

# Towards a Theory of Societal Co-evolution: Individualism versus Collectivism

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# What is Individualism-Collectivism?

- The degree of interdependence amongst the members of a society

## Why is it important ?

- Identified as a critical dimension differentiating cultures [Hofstede]
- Critical to social and economic aspects of a society [Hofstede][Roland]

## What is the goal?

- Exact nature of impact on population, socio-economic inequality, health (life-time of individuals) not understood!
- This work is an important step towards this goal

# Model

- Infinite horizon, continuous time model with continuum of individuals
- Intrinsic ability to do well in life modeled as quality
- Individual is born with a quality  $Q$  which can be good or bad, i.e.  $Q \in \{-1, 1\}$  that is drawn from a fixed distribution
- Degree of collectivism is interdependence amongst the individuals given by a weight  $w \in [0, 1]$
- Welfare of an individual at time  $t$  is  $X(t)$ 
  - Abstract measure of well being, i.e. wealth, resources and health of an individual

# Model

– Rate of growth of welfare is

$$\frac{dX(t)}{dt} = (1-w).Q + w.\bar{Q}(t)$$

- $(1-w).Q$  is individual's contribution to self-growth
- $w.\bar{Q}(t)$  is contribution of the rest of the society
- Birth process, individuals are born at a rate  $\lambda_b$
- Natural death process- Poisson arrival process starting at birth with rate  $\lambda_d$ 
  - Individual dies at the first Poisson arrival
- Death due to poor welfare level
  - Individual dies if the welfare falls below the threshold  $-l'$

Do not incorporate the effect of important factors-  
geography, institutions

# Results Highlights

## Total Population

**Theorem:** Total population increases with an increase in the level of collectivism  $\mathcal{W}$

## Average welfare

**Theorem:** Average welfare decreases with an increase in the level of collectivism  $\mathcal{W}$

## Cumulative welfare

**Theorem:** Cumulative welfare decreases with an increase in the level of collectivism  $\mathcal{W}$

# Conclusion

- First general model of individualism-collectivism
  - Important step towards understanding the force of individualism-collectivism
- Predictions about societal metrics match with empirical studies
- For discussions and questions come see the poster!

# References

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