Happy Income?

Predicting the Future of Basic Income in Europe

The Goals of This Project

1. A guide to the reader on a contemporary issue and debate of basic income.

2. Leverage on a confluence data science, data journalism, and social science disciplines to understand and contextualize basic income. The OSMEIC framework is created for this purpose.

3. Leverage on a combinations of Hypothesis Testing (drawing observations that resulting in real, significant effect), and Machine Learning - Predictive Analytics

4. The 3 key questions we are trying to answer

   > Based on the Dalia Research 2016 survey dataset, and predictive analytics:
   What is the possibility of predicting whether some will vote for or against basic income?

   > Based on the 2016 survey dataset, and hypothesis testing:
   What key factors that have significant influence on basic income voting outcome?

   > Based on the above two results, and drawing from recent debates on basic income (on mainstream and social media):
   What is the future of basic income in the future of work?

1 The concept of basic income

A payment made to all adult individuals that allows people to meet their basic needs. It is made without any work or activity tests.

There are three main components of basic income:

Universal

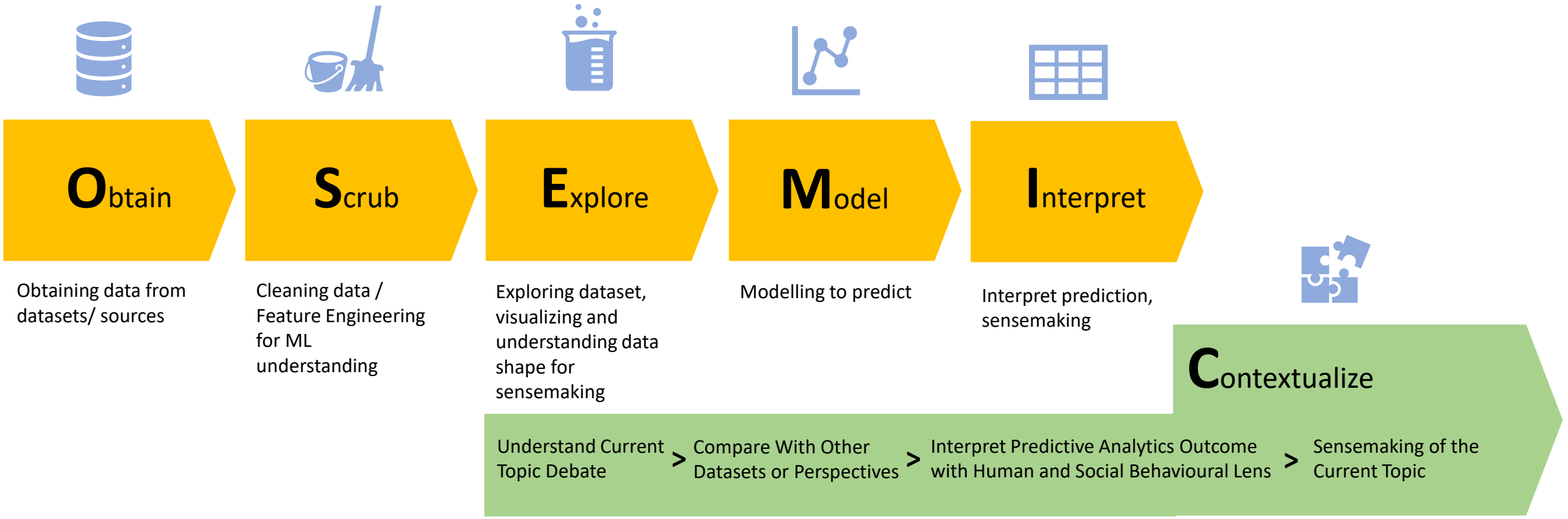
Unconditional

Adequate

2

The OSEMIC Framework

This project leverages on a combination of data science (predictive analytics), journalism (capturing the latest news about basic income), and analytical sociology (basic income is essentially a sociological issue, and rightly so a need for sociological perspective).



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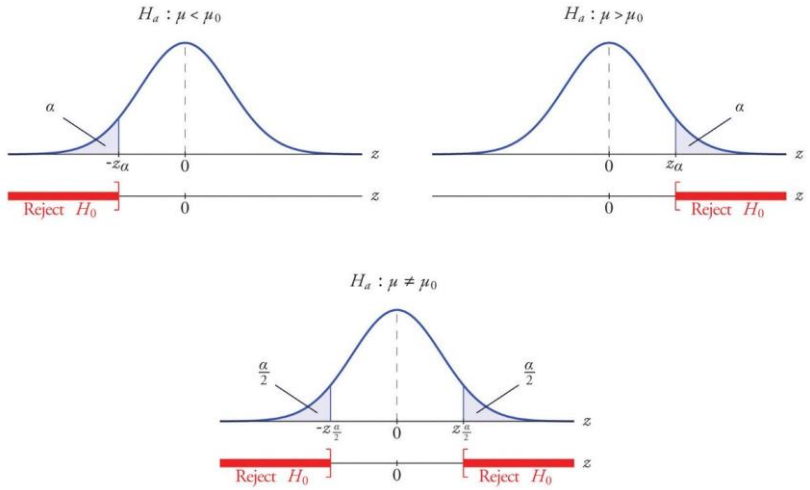
HYPOTHESIS TESTING AND PREDICTIVE ANALYTICS

Tools

Drawing observations that resulting in real, significant effects



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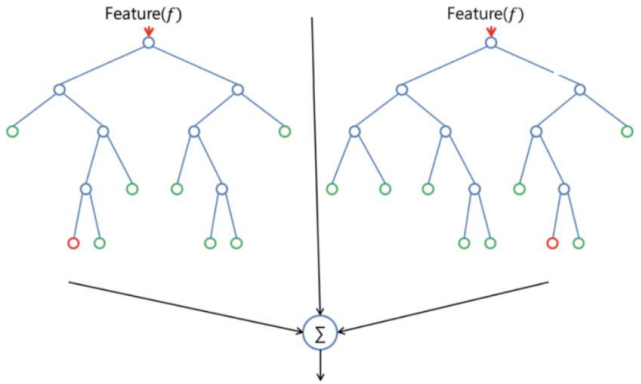
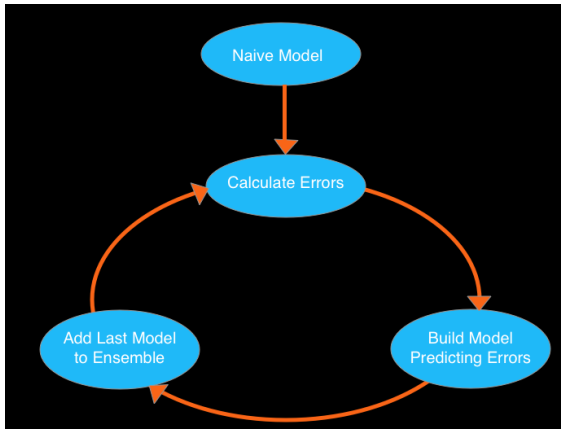
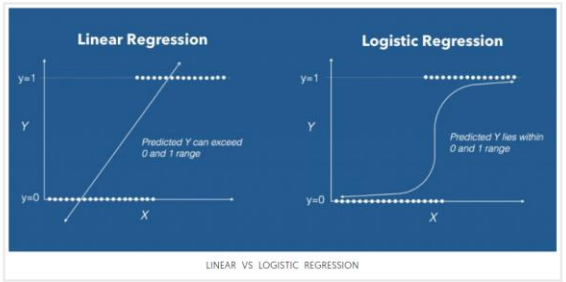
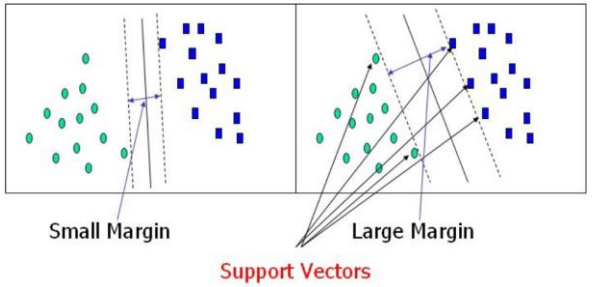
Use of data, statistical algorithms and machine learning techniques to identify the likelihood of future outcomes based on historical data









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PROJECT QUESTIONS

QUESTION 1

What is the possibility of predicting whether someone will vote for or against basic income?

The answer is a definite yes.

Random Forest and XGBoost have demonstrated most promising tools in predicting whether someone will vote for or against basic income.

Predictive Analytics Modelling

Random Forest

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Training Accuracy: 77.65%

Test Accuracy: 62.11%

XGBoost

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Training Accuracy: 73.67%

Test Accuracy: 62.23%

Logistic Regression

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Training Accuracy: 66.1%

Test Accuracy: 62.9%

Support Vector Machine

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Training Accuracy: 62.53%

Test Accuracy: 61.23%

Classifications Reporting on Precision, Recall, and F-1

Classification Report Logistic Regression:

	precision	recall	f1-score	support
I would probably vote against it	0.68	0.79	0.73	600
I would probably vote for it	0.67	0.69	0.68	1333
I would vote against it	0.55	0.40	0.47	382
I would vote for it	0.60	0.57	0.59	1074
micro avg	0.64	0.64	0.64	3389
macro avg	0.62	0.61	0.61	3389
weighted avg	0.63	0.64	0.63	3389

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Classification Report Random Forest:

	precision	recall	f1-score	support
I would probably vote against it	0.66	0.88	0.75	600
I would probably vote for it	0.65	0.74	0.69	1333
I would vote against it	0.60	0.28	0.38	382
I would vote for it	0.61	0.50	0.55	1074
micro avg	0.64	0.64	0.64	3389
macro avg	0.63	0.60	0.59	3389
weighted avg	0.63	0.64	0.62	3389

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Classification Report XGBoost:

	precision	recall	f1-score	support
I would probably vote against it	0.68	0.82	0.75	600
I would probably vote for it	0.66	0.69	0.68	1333
I would vote against it	0.59	0.40	0.47	382
I would vote for it	0.59	0.55	0.57	1074
micro avg	0.64	0.64	0.64	3389
macro avg	0.63	0.62	0.62	3389
weighted avg	0.63	0.64	0.63	3389

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Classification Report SVM:

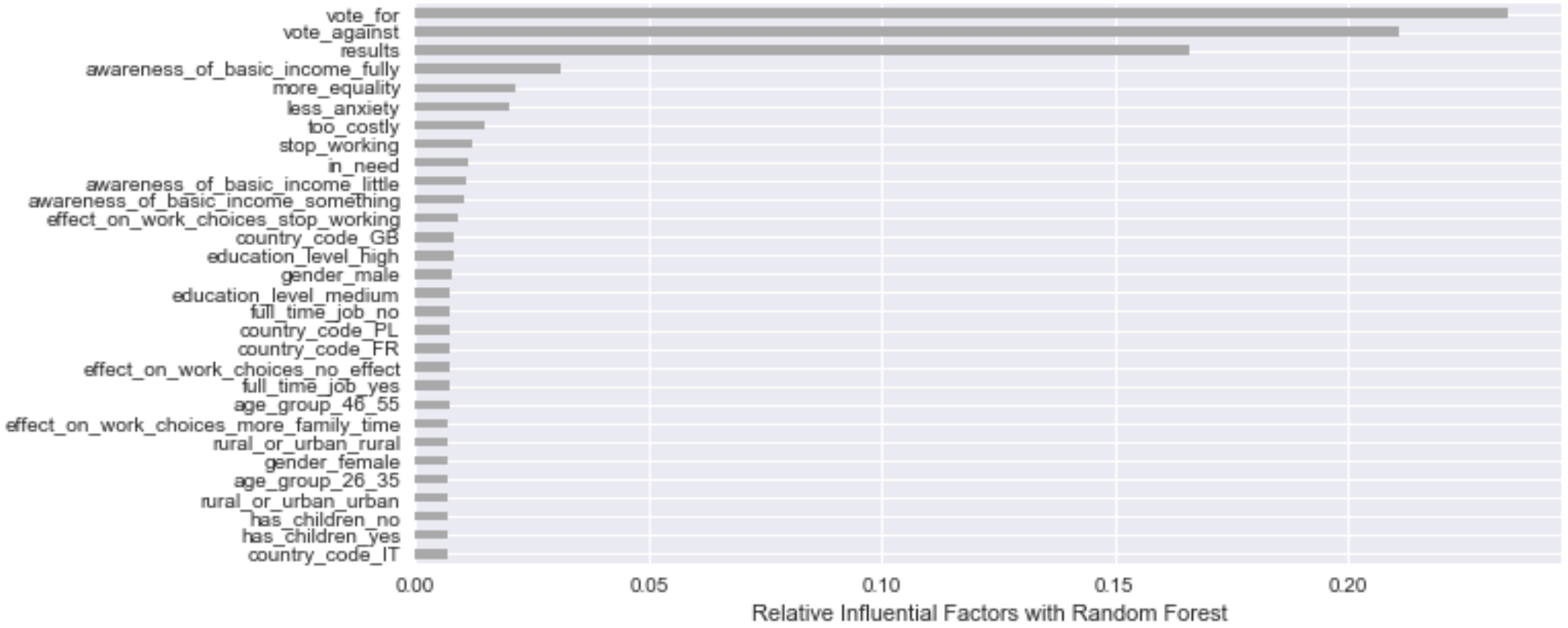
	precision	recall	f1-score	support
I would probably vote against it	0.63	0.94	0.76	600
I would probably vote for it	0.62	0.78	0.69	1333
I would vote against it	0.60	0.13	0.21	382
I would vote for it	0.60	0.42	0.50	1074
micro avg	0.62	0.62	0.62	3389
macro avg	0.61	0.57	0.54	3389
weighted avg	0.62	0.62	0.59	3389

4B

PROJECT QUESTIONS

QUESTION 1

Relative Influential Factors with Random Forest



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PROJECT QUESTIONS

QUESTION 2

What key factors that have significant influence on basic income voting outcome?

The predictive analytics revealed awareness of basic income as the rank #1 predictor whether someone will vote for basic income.

Further basic income significance testing revealed that all psychographic are significantly different, except for education level.

TABLE A

SIGNIFICANT FACTORS THAT WILL DETERMNE WHETHER SOMEONE WILL VOTE FOR OR AGAINST BASIC INCOME – THROUGH HYPOTHESIS TESTING

Hypothesis Testing (Significant Test) of the below factors in relation with Going To Vote for Basic Income	P-value determine the significance of results
Average Age	2.63 Significant difference; Accept alternative hypothesis -
Education Level	0.0004 No significant difference; Accept null hypothesis -
Gender	0.2 Significant difference; Accept alternative hypothesis -
Whether on Full-Time Job	2.49 Significant difference; Accept alternative hypothesis -
Whether has Children	0.12 Significant difference; Accept alternative hypothesis -
Whether has Awareness of Basic Income	8.03 Significant difference; Accept alternative hypothesis -
Effect on Work Choices	1.78 Significant difference; Accept alternative hypothesis -

4D

SUMMARIZING Q1 AND Q2

TABLE A

SIGNIFICANT FACTORS THAT WILL DETERMNE WHETHER SOMEONE WILL VOTE FOR OR AGAINST BASIC INCOME – THROUGH HYPOTHESIS TESTING

Hypothesis Testing (Significant Test) of the below factors in relation with Going To Vote for Basic Income	P-value determine the significance of results
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Whether has Awareness of Basic Income	8.03 Significant difference; Accept alternative hypothesis -
Effect on Work Choices	1.78 Significant difference; Accept alternative hypothesis -

TABLE B

SIGNIFICANT FACTORS THAT WILL DETERMNE WHETHER SOMEONE WILL VOTE FOR OR AGAINST BASIC INCOME – THROUGH MACHINE LEARNING (PREDICTIVE ANALYTICS)

Ranking	Influencing factors on basic income voting	Questions on basic income
1	I would vote for it	Going to the ballot today
2	I would vote against it	Going to the ballot today
3	I understand fully the concept of basic income	Awareness of basic income
4	It creates more equality of opportunity	In support of basic income
5	It reduces anxiety about financing basic needs	In support of basic income
6	Too costly - It is impossible to finance	Not support of basic income
7	In need - Only the people who need it most should get something from the state	Not support of basic income
8	Awareness of basic income – little	Awareness of basic income
9	Country – Poland	Country specific – medium minimum wage country
10	Education level - high	Psychographic factor

TABLE C

CHANGES (2016 VS 2017) IN SIGNIFICANT FACTORS THAT WILL DETERMNE WHETHER SOMEONE WILL VOTE FOR OR AGAINST BASIC INCOME – THROUGH MACHINE LEARNING (PREDICTIVE ANALYTICS)

Ranking	Influencing factors on basic income voting - 2016	Influencing factors on basic income voting - 2017
1	I would vote for it	4% higher
2	I would vote against it	3% lower
3	I understand fully the concept of basic income	5% higher
4	It creates more equality of opportunity	11% higher
5	It reduces anxiety about financing basic needs	12% higher
6	Too costly - It is impossible to finance	2% higher
7	In need - Only the people who need it most should get something from the state	2% higher
8	Awareness of basic income – little	No data – go with the assumption that it will be lower
9	Country – Poland	2% higher
10	Education level - high	Psychographic factor

4E

PROJECT QUESTIONS

Question 3

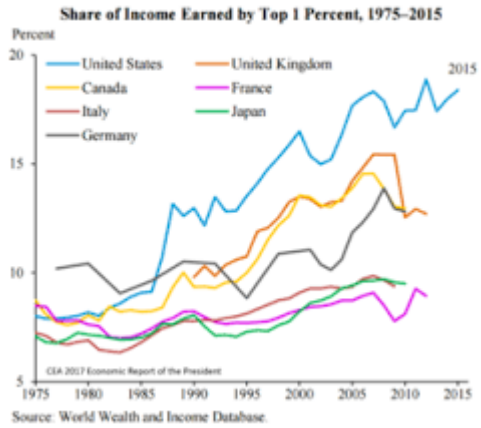
What is the future of basic income in the future of work?

There will be more pockets of experimentation on basic income all across the world, it is likely the western countries will continue to experiment and debate basic income due to the disruption from …

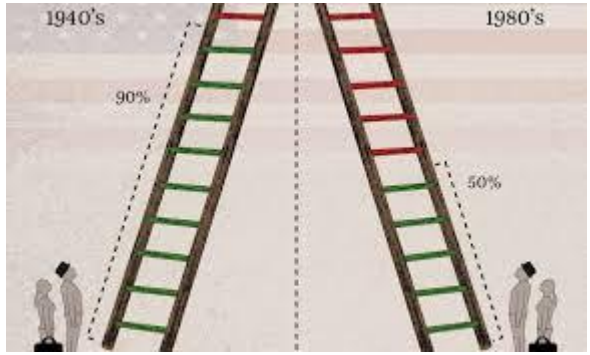
Workplace automation
(e.g. robo finance advisor)

Growing gig economy
(e.g. Uber, Task Rabbit)

Widening income inequality
(e.g. the rich gets richer)



Declining economic mobility



Thank You