

How Psychology can help actuaries ?

Anne-Charlotte BONGARD, ETHIME

About the speaker

- **Anne-Charlotte BONGARD** – *President, ETHIME*

Certified french actuary and Expert in Risk Management Analysis (CERA), I spent 18 years in consulting firms working for insurers, involved in technical missions leadership. I help insurers to face their challenges and ambitions in a perpetual moving social and economic environment.



- ETHIME is an actuarial consulting firm which provide actuarial and risk management services to insurers in a special way : including human behavior and decision-making in statistical approaches.

2 antagonist assumptions...

Actuariat

Human behavior analysis based on historical/known data to predict future risks



One strong assumption :
Human behavior is quite rational



Psychology

Human analysis to understand behavior, considered to be not « normal »



One strong assumption : human behavior is NOT rational

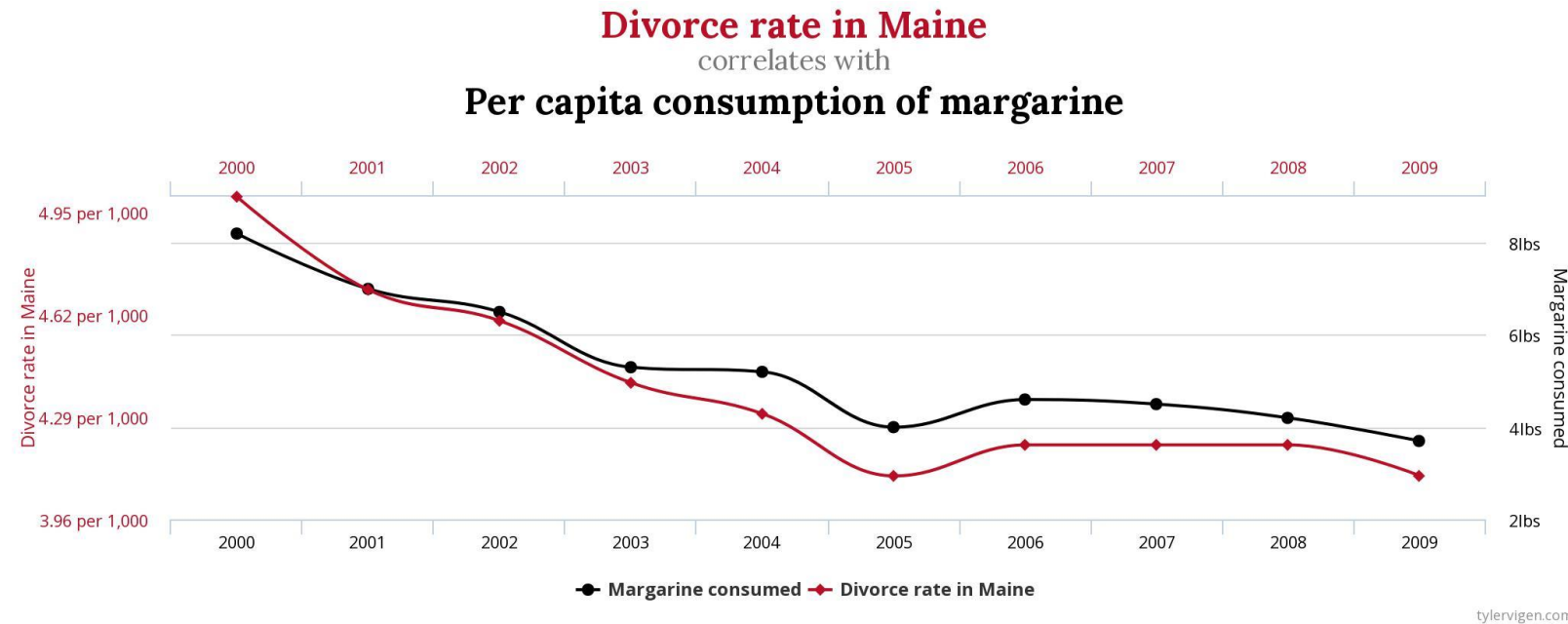
How psychology and actuarial can meet each others ?

- It should NOT be possible to study risks attached to human behavior **without** studying the human mind
- As it is NOT possible to study psychology **without** statistics
- As individuals, we use statistics **all the time** in our daily life to make decisions

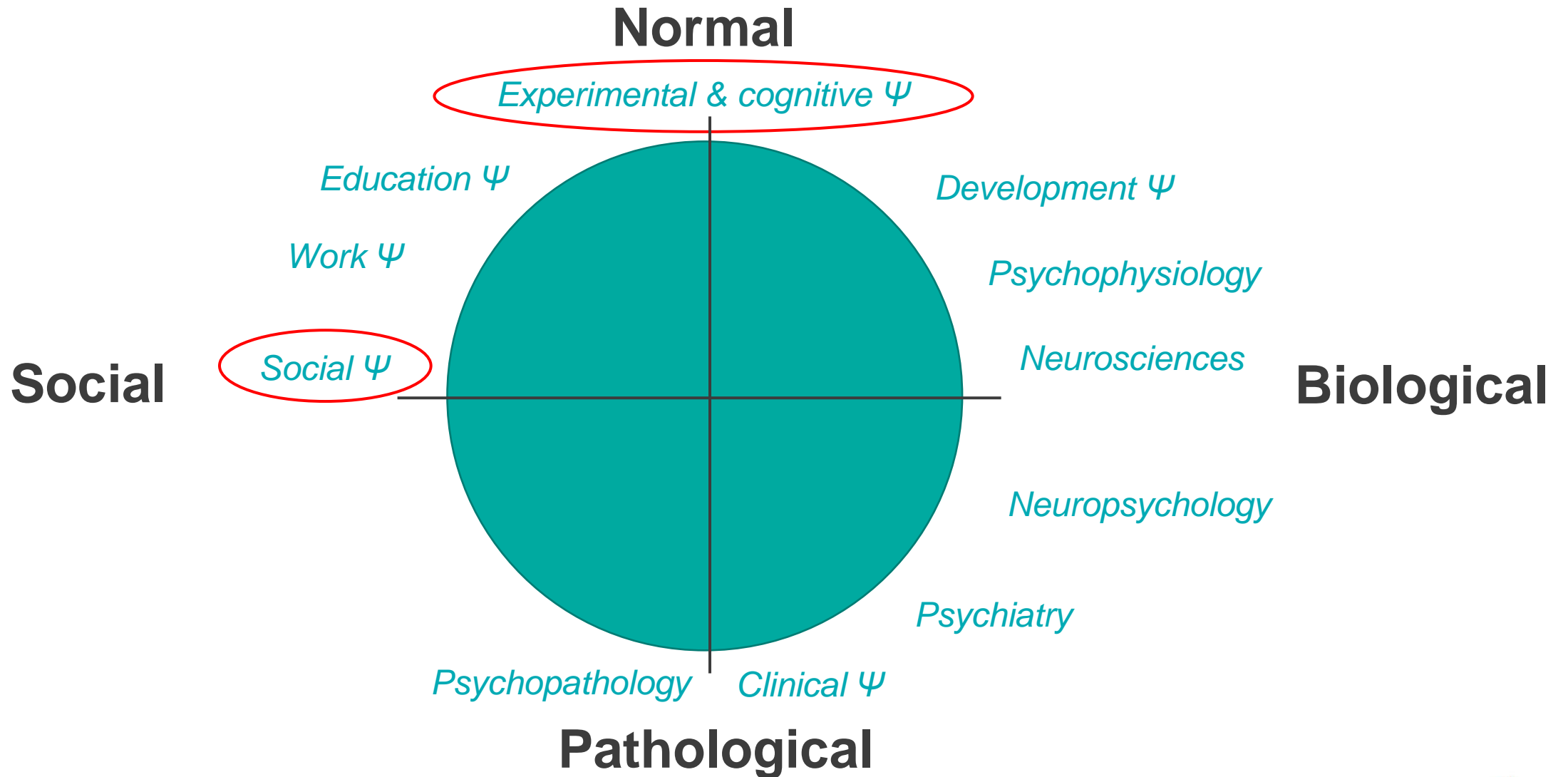


But we can be mistaken using statistics

- Missing or inadequate data
- Spurious correlations
- Mental bias
- ...



Psychology objectives



A few learnings from cognitive psychology

- Better knowing ourselves to avoid mistakes (examples)
 - Overestimate information and data liability
 - Confirmation bias
 - Tendancy to treat problems separately...
- Better knowing individual/group behaviors or beliefs to manage insurance risks and build insurance contracts (examples)
 - behavior is influenced by our environment or available information
 - decision to buy insurance after disaster
 - difficulty to imagine a disaster worse than the worst known
 - event frequency estimation distorted by our emotions

A few learnings from social psychology

- Better knowing ourselves to avoid mistakes (examples)
 - Be careful with stereotypes
 - Our attitudes are based on a social object/concept
- Better knowing individual/group behavior or beliefs to manage insurance risks and build insurance contracts (examples)
 - Detect spheres of influence
 - Know how to change attitudes to promote risk prevention
 - Know group conviction to convince

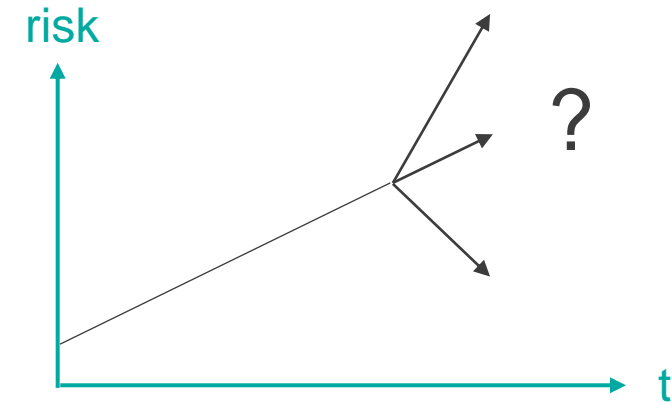


Example of use for pricing & underwriting actuaries

- With mutualization => no problem, mean and standard deviation should fit the risks
- But individualized pricing is more and more used on a competitive market (helped by data science)
- So knowing social human psychology is a necessity to find the relevant variables, avoid large mistakes and develop pertinent insurance contracts.

Example of use for risk management actuaries

- Risks managers have to anticipate risks in a moving and uncertain environment
- They have to imagine the unthinkable... without being too influenced by their own beliefs
- Understand their mental bias and how to convince others [top management mainly] is essential (yes, a worldwide pandemic is something possible...)



Focus on Ethics

- Deontology vs Ethics
- Being an actuary is a responsibility
- Educate yourself (ethics on data, algorithms and behavior)

Conclusion

- Psychology in insurance is just starting (behavioral finance is on its way, behavioral insurance still has to be developed...)
- Advice :
 - Be aware that we don't know everything
 - Try not to be influenced
 - Think out of the box to follow economic and social evolution (Tesla want to build a « revolutionnary insurance company »)
 - Join different sciences together to break barriers for innovation in insurance

To go further...

(non-exhaustive list 😊)

- On cognitive bias : Daniel Kahneman, *Thinking Fast and Slow*
- To take a step back from your actuarial work, follow the « Chaire PARI » papers : www.chaire-pari.fr

**Thank you very much for
your attention!**



contact details

Anne-Charlotte BONGARD

ETHIME

ac.bongard@yahoo.com

+33 7 66 06 35 47