

A Stochastic Model for Hybrid Organizational Change Initiatives

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Summary:

We model, within an organization, how support, for a proposed improvement, changes over time due to:

1. a natural tendency for support to gradually decay
2. leadership efforts that encourage the proposed change
3. interactions with colleagues who support the change
4. interactions with colleagues who don't yet agree.

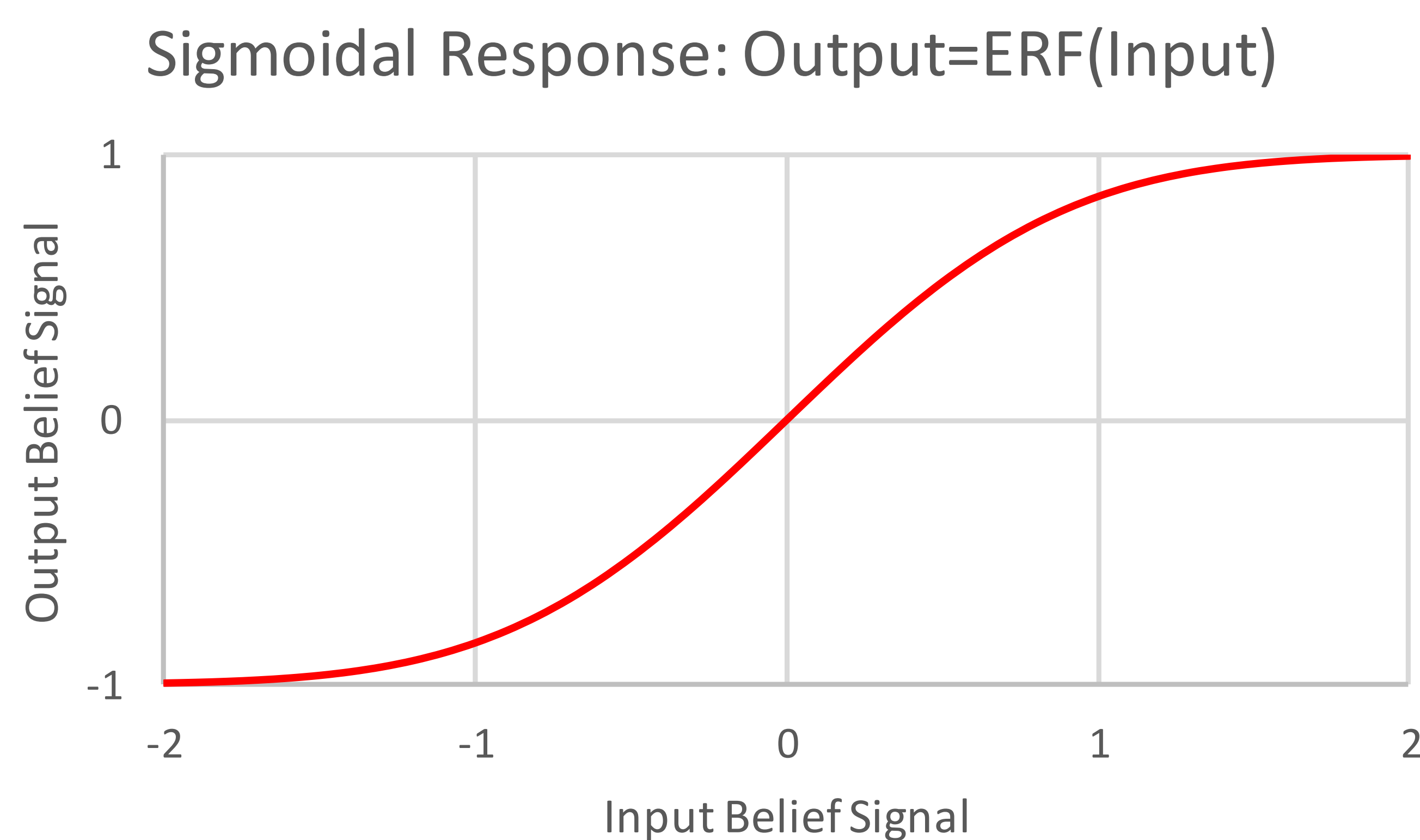
Our model shows a critical mass of effort and duration is needed for change to become permanent. It also shows that much less overall effort is required when committed leaders and colleagues combine forces well.

Mathematical Model:

100 individuals, $k=1$ to 100

Input "belief signal" S_{ik} Output "belief signal" S_{ok}

Transfer Function: $S_{ok} = \text{ERF}(S_{ik})$



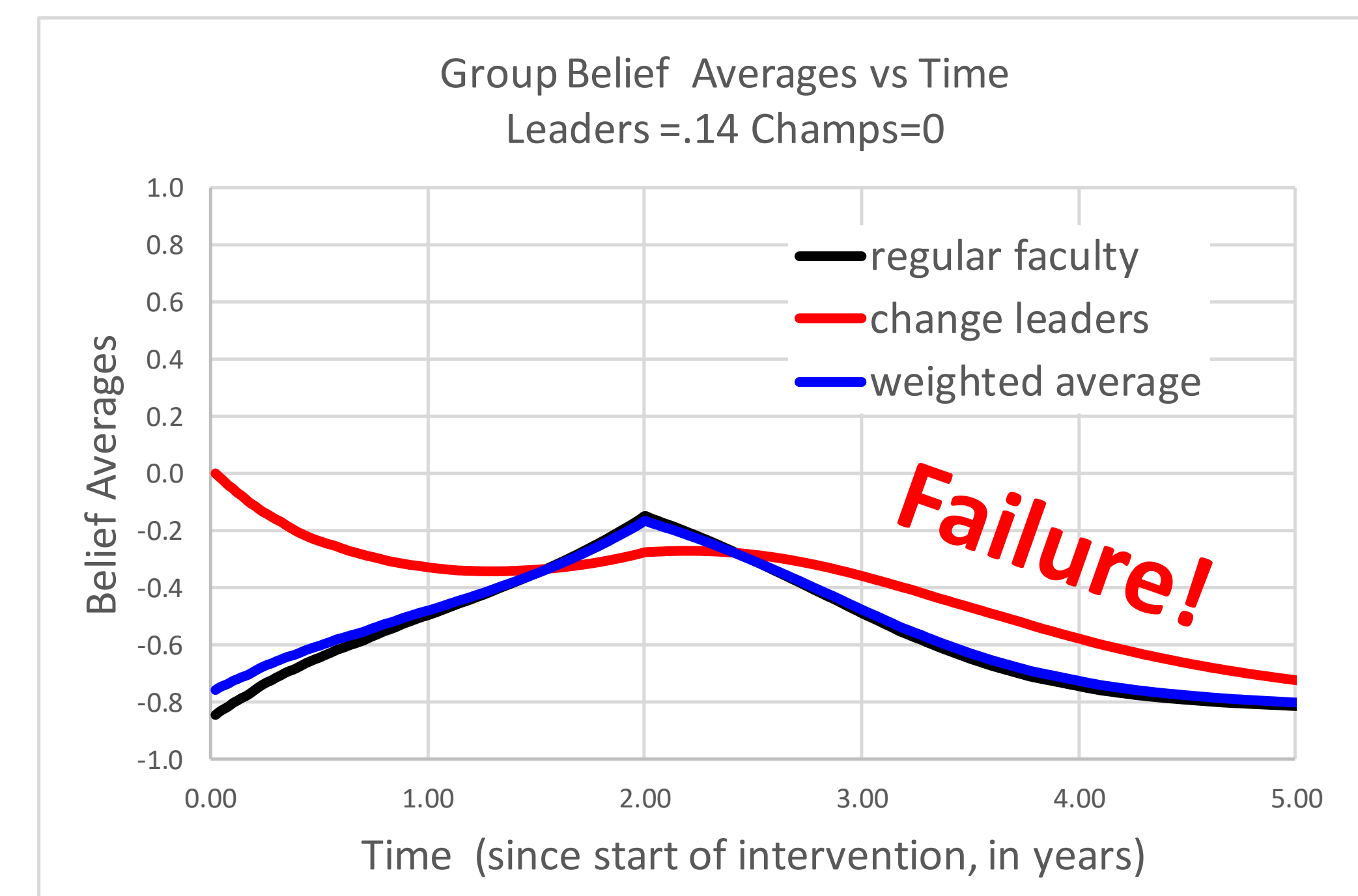
t is an integer number of weeks $t = 1$ to 500
 p is an administrative "push" signal applied for N weeks
 j is a random integer $0 \leq j \leq 100$ for personal interactions
 d is the individuals' input belief decay rate
 r is the individuals' responsivity to external influences
 l is the initial internal belief signal
 n is a number of initial "converts" with a belief signal c

Time evolution model:

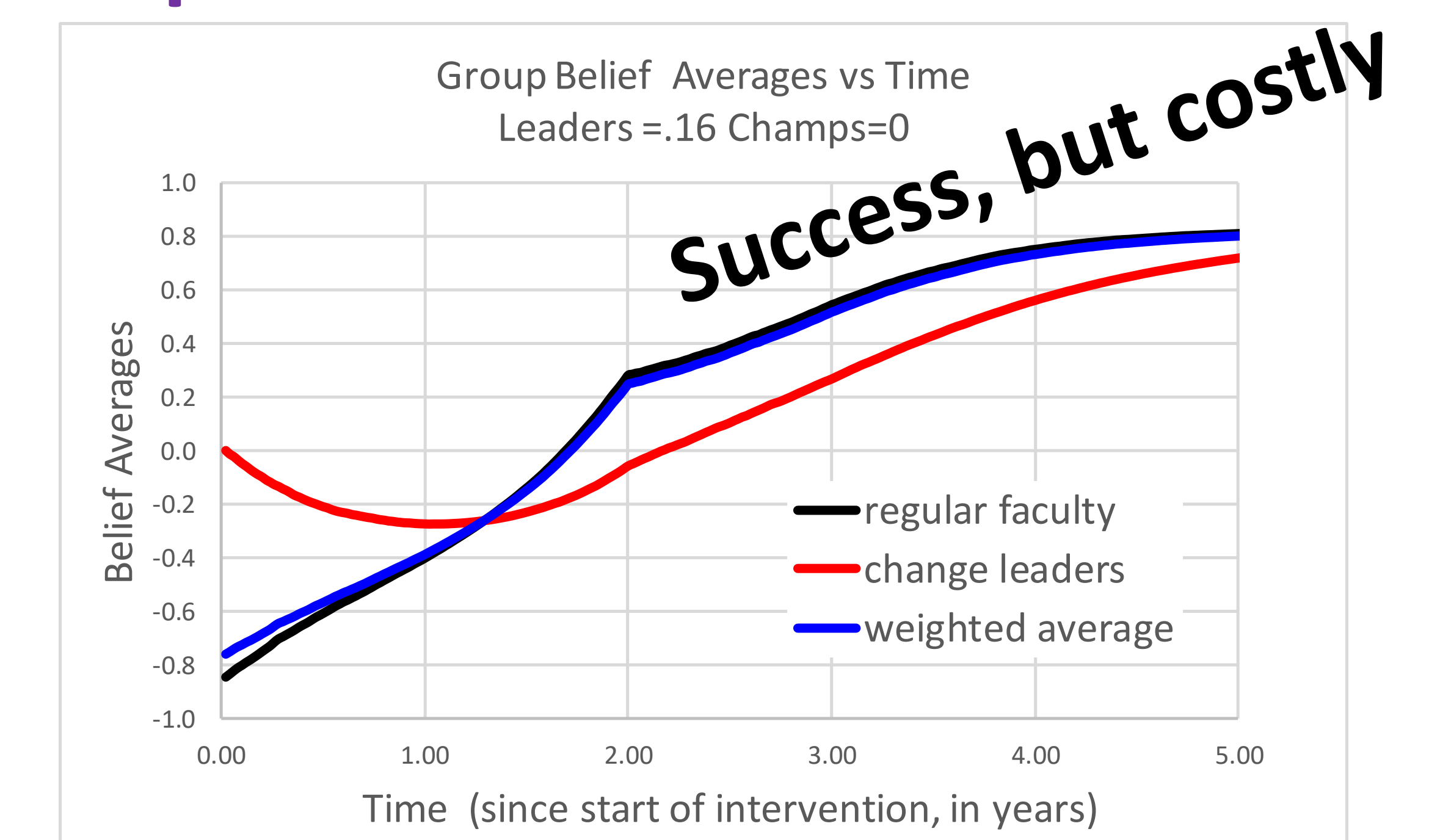
$$S_{ik}(t+1) = (1-d)S_{ik}(t) + r(S_{oj} + p)$$

Modeling Results, 2 Year Initial Intervention Period, Tracked for 5 Years:

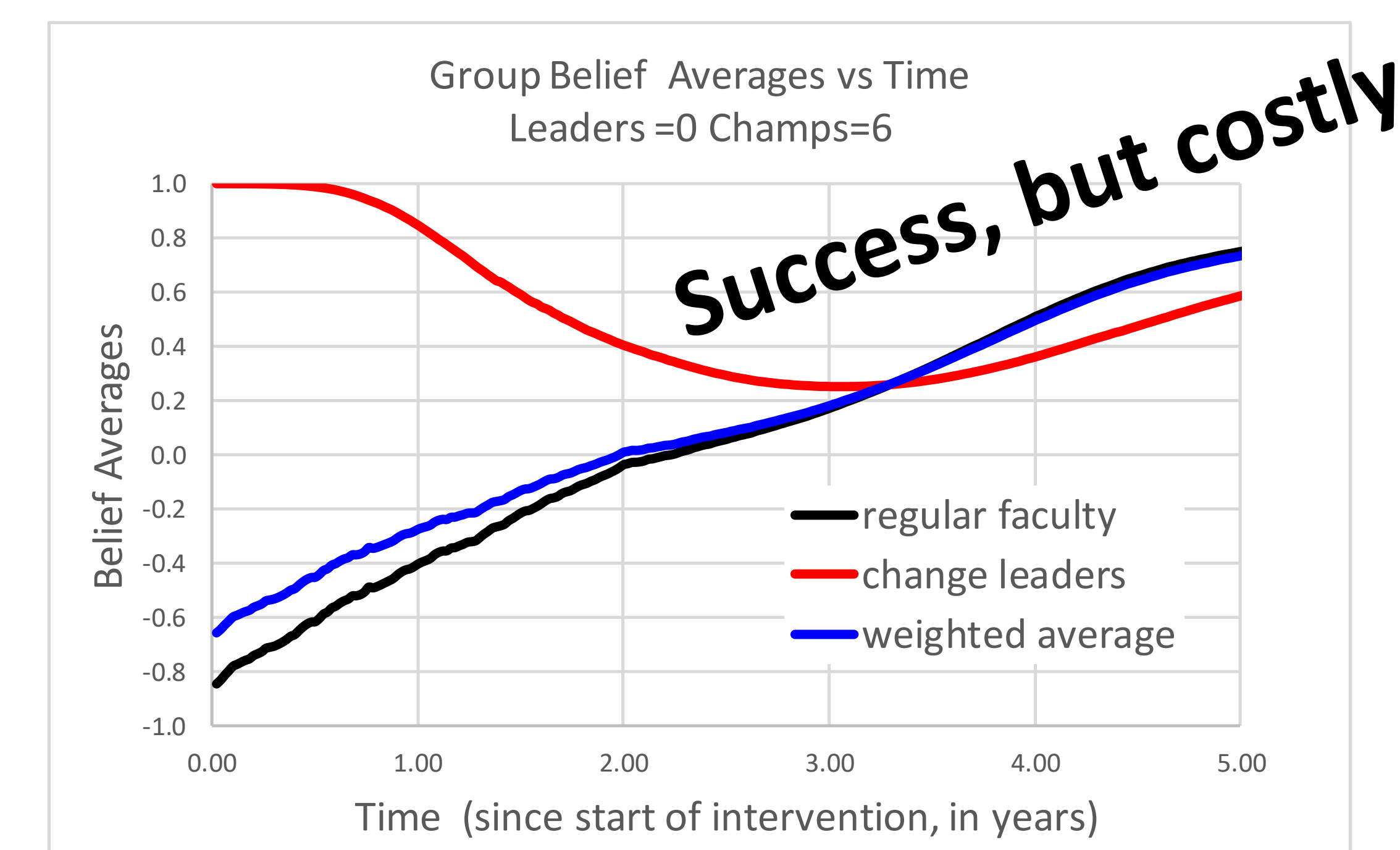
Top Down Effort:



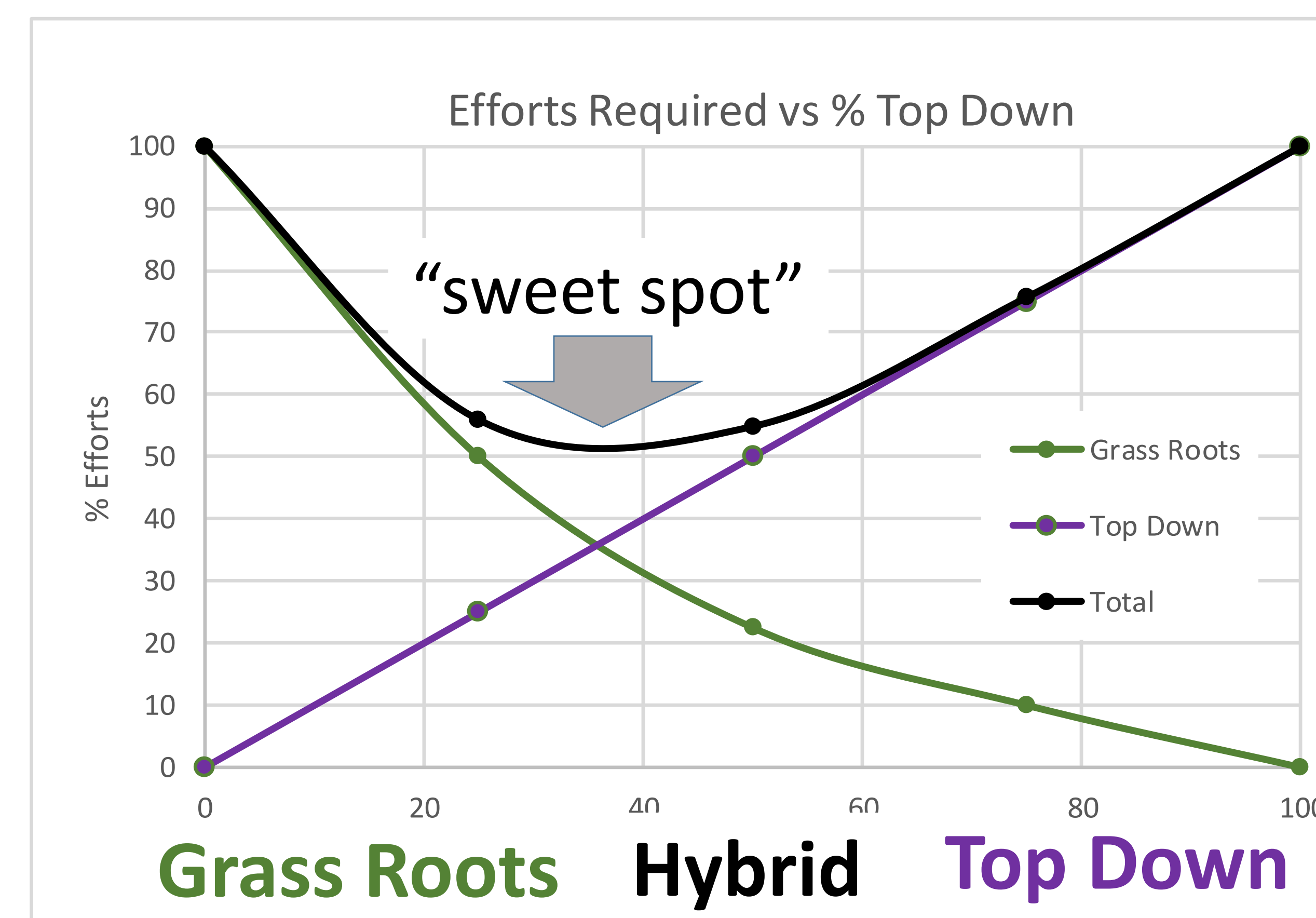
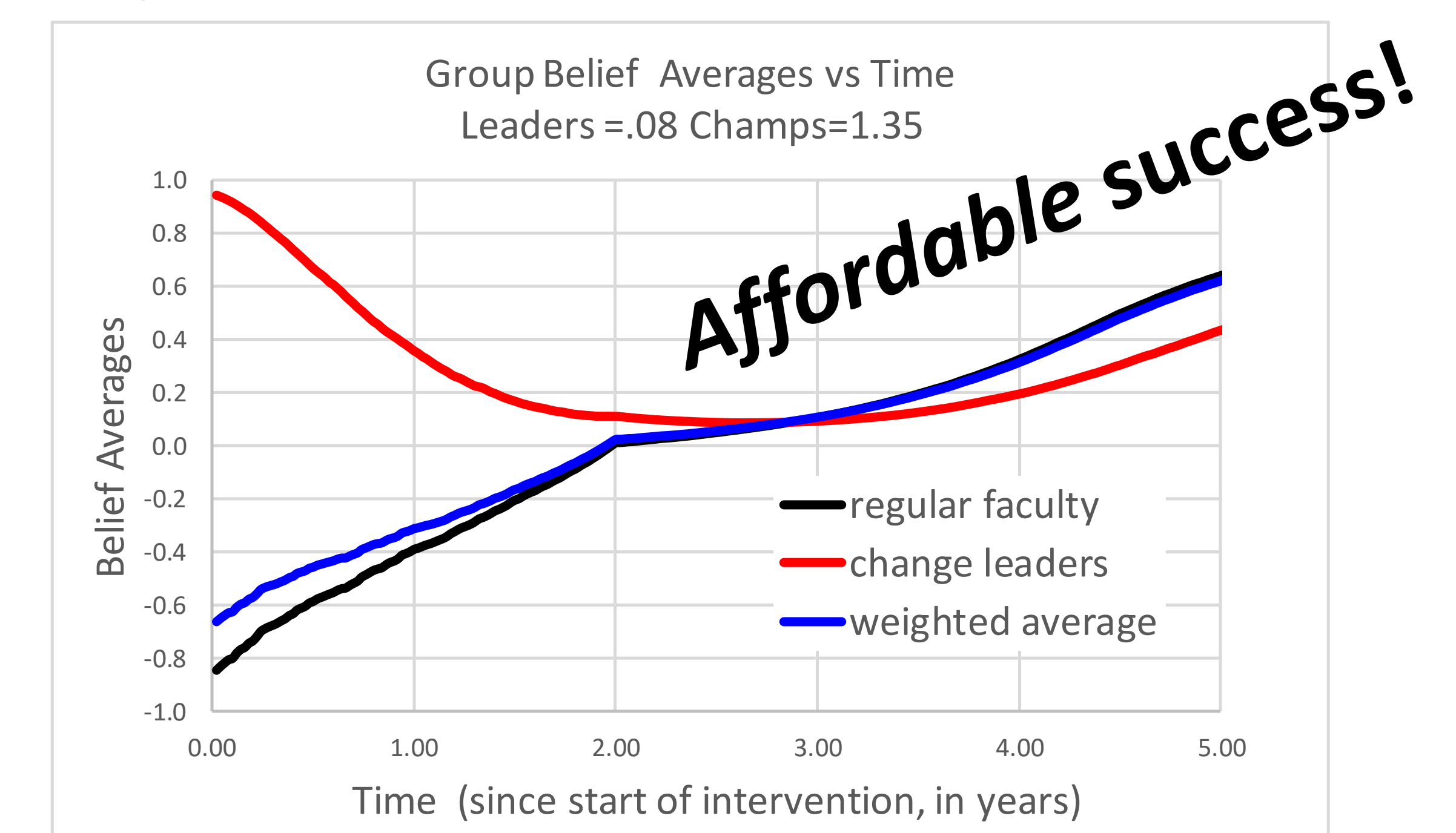
Top Down Effort:



Grass Roots Effort:



Hybrid Effort:



Conclusion:

Our model demonstrates that top-down change efforts and grass roots efforts, when combined well, are about twice as cost-effective for achieving positive lasting change, compared to either alone.

This is crucially important for achieving the critical mass required for sustained culture change, a challenge that is very often underestimate.