



United States Department of Agriculture

The Food System Transformation: Three dynamic drivers underpinning the process of economic development in food systems

Stephen Vogel* (svogel@ers.usda.gov)

James Barham* (James.Barham@wdc.usda.gov)

Gary Matteson (matteson@fccouncil.com)

Presentation at Pre-Conference Workshop on Food Systems Economics,
Northeastern Agricultural and Resource Economics Association,
Philadelphia, PA, June 9-10, 2018

*The Findings and Conclusions in This Preliminary Presentation Have Not Been Formally Disseminated by the U. S. Department of Agriculture and Should Not Be Construed to Represent Any Agency Determination or Policy. This research was supported by the intramural research program of the U.S. Department of Agriculture, Economic Research Service.



The Food System Transformation: Three dynamic drivers underpinning the process of economic development in food systems (FS)

- Framework: what is the economic development process?
- Three dynamic drivers:
 - Exit, Voice, and Loyalty (1971)
 - Information, Communication Technology (ICT)
 - The Social Innovation Nexus
- Conclusion: research challenges



The process of economic development, as distinct from mere economic growth, entails dynamic change not only in production patterns and technology but also in social, political and economic institutions . . .

– Irma Adelman (2000)

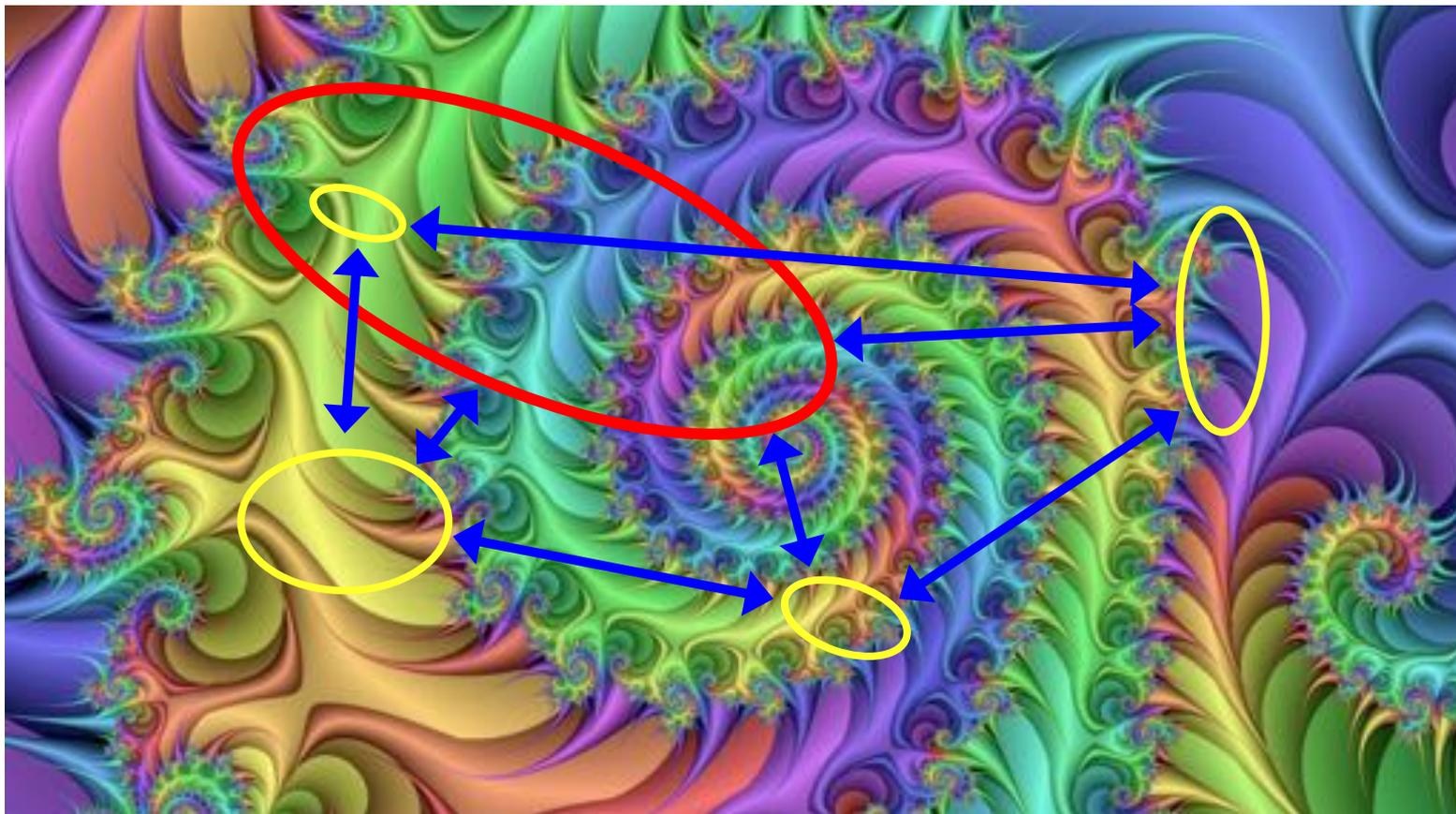
Food Systems (FS) as an infant industry:

- Low barriers to entry for small & medium enterprises (SMEs).
- Growth and innovation of direct marketing channels outpaces data collection.
- New business models emerge as FS scale and scope economies increase, e.g. food hubs.
- New technology erodes geographic constraints to collaborative learning & cluster formation.

What is the economic development process?

- Iterative process of creating and realizing value through resource combinations and exchanges (Moran & Ghoshal, 2009).
- Economic activity *shaped by* and shapes institutions and organizations (David, 2007; North, 2005).





Food system case studies:

- [Pennsylvania] *Small farm clusters* contribute to rural community resilience (Brasier, et al. 2014) .
- [W. Canada] *Agglomeration processes & clustering* in farmers' market networks (Beckie, et al, 2012) .
- [Maine] *Local food cluster* as an engine of growth and community development (Taylor & Miller, 2014) .
- [UK] *Regional collaborative innovation networks* among FS agri-food SMEs share tacit knowledge (McAdam et al, 2016) .



Understanding Food Systems: Conceptual Framework

- **Food System supply and demand system (modified Antle, 1999):**

$$X^D = D(P, I, N, C, Q, SV(?))$$

$$X^S = S(P, W, K, T, Q, SV(?))$$

- **SV() = shared values function**
 - Producer/consumer commitments to ecological & econ sustainability and social justice goals.
 - Arguments of SV(): dynamic drivers of the development process.
- **Heuristic based on overlapping findings from parallel research.**
 - Embeddedness studies: the social interactions in FS market transactions.
 - Consumer preference studies:
 - Validated findings of early studies by sociologists.
 - Snapshots over time established that shared values are now broad and pervasive.

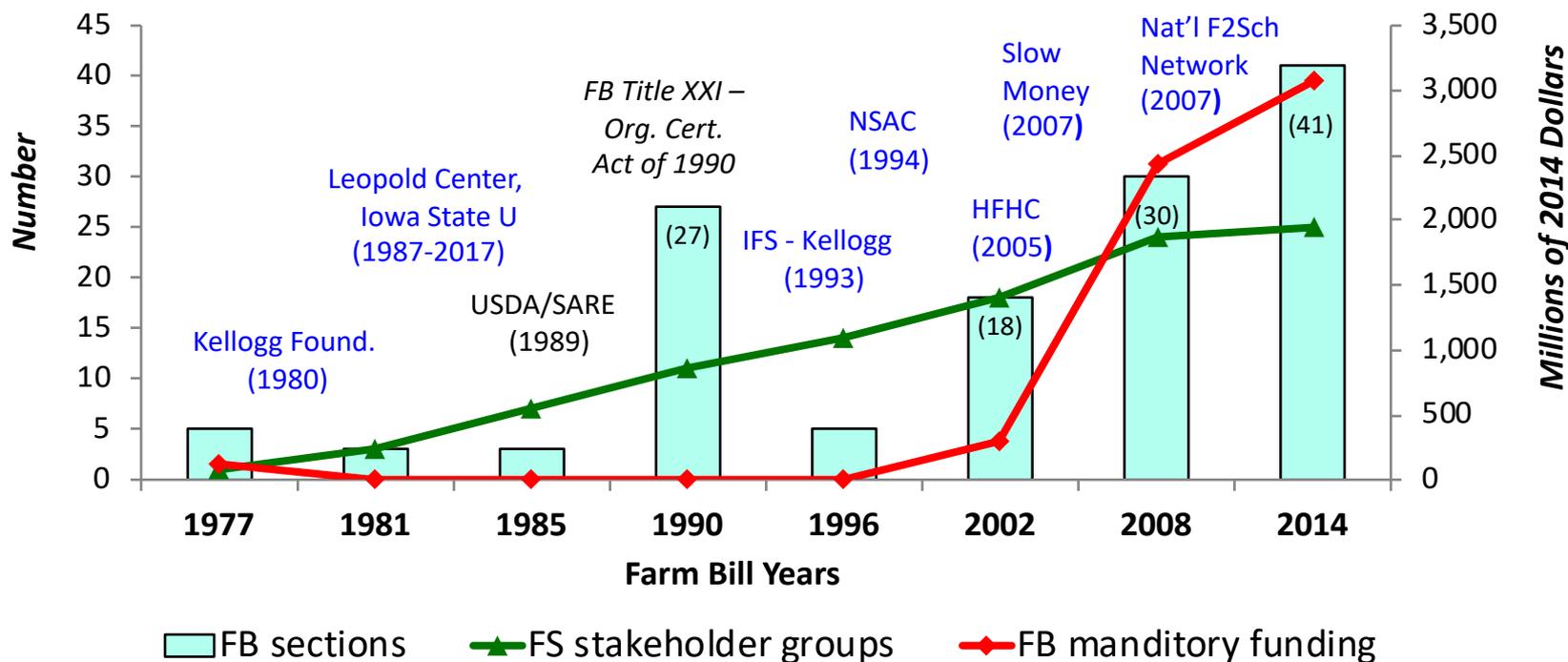


Arguments in the Shared Values Function: Dynamic Drivers

1) Exit, Voice, and Loyalty, A. Hirschman (1971).

- Exit –dissatisfied consumers (producers) can exit the market.
- Voice – dissatisfied consumers (producers) engage in social & political arenas.
- Interaction between ‘exit’ and ‘voice’ can stimulate market/social transformation.

Alternative agriculture: Farm Bill legislation and major stakeholder groups



Sources: Appendix Table 1; Texts of Farm Bills, 1977-2014; National Agricultural Law Center; National Sustainable Agriculture Coalition Reports on the 2008 and 2014 Farm Bills; National Farmers Union, 2013.



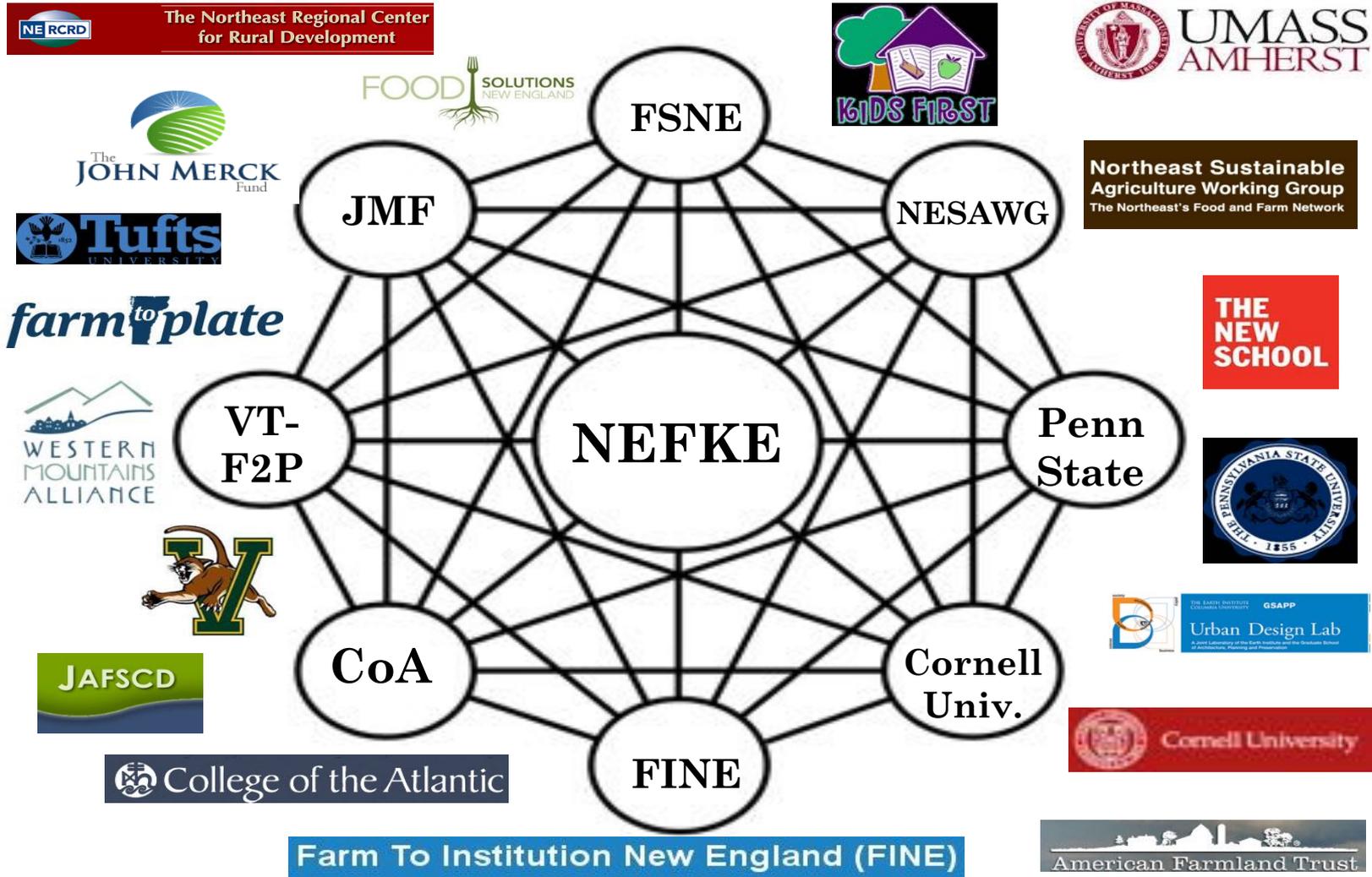
Dynamic Drivers . . .

2) Information & Communications Technology (ICT)

- Weakened large vertical economies of scale and scope (Audrestsch, et al., 2012).
 - Reduces multiple types of costs (Goldfarm & Tucker, 2017).
 - *Market Maker* (Liang, 2014), *FoodLogiQ*, *Organic Valley* (Stevenson, 2013).
 - Virtual firms provide technical assistance to FS SMEs.
 - *Ataxi Inc* (farmers), *Open Food Network* (food hubs), *Local Harvest* (CSAs)
- Tacit knowledge among SMEs no longer place-dependent.
 - ‘Virtual innovation clusters’, ‘collaborative knowledge networks’ (Preissl, 2003; Lopez-Nicolas & Soto-Acosta, 2010).
 - *Food Hub Community of Practice*, *Northeast Food Knowledge Ecosystem* (Piestrak, 2014).
 - Shared information as antirival goods (Olleros, 2017).
 - Entrepreneurship learning as a network effect (Smith, 2018).
- Reduces the transaction costs of organization and amplifies ‘voice’ (Campante, et al., 2013).
 - Minimizes the collective action problem (Bennett & Segerberg, 2012) .
 - Online social capital linked to offline civic engagement (Kobayashi et al, 2006; Pasek, et al, 2009).



Northeast Food Knowledge Ecosystem (Piestrak, 2014)



Dynamic Drivers . . .

3) The Social Innovation Nexus

- *Social entrepreneurship* (Abu-Saifan, 2012; Philips et al., 2015) :
 - Non-profit or for-profit enterprises: replicability, growth, and diversification strategies.
 - *DC Central Kitchen, La Montañita Coop.*
 - Multi-stakeholder collaboration in market channel development
 - *Gunderson Lutheran Health System/Fifth Season Cooperative (Wisconsin).*
 - Local public/private sector collaboration.
 - *[Michigan] Food System Economic Partnership* (Wright et al, 2007) .
- *Social finance* (Moore, et al, 2012):
 - Theory -how to account for social and environmental returns.
 - 3D approach – risk, reward, impact (Moraghan, et al., 2017).
 - Practice - financial support to start up, grow, and go to scale.
 - *Sustainable Agriculture & Food System Funders, Slow Money, RSF Social Finance.*



Conclusion

- Stakeholder voice, ICT revolution, social innovation nexus intertwined drive the process of economic development in FS.
- The Economics of Food Systems - research frontier overlap:
 - Economics of ICT
 - Economics of Networks
 - Social Entrepreneurship and Social Innovation
- Using digital trace data (DTD) in the social sciences (Jungherr and Theocharis, 2017)
 - Promises: (i) avoids biases in survey data and behavior experiments.
(ii) permits meaningful comparisons among very small subgroups.
(iii) granularity looks at interactions between users over time and across networks.
 - Challenges: (i) Need standards for collecting, using, and reporting DTD.
(ii) Metrics for using DTD grounded in social science concepts.
(iii) Connecting DTD meaningfully to central debates in the social sciences.

