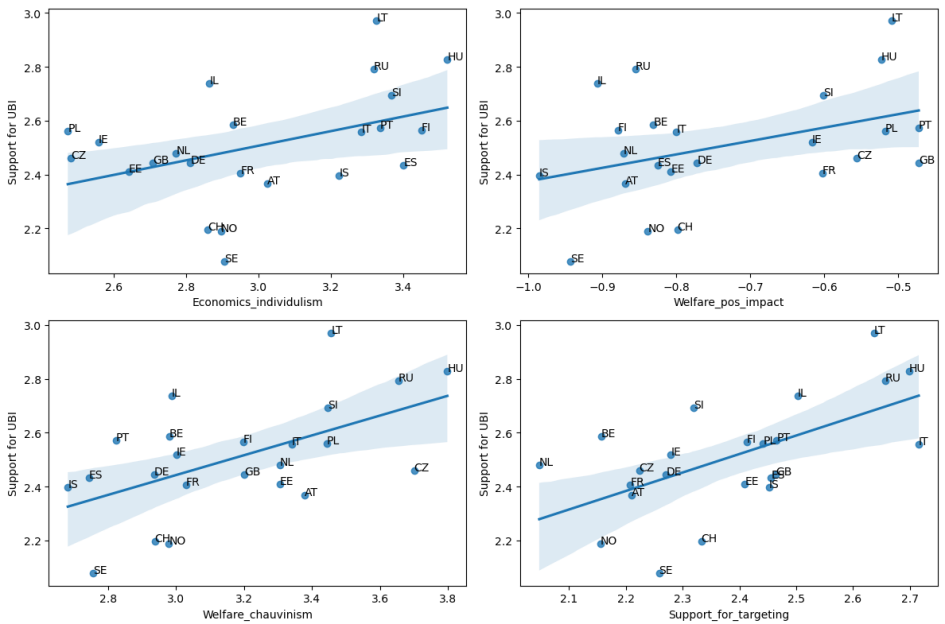
Chart 5: Country-level Associations between Support for UBI and media framing



- media framing for UBI (Yeung, 2022)
  - analyzing the marginal effects of time spent on political news as indicator for media impact on the support for UBI for right wing and left win respectively
  - classifying the answer of question distance on the value spectrum to the left 1-3 as the left-wing and 7-10 as the right-wing

Preference and belief regarding justice and welfare attitudes

Chart 6: Country-level Associations between Support for UBI and Attitudes towards Welfare



- Belief and preference regarding social justice and welfare attitudes
  - economic individualism indicated by the acceptance of large differences in income to reward talents and efforts
  - welfare chauvinism, supporting for targeting and welfare positive impact (synthesized score)

Parametric modelling: multilevel logistic regression

```
1
2  # Create the formula for the logistic regression
3  formula = "support_for_ubi_dummy ~ 1 + is_female + C(age_group) + is_bachelor +
       difficult_on_present_income + live_with_child + healthy_level" (individual
       characterisitc)
4  " + is_unemployed + was_unemployed_exceed_3months" (employment status)
5  " + benevolence + achievement + power + selfdirection + stimulation + universalism"  (
       value)
6  " + fair_in_people + trust_in_people + helpful_in_people + political_news_hour +
       left_on_scale + political_news_hour:left_on_scale"  (trust $ media framing)
7  " + economics_individulism + economics_fainess" (perference $ belief of justice)
8  strain_on_the_economy + preventing_poverty + promote_equality + increasing_laziness +
       less_caring + welfare_chauvinism + support_for_targeting" (welfare attitude)
9
10 ### country-level fixed effect logistic regression
11 model_4 = smf.logit(formula, data=df_lm, groups=df_lm['cntry']).fit()
```

Logistic Regression Table Result 1

	Dependent variable:				
	(1)	(2)	(3)	(4)	(5)
age group 0 - 20		-0.211***	-0.182***	-0.169***	-0.129**
		(0.056)	(0.061)	(0.062)	(0.065)
age group 20 - 30		-0.350***	-0.282***	-0.276***	-0.209***
		(0.057)	(0.063)	(0.064)	(0.067)
age group 30 - 40		-0.447***	-0.379***	-0.377***	-0.298***
		(0.058)	(0.063)	(0.064)	(0.067)
age group 40 - 50		-0.473***	-0.413***	-0.432***	-0.368***
		(0.056)	(0.061)	(0.062)	(0.065)
age group 60 - 70		-0.468***	-0.396***	-0.411***	-0.378***
		(0.056)	(0.061)	(0.062)	(0.065)
age group 70 - 100		-0.474***	-0.403***	-0.455***	-0.433***
		(0.057)	(0.063)	(0.064)	(0.067)
Intercept	0.279***	0.057	0.241**	0.694***	0.064
	(0.014)	(0.075)	(0.098)	(0.110)	(0.136)
achievement		0.130***	0.127***	0.129***	0.126***
		(0.012)	(0.013)	(0.014)	(0.014)
benevolence		-0.142***	-0.129***	-0.129***	-0.122***
		(0.018)	(0.019)	(0.019)	(0.021)
difficult on present income		0.287***	0.287***	0.249***	0.225***
		(0.014)	(0.015)	(0.016)	(0.017)
economics fairness				-0.258***	-0.233***
				(0.012)	(0.013)
economics individualism				0.068***	0.048***
				(0.010)	(0.011)
fair in people			-0.016**	-0.015**	-0.016**
			(0.007)	(0.007)	(0.007)
healthy_level		0.036***	0.031**	0.032**	0.022
		(0.013)	(0.014)	(0.014)	(0.015)
helpful in people			0.020***	0.019***	0.012*
			(0.006)	(0.006)	(0.006)
increasing laziness					0.083***
					(0.014)
is bachelor		0.053**	0.048*	0.059**	0.025
		(0.025)	(0.027)	(0.027)	(0.029)
is female		0.060***	0.028	0.026	0.042*
		(0.021)	(0.022)	(0.023)	(0.024)
is unemployed		0.051	0.065	0.064	0.053
		(0.056)	(0.060)	(0.061)	(0.065)
left on scale			-0.057***	-0.042***	-0.035***
			(0.006)	(0.006)	(0.007)
less caring					0.040***
					(0.014)

Logistic Regression Table Result 2

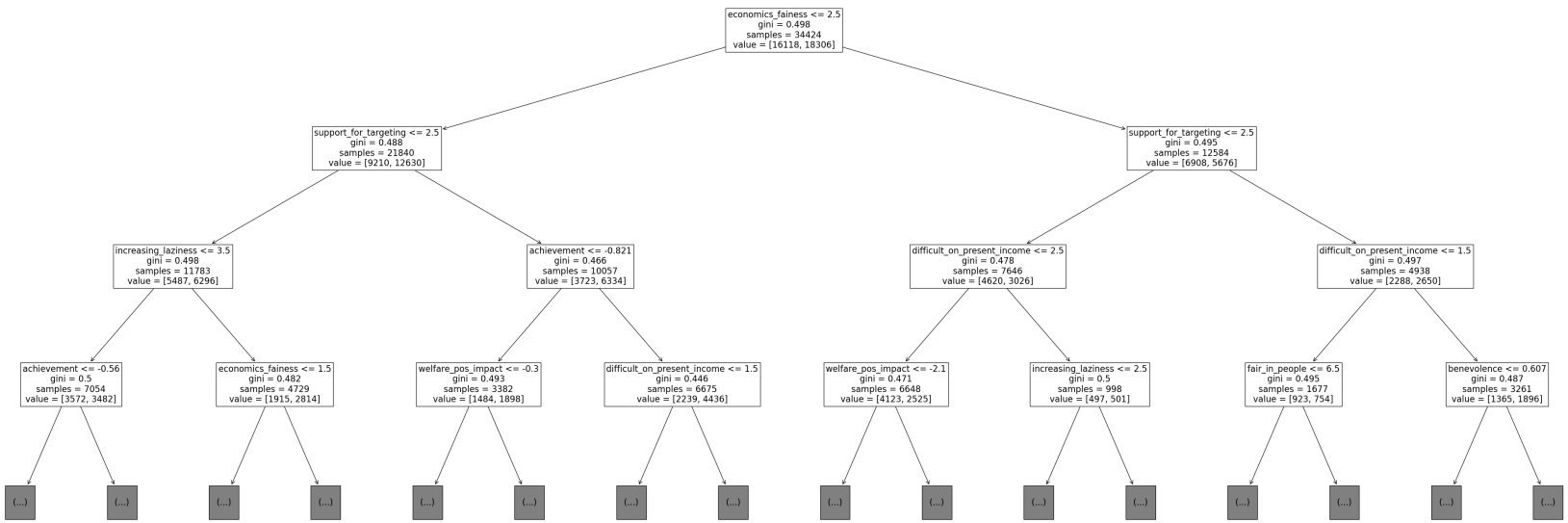
	Dependent variable:				
	(1)	(2)	(3)	(4)	(5)
live with child		0.003	0.004	0.010	0.016
		(0.025)	(0.026)	(0.027)	(0.028)
political news hour			0.028**	0.026**	0.030**
			(0.013)	(0.013)	(0.014)
political news hour:left on scale			-0.005**	-0.005**	-0.006**
			(0.002)	(0.002)	(0.002)
power	0.125***	0.066***	0.055***	0.069***	0.051***
	(0.011)	(0.014)	(0.014)	(0.015)	(0.016)
preventing poverty					-0.009
					(0.014)
promote equality					-0.065***
					(0.014)
self direction		-0.083***	-0.079***	-0.062***	-0.055***
		(0.014)	(0.015)	(0.015)	(0.016)
stimulation		0.087***	0.080***	0.084***	0.084***
		(0.011)	(0.012)	(0.012)	(0.013)
strain on the economy					0.029**
					(0.012)
support for targeting					0.240***
					(0.015)
trust in people			0.005	0.004	-0.003
			(0.006)	(0.006)	(0.006)
universalism		0.170***	0.143***	0.098***	0.073***
		(0.020)	(0.021)	(0.022)	(0.023)
was unemployed exceed 3months		0.115***	0.110***	0.090***	0.093***
		(0.024)	(0.026)	(0.027)	(0.028)
welfare chauvinism					-0.046***
					(0.012)
Observations	40,592	39,847	35,011	34,493	31,389
R^2					
Adjusted R^2					
Residual Std. Error	1.000(df = 40590)	1.000(df = 39827)	1.000(df = 34985)	1.000(df = 34465)	1.000(df = 31354)
F Statistic	(df = 1.0; 40590.0)	(df = 19.0; 39827.0)	(df = 25.0; 34985.0)	(df = 27.0; 34465.0)	(df = 34.0; 31354.0)

Note: *p$<$0.1; **p$<$0.05; ***p$<$0.01

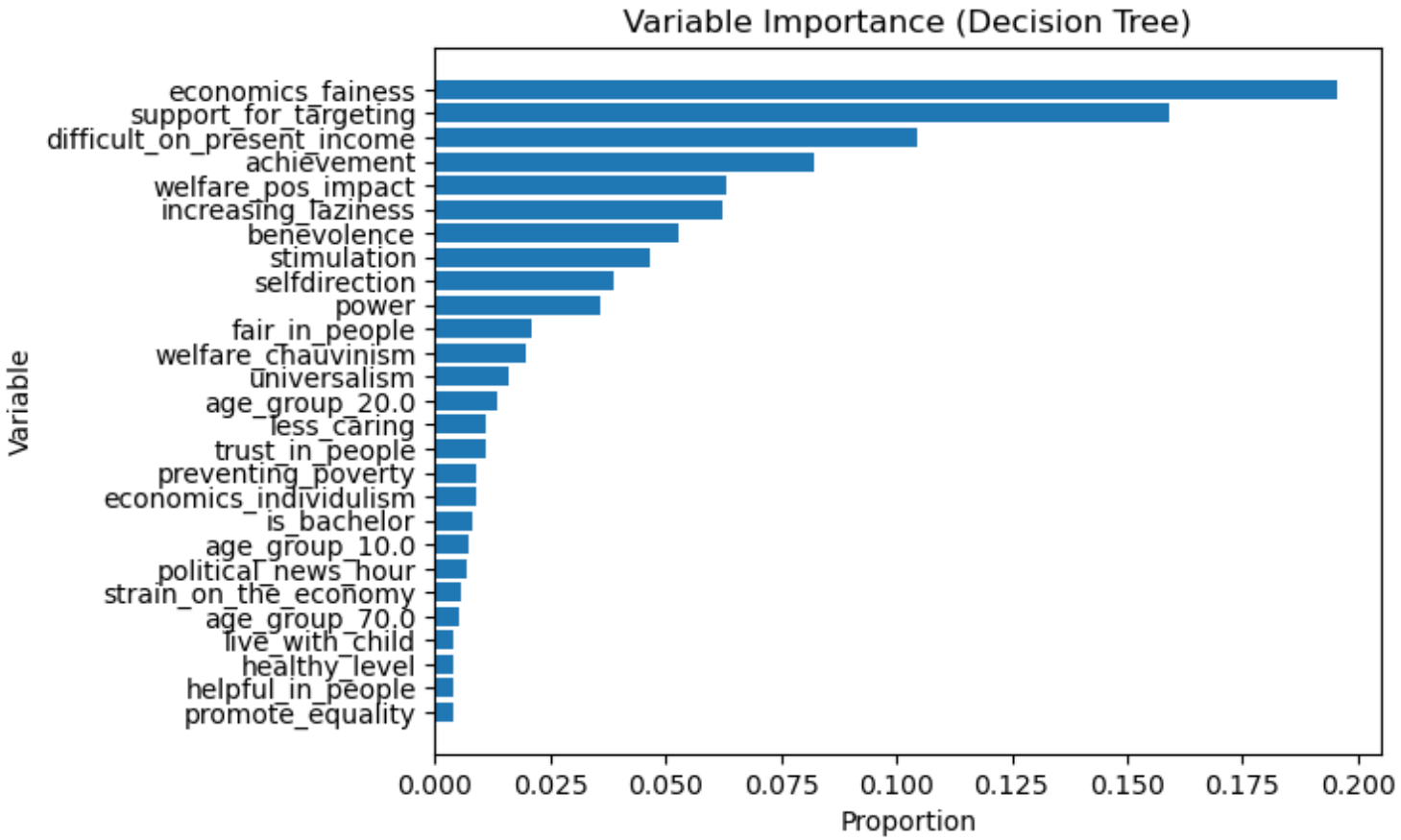
Non-parametric modelling: Decision Tree, Random Forest and AdaBoost

```
# fit model
  tree = DecisionTreeClassifier(max_depth=7)
  tree.fit(X, ydummy)
# check accuracy
  cross_val_score(tree, X, ydummy, cv=5)
# Create a DataFrame with variable importance
  var_imp = pd.DataFrame({'Variable': X.columns,
                          'Importance': tree.
    feature_importances_})
# random forest classifier
  rfmodel = RandomForestClassifier(n_estimators=1000,
    random_state=0)
  rfmodel.fit(X, ydummy)
# adaboost classifier
  ada = AdaBoostClassifier(n_estimators=1000,
    random_state=0)
  ada.fit(X, ydummy)
```

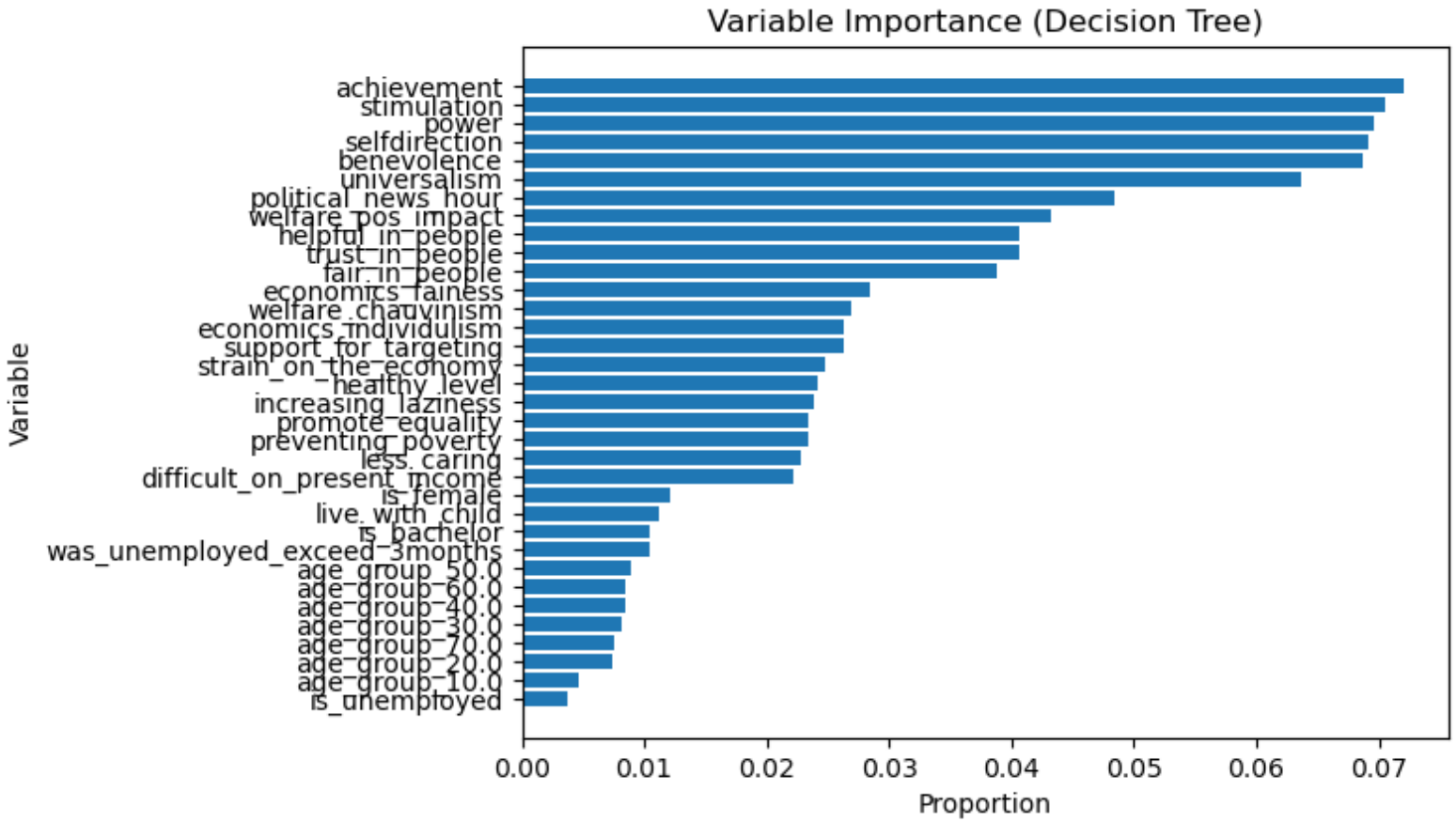
Result: Decision Tree with Maximum Depth of 10



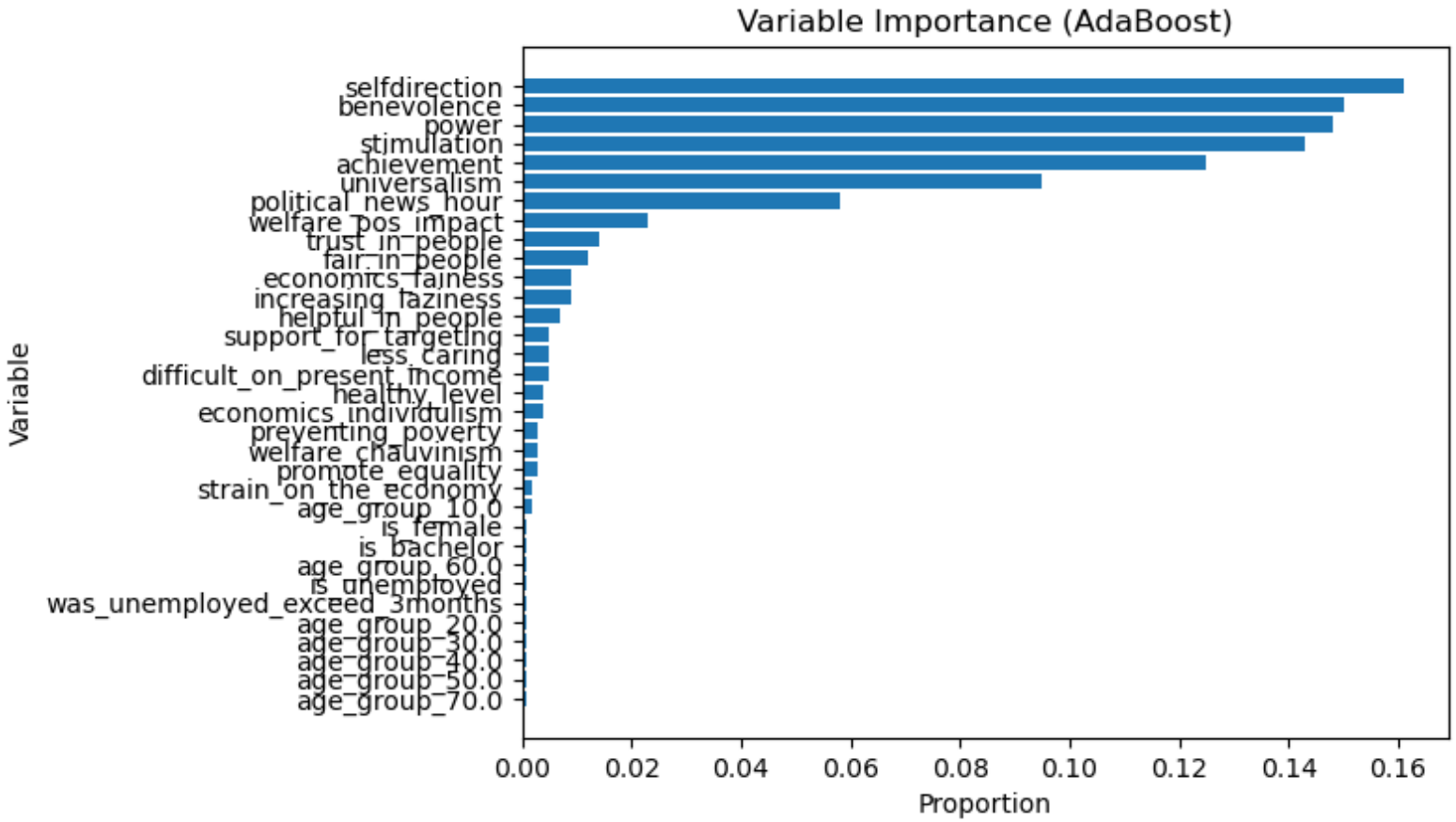
Variable importance by Decision Tree



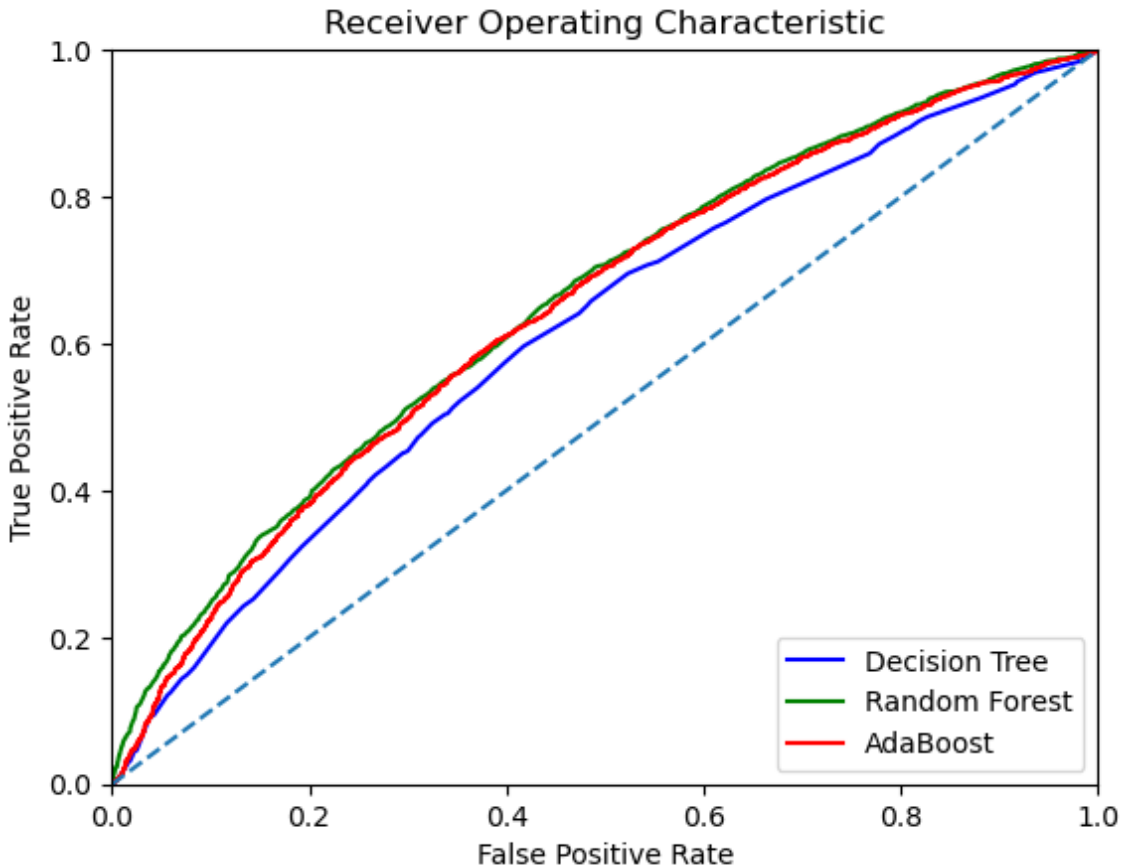
Variable importance by Random Forest



Variable importance by AdaBoost



Comparison between Decision Tree, Random Forest and AdaBoost



Conclusion and Implication

- Conclusion from multi-layer logistic regression
  - age is a significant indicator across all age group - Support for UBI is decrease with the increase of age, and employment concern indicator
  - For basic human indicator, support for UBI is positively correlated with achievement and and negatively correlated with benevolence.
  - For media and social trust, support for UBI is positively correlated with hours spent on the political news, interaction term and social trust
  - For preference and belief regarding social justice, support for UBI is positively correlated with economic individualism, and negatively correlated with economic fairness
  - For attitudes towards welfare, negatively correlated with welfare chauvinism, promote equality and positively correlated with strain on the economy, support for targeting

Conclusion and Implication

- Conclusion from multi-layer logistic regression
  - Economic fairness, support for targeting and difficult on present income are the most important three factors using decision tree
  - Achievement, Stimulation, power, self-direction, benevolence and universalism are the most importance six factors using random forest
  - AdaBoost result is similar to random forest, the RoC is low for all models

Reflection and Next step

- Next step
  - More non-parametric model, including SVM and ANN
  - Random Forest on categorical variable ranging from 1-4
  - Using over-sample and under-sample mechanism
- Limitation
  - For logistic regression, variable importance is not clear
  - For tree-based mechanism, sensitive to missing value and choice of method