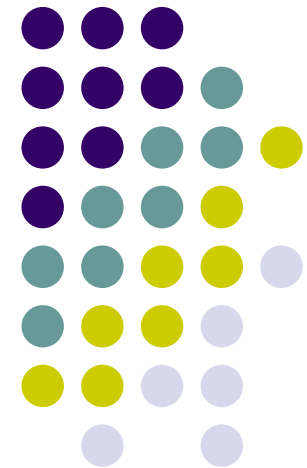


# The Theory of Knowledge Spillover Entrepreneurship & Economic Growth

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David Audretsch



# The Policy Mandate for Entrepreneurship to Promote Economic Policy



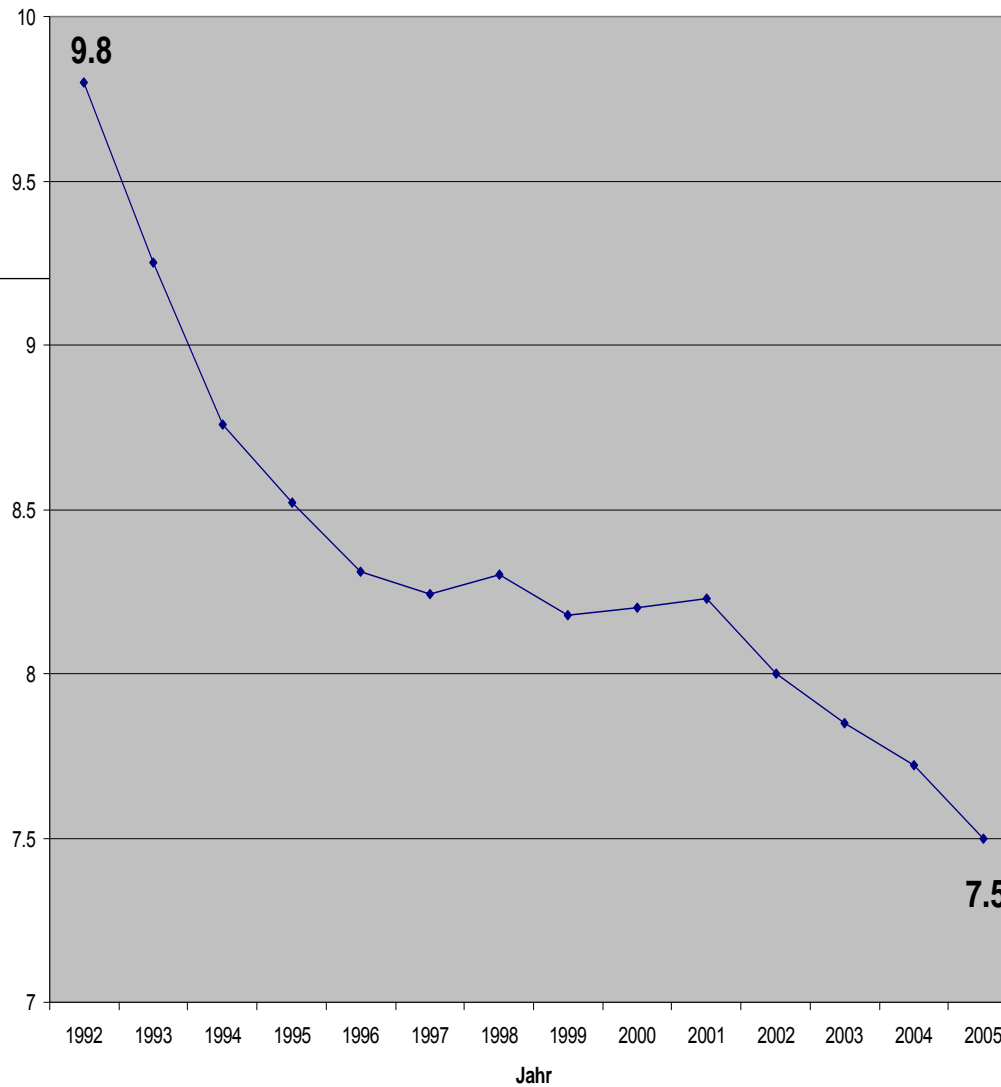
- The EU -- Lisbon Mandate of 2000
- „Our lacunae in the field of entrepreneurship needs to be taken seriously because there is mounting evidence that the key to economic growth and productivity improvements lies in the entrepreneurial capacity of an economy” (Romano Prodi, 2002)



# Purpose of Research

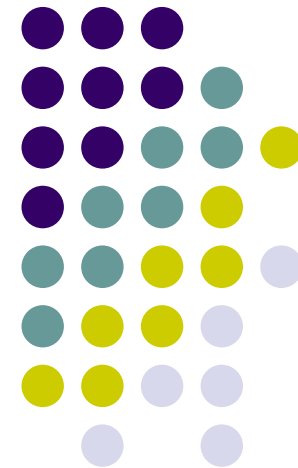
- Why does entrepreneurship matter? Link Entrepreneurship to Economic Growth
- Knowledge Spillover Theory of Entrepreneurship
- Public Policy – Interpret emergence of entrepreneurship policy as a *bona fide* economic growth policy

# German Manufacturing Employment(Millionen)

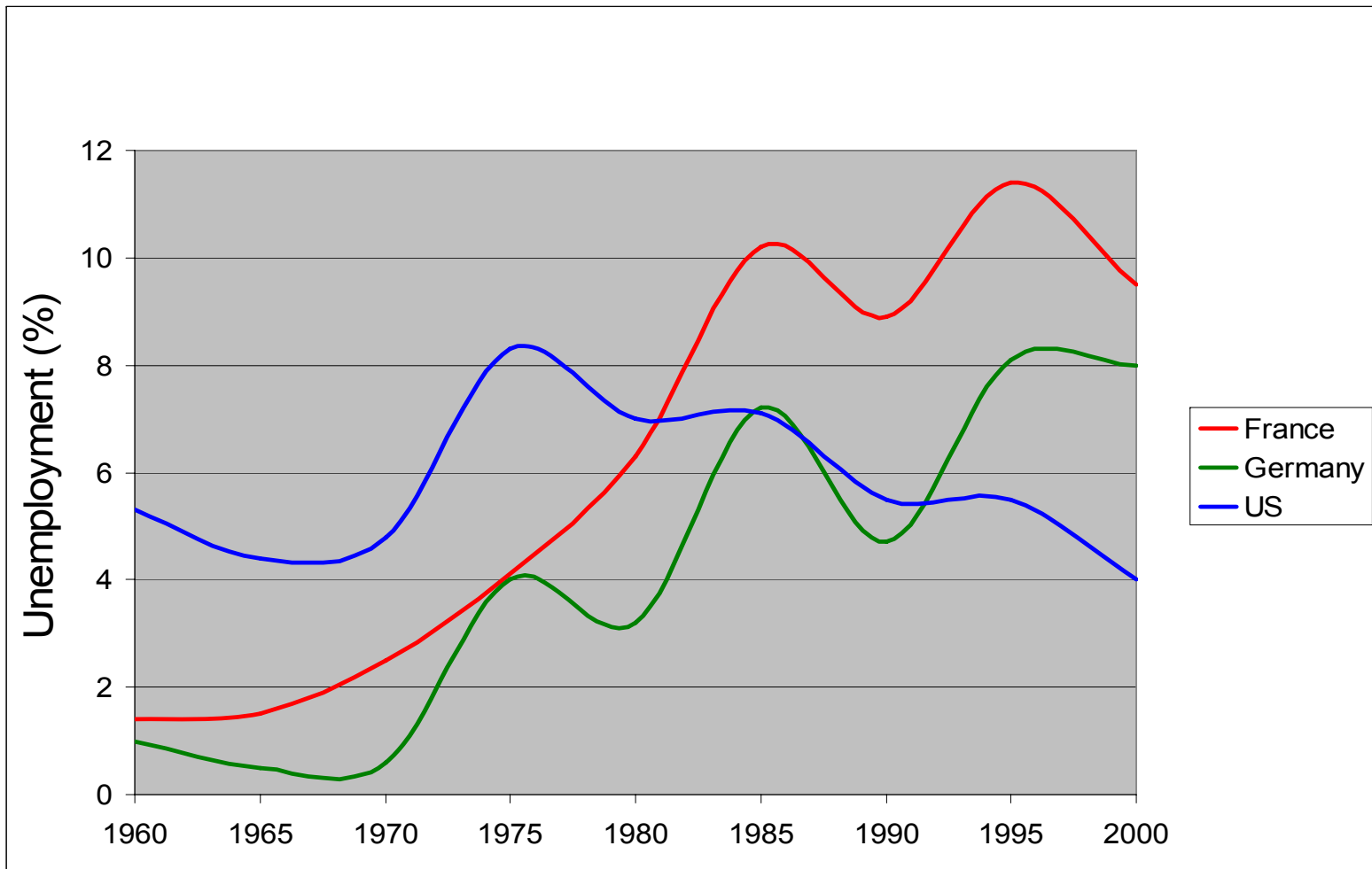


Anteil an den  
Gesamtbeschäftigten

Deutschland  
1992: 26,7%  
2005: 19,8%



# Rise in European Unemployment



# The European Paradox



*Why have European countries rich in knowledge exhibited such low growth rates?*

Romano Prodi, European Union

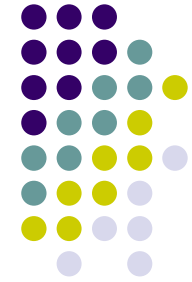
# The Knowledge Filter



*“A wealth of scientific talent at American colleges and universities – talent responsible for the development of numerous innovative scientific breakthroughs each year – is going to waste as a result of bureaucratic red tape and illogical government regulations...What sense does it make to spend billions of dollars each year on government-supported research and then prevent new developments from benefiting the American people because of dumb bureaucratic red tape?”*

U.S. Senator Birch Bayh, 1980

# Limitations of Endogenous Growth Model



- *Empirical Paradox* – Why have countries rich in knowledge (high R&D & Patents) yielded such low growth rates?
- *Theoretical* – Assumes knowledge automatically spills over for commercialization



# How is Knowledge Different?



- Non-excludable & non-exhaustive (Arrow, 1962)
- Hyper uncertainty, asymmetries & transactions cost (Arrow, 1962)
- *The Knowledge Filter* impedes investments in knowledge from spilling over and being commercialized

# Entrepreneurship as Conduit of Knowledge Spillovers



- Appropriation Problem – Firm vs. Knowledge Agent
- New firms are endogenous response to knowledge not completely & exhaustively commercialized
- Knowledge exogenous and embedded in economic agents who endogenously start new firms to appropriate knowledge endowments

# Knowledge Filter & Missing Link



- $Q_i = h(t)f (C_i, L_i, K_i)$

Economic Growth

- $K = K_c$

Romer Spillover Assumption

- $\theta = K_c /K$

Knowledge Filter

- $\lambda = E^*/K$

Missing Link

# Entrepreneurial Opportunity



- $E = (\pi^* - w)$

*Entrepreneurial  
Choice*

- $\bar{E} = (\pi^*(g) - w)$

*Traditional  
Entrepreneurship*

- $E^* = (\pi^*(K, \theta) - w)$

*Endogenous  
Entrepreneurship*

# Knowledge Spillover Theory of Entrepreneurship



- $E^* = (1/\beta)(\pi^*(K, \theta) - w)$       *Endogenous Entrepreneurship*
- $E = \bar{E} + E^*$
- $E = (1/\beta)(\pi^*(g, K, \theta) - w)$       Total Entrepreneurship

# Knowledge Spillover Theory of Entrepreneurship



*Entrepreneurship will be greater in the presence of higher investments in new knowledge, ceteris paribus. Entrepreneurial activity is an endogenous response to higher investments in new knowledge, reflecting greater entrepreneurial opportunities generated by knowledge investments.*



# Localization Hypothesis

*Knowledge spillover entrepreneurship will tend to be spatially located within close geographic proximity to the source of knowledge actually producing that knowledge. Thus, in order to access spillovers, new firm startups will tend to locate close to knowledge sources.*

# Economic Growth Hypothesis



*Given a level of knowledge investment and severity of the knowledge filter, higher levels of economic growth should result from greater entrepreneurial activity, since entrepreneurship serves as a mechanism facilitating the spillover and commercialization of knowledge.*

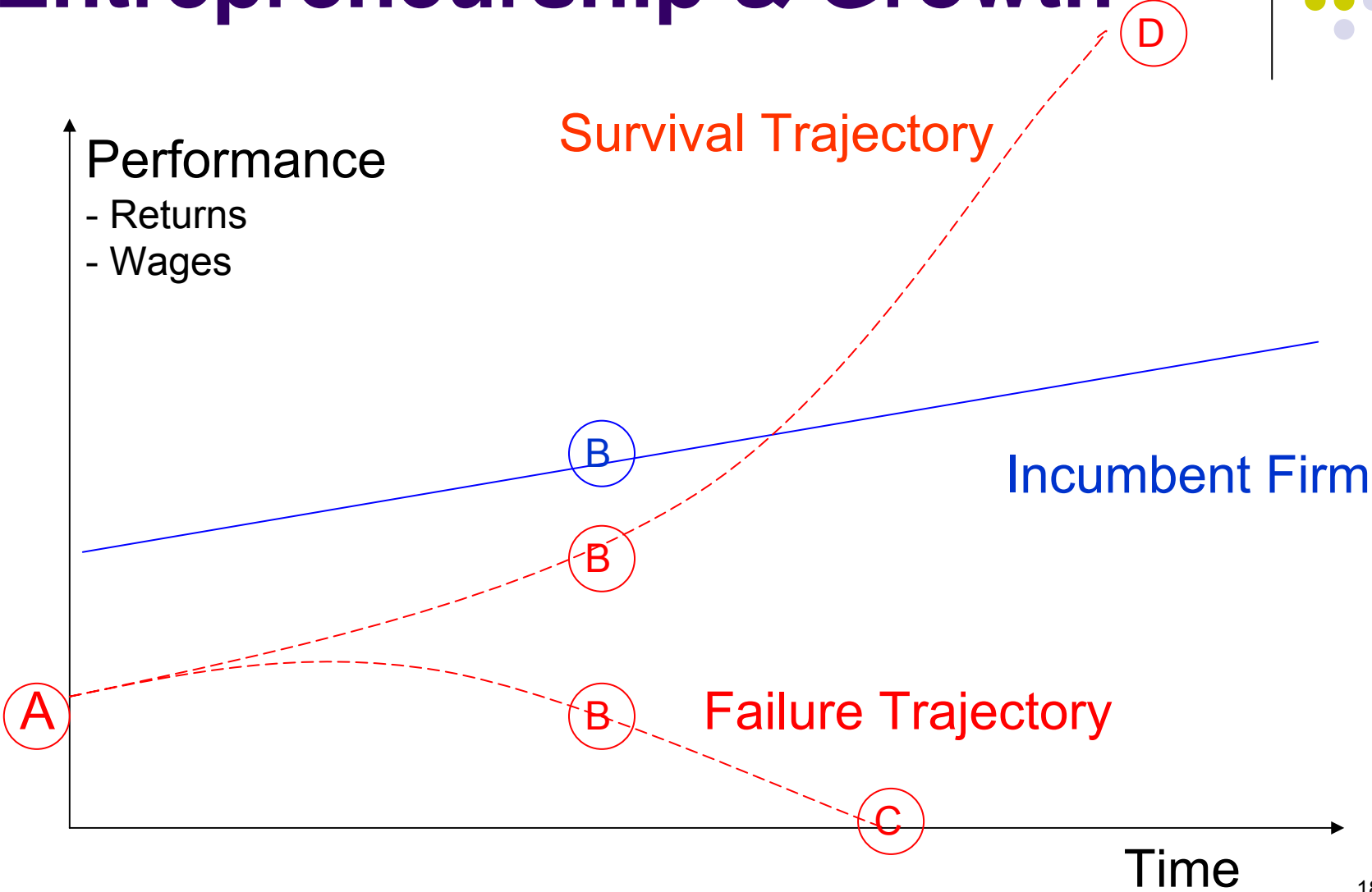


# Stylized Facts of Entrepreneurship Dynamics



- New Firm Survival positively related to age and size
- New Firm Growth negatively related to age and size
- Survival and Growth effects more pronounced in knowledge industries

# Entrepreneurship & Growth

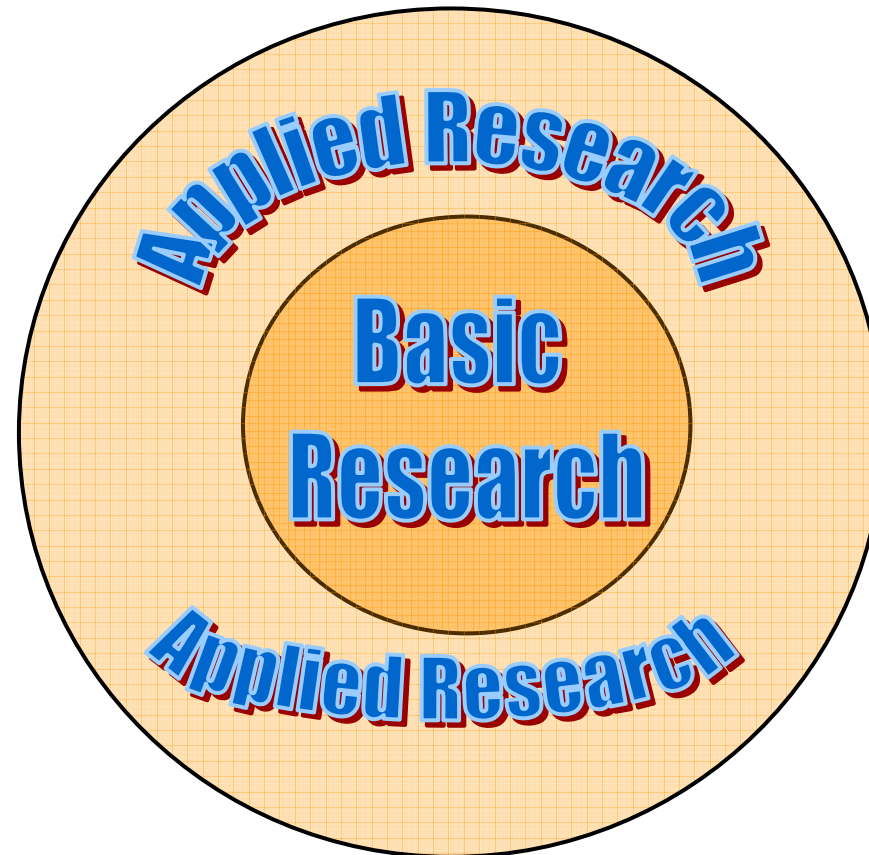


# Schumpeter Was Wrong: Entrepreneurship *as Creative Construction*

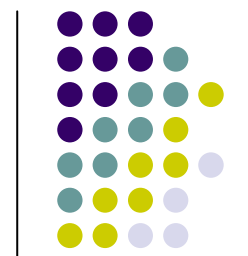


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- Roy Thurik („*On Entrepreneurship, Economic Growth and Public Policy*, forthcoming in 2008)

# The Traditional (Humboldt Model) University



# Entrepreneurship Policy



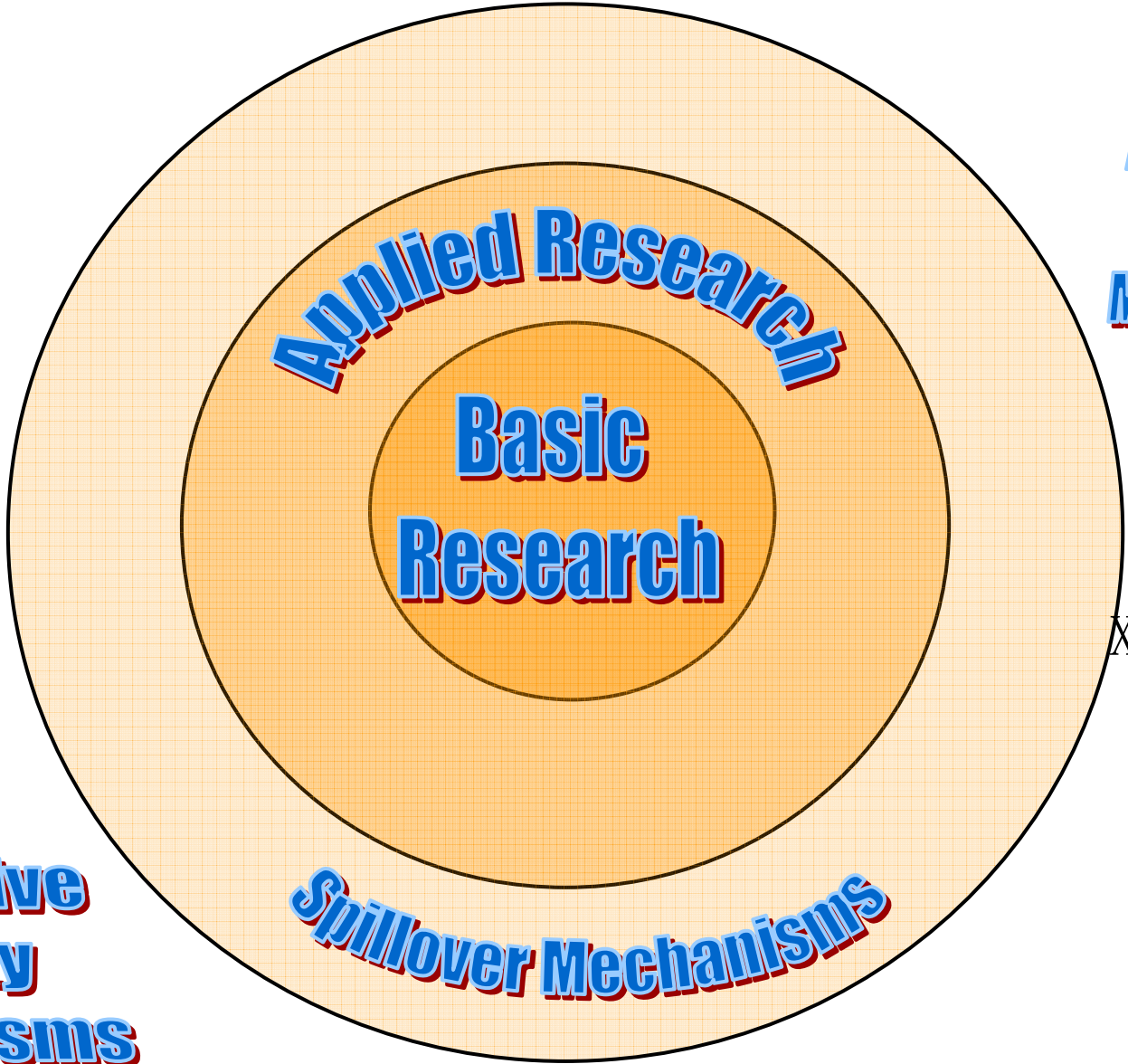
**Absorptive  
Capacity  
Mechanisms**

X

X

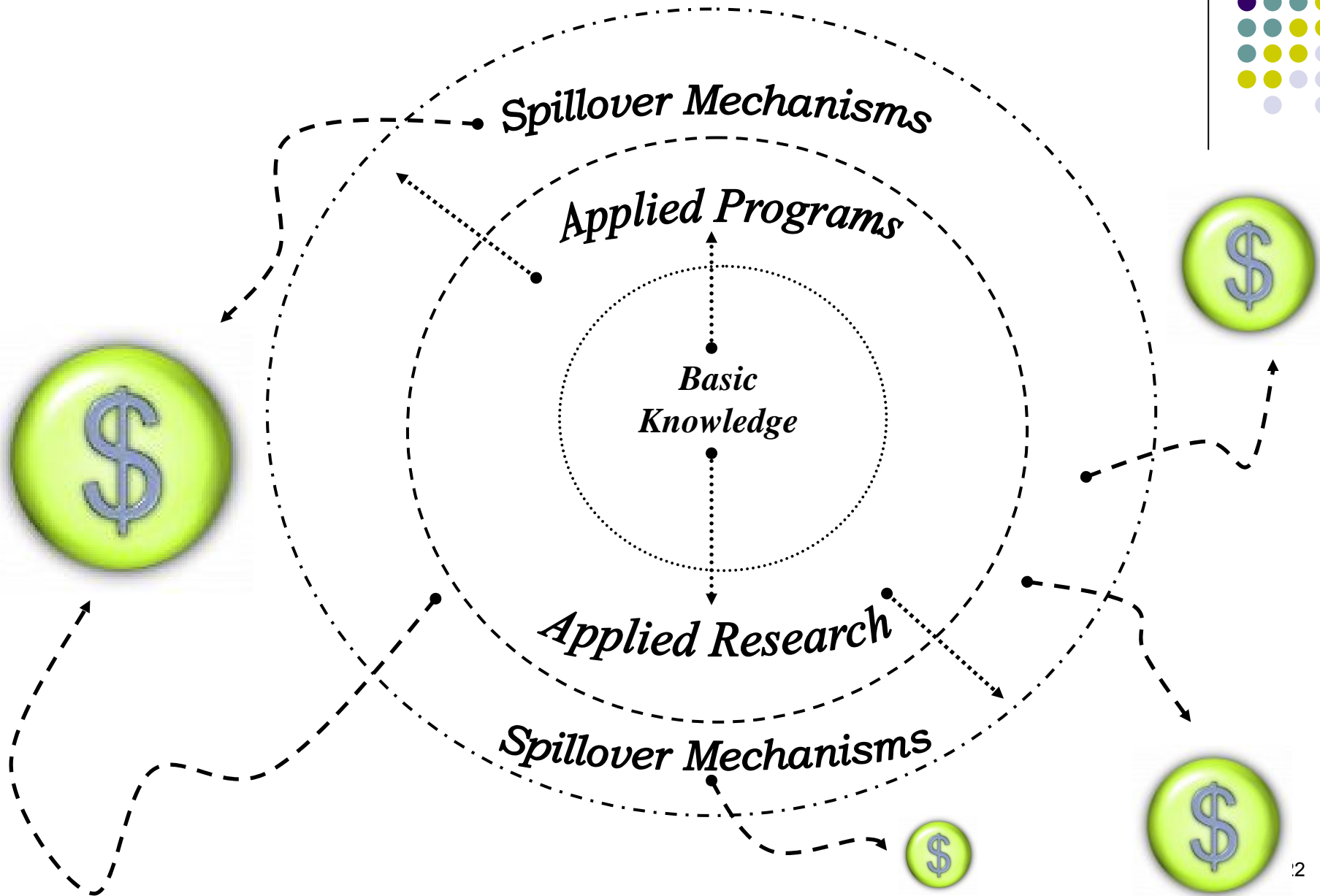
X

X



**Absorptive  
Capacity  
Mechanisms**

# Entrepreneurship Policy





# Conclusions

- Knowledge Spillover Theory of Entrepreneurship
- Entrepreneurship as Missing Link for Economic Growth – Penetrates Knowledge Filter
- Interpretation of new enabling entrepreneurship policies