

Czech farmers' perception of and adaptation to climate change risks

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Climate change
impacts
...on agriculture




Impacts reduction

- EU: food producer (Eurostat)
- **EU strategy on adaptation to climate change:**
 - ↑ resilience
 - ↓ vulnerability
- promoting adaptation in key vulnerable sectors (agriculture):
 - political changes
 - technological solutions
 - adjustments in farm management or structures
- farm level adaptation

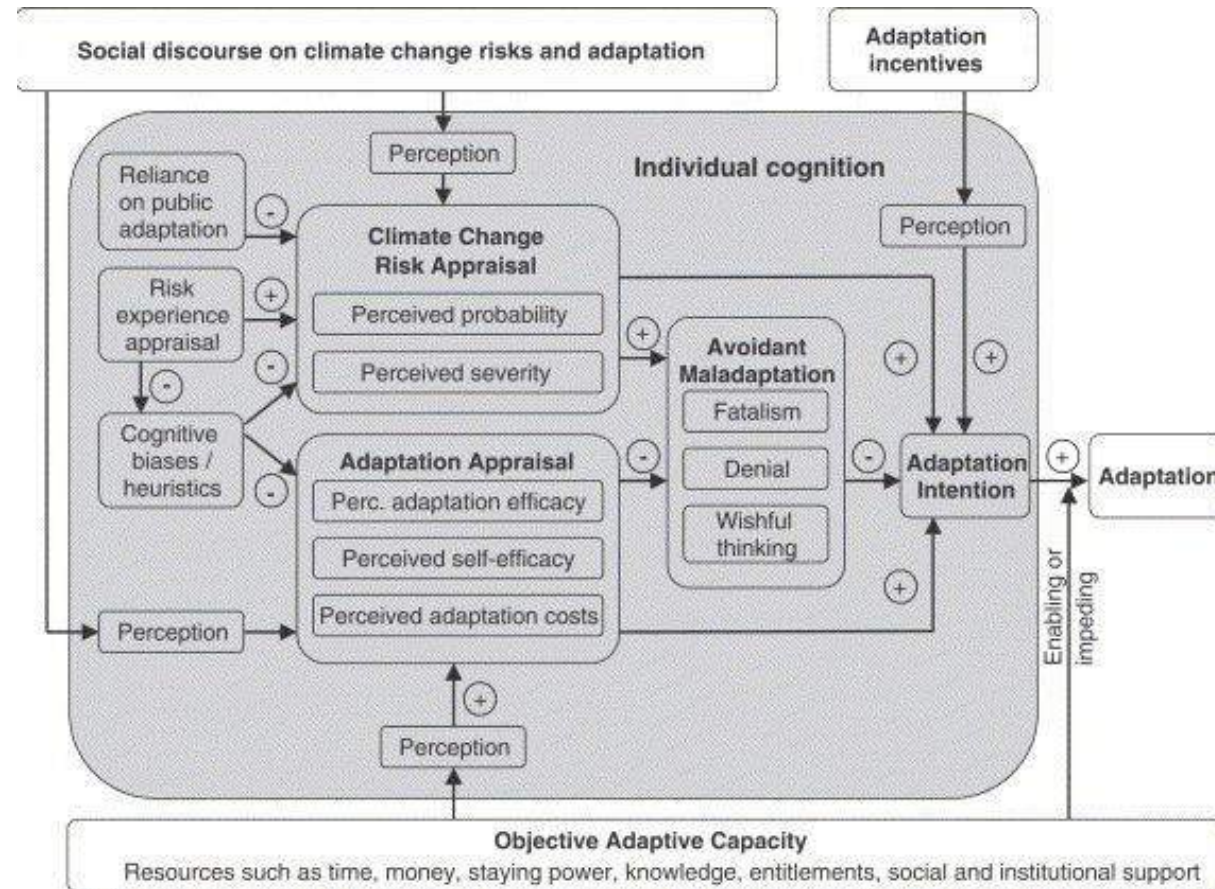
Source: EC: EU agriculture and climate change fact sheet; EC: LIFE and Climate change adaptation (2015); EC (2013): EU strategy on adaptation to climate change; Mze (2011); MŽP (2015): Strategie přizpůsobení se změně klimatu v podmínkách ČR; ČHMÚ (2011)

Research goals

- factors influencing adaptation
- barriers and motivations
- climate change / risk perception  adaptation

Adaptation: Process model of private proactive adaptation to climate change (MPPACC)

Factors influencing private adaptation



Methods

- **Design**
 - qualitative research method
 - 14 in-depth interviews
- **Analysis**
 - case study and grounded theory methodology
 - open coding
 - axial coding

Sampling

- theoretical sampling
- purposive sampling and snowball sampling methods
 - criteria:
 - region
 - size (small scale)
 - type of production (crop)
- typical cases, extreme cases









Preliminary results



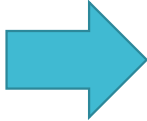
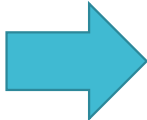

Climate change risk perception

- **Perceived changes:**
 - precipitation patterns and weather variability
 - extreme weather
 - droughts and heat waves
 - heavy precipitation
 - floods
 - windstorms
 - frosts
- **Impacts**
 - water scarcity
 - pests
 - erosion
 - waterlogged soil
 - health hazard due to agricultural practice
 - reduced agricultural yields
 - low income



Implemented adaptation measures

	diversification	crops, crop varieties, sowing times, activities and income		changes in the extent of production	crop cultivated area reduction or termination of crop production
	agronomic practice changes	no-till farming, stubble, intercropping, dense crop, trying different types of crops		technical equipment and machinery	more harvesters, importing/abstraction of water, irrigation, disobedience of a ban on water abstraction, drainage systems, driers
	changes in dates or time	earlier fertilization, sowing, harvest, mowing, grazing cattle at night, hiding during the day		natural measures	ponds, afforestation, grassing, grassy strips
	changes in a type of production	from conventional to organic farming scheme		soft measures	insurance

Risk perception and adaptation

Type of risk	Adaptation measures			
	Specificity	Time	Term	Example
actual	 particular risk	reactive	one-time	adjusting actual activities (e.g. irrigation, harvesting)
experienced/ future	 particular risk	preventive/ reactive	middle, long term	drainage systems or special equipment and machinery crop varieties, insurance
experienced/ future	 different kinds of risks	preventive/ reactive	middle, long term	diversification of crops, planting time, income or some natural measures for water retention

Factors

factor	 supporting (motivations)	 undermining (barriers)
Risk perception	<ul style="list-style-type: none"> • frequent • serious 	<ul style="list-style-type: none"> • uncertainty, variability of the weather, not frequent in the future • low impact - belief that yields will be anyway
Adaptation appraisal	<ul style="list-style-type: none"> • effectiveness • private benefits (yields, revenues, enjoy) • public benefits (positive environmental effects) • utility / usability under various conditions 	<ul style="list-style-type: none"> • low efficiency, ineffectiveness • costs (low profit) • utility/usability only in specific situation, complication of activities • feasibility
Experience	<ul style="list-style-type: none"> • satisfaction / effectiveness 	<ul style="list-style-type: none"> • ineffective- because of uncertainty over weather
Resources	<ul style="list-style-type: none"> • own, subsidies 	<ul style="list-style-type: none"> • lack of land, land leased
Psychological factors		<ul style="list-style-type: none"> • fatalism (the inability to influence the weather, helplessness)
Knowledge / social capital	<ul style="list-style-type: none"> • short term weather forecast 	<ul style="list-style-type: none"> • a uniform procedure is missing, inconsistent information, lack of experience
Policy	<ul style="list-style-type: none"> • requirements, obligations (GAEC) 	<ul style="list-style-type: none"> • restrictions, bans
Subsidies	<ul style="list-style-type: none"> • source of income • ensuring the profit 	<ul style="list-style-type: none"> • income security

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Thank you for
your attention!

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