

**Article:** How can a community pursue equitable health and well-being after a severe shock? Ideas from an explanatory model

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### SUPPLEMENT S3

#### Tests in a more disorganized community

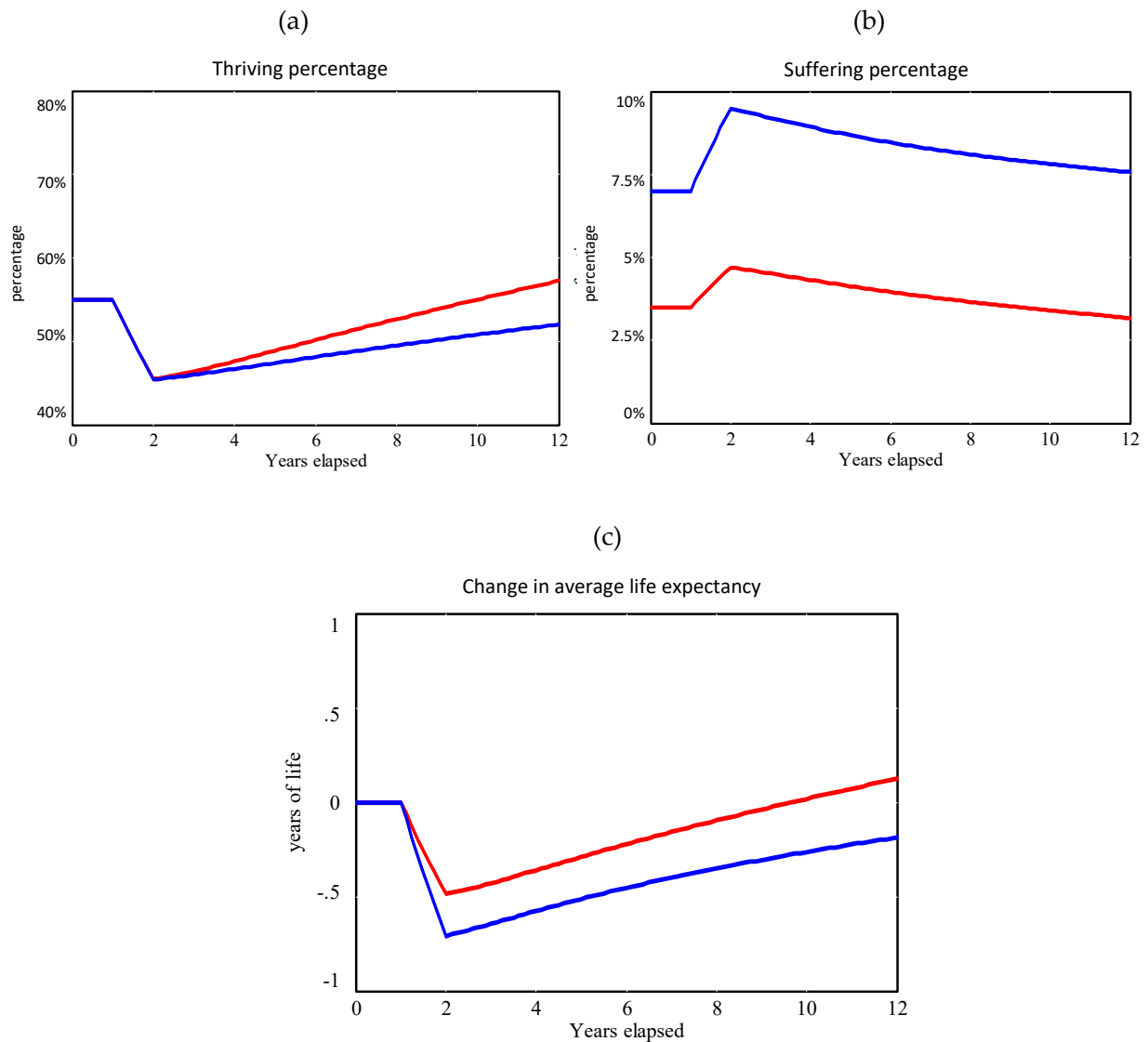
The main article presents results for a version of the simulation model based on data for the US overall, thus representing an average or prototypical US community. With this baseline setup, the modeled community demonstrates natural resilience, fully rebounding from a sizable shock within 10 years even without any change in asset allocation priorities. Under the *Best Pivot* strategy, it does even better, fully rebounding within 7 years of the shock, and then moving well past the pre-shock starting point by the end of 10 years on all key metrics: thriving, suffering, and change in average life expectancy.

It is fair to ask whether this same result would hold for a community that starts with much greater disadvantage than the average. We changed four parameters to represent such a disorganized community; see **Table S1**. Relative to the baseline community, we doubled the initial percent of people suffering, and cut in half the initial levels of equity, social support, and belonging and civic muscle. These are substantial differences from the baseline, amounting to a more disorganized community with less likelihood of renewal at the start of the simulation.

**Table S1.** Parameter changes representing a more disorganized community versus the baseline community

Parameter	More Disorganized	Baseline
Initial suffering	7%	3.5%
Initial equity	26%	52%
Initial belonging and civic muscle	25%	50%
Initial social support	40%	80%

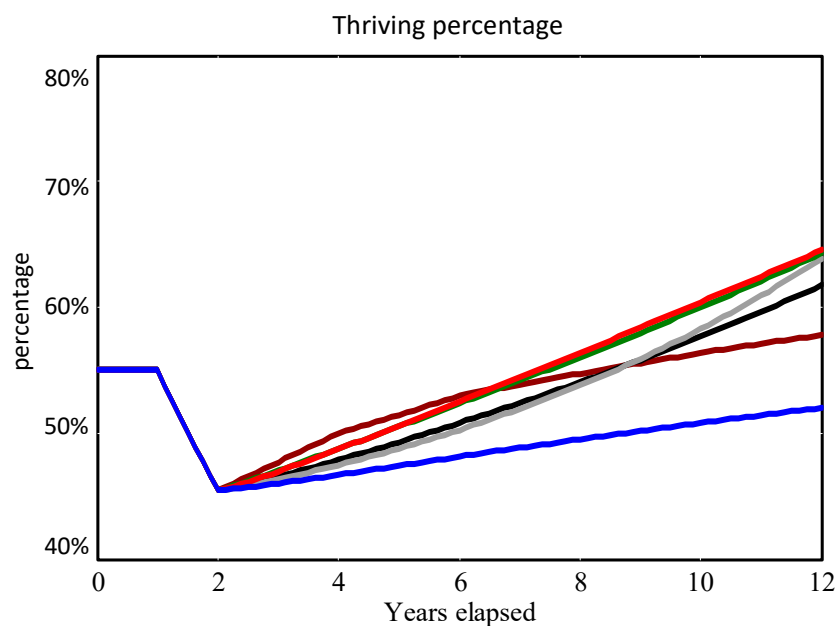
Figure S1 shows differences in the key resilience trajectories for the more disorganized community (blue lines) compared with the baseline community (red lines). For both communities, the asset allocation remains at *Status Quo*: 40% to urgent services, 30% to vital conditions, 15% to equity, and 15% to civic muscle and belonging. The more disorganized community clearly has a more difficult time rebounding from the shock, failing to recover fully after 10 years. This is what one would expect from a community that has only half the civic muscle to begin with, thus only half the ability to gather needed assets.



**Figure S1.** Results under the *Status Quo* allocation scenario for the more disorganized community (Blue) and the baseline community (Red): (a) Thriving percentage, (b) Suffering percentage, (c) Change in life expectancy.

We next simulated all of the alternative asset allocation scenarios described in the main article, but this time applied to the more disorganized community. The results are presented in the three figures below.

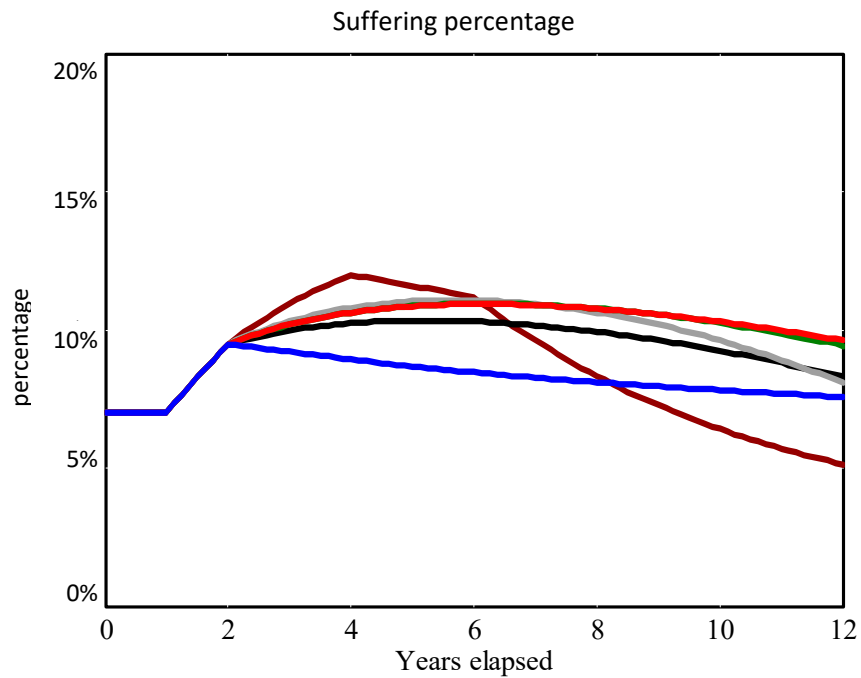
Thriving (*Figure S2*): All of the alternative scenarios do better than *Status Quo* on the thriving percentage (as was true of the baseline community), and they all rebound fully or more than fully on this metric relative to the starting point by Year 10.



**Figure S2.** Thriving percentage under six allocation scenarios for the more disorganized community. Blue=*Status Quo*, Red=*Vital Conditions 40%*, Green=*Equity 40%*, Grey=*Belonging and Civic Muscle 40%*, Black=*Even Balance 25%*, Brown=*Best Pivot*.

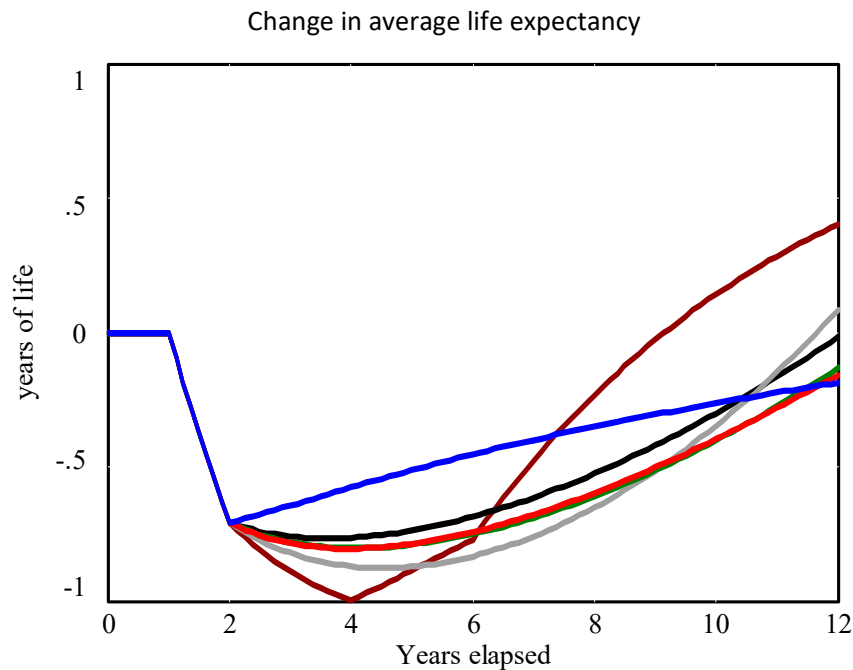
Suffering (*Figure S3*): All of the alternative scenarios other than *Best Pivot* do worse than *Status Quo* on the suffering fraction throughout the simulation (as was true of the baseline community). *Best Pivot* is worst on this metric until Year 6, but then improves dramatically, declining below *Status Quo* by Year 8 (as was also true of the baseline community), and then below the starting point by Year 9.

From these two figures, we see it is possible for the more disorganized community to recover past its pre-shock starting point on both thriving and suffering within 10 years after the shock. But unlike the baseline community, where such two-pronged success occurred under both the *Status Quo* and *Best Pivot* scenarios, for the more disorganized community it occurs only for the *Best Pivot* scenario.



**Figure S3.** Suffering percentage under six allocation scenarios for the more disorganized community. Blue=*Status Quo*, Red=*Vital Conditions 40%*, Green=*Equity 40%*, Grey=*Belonging and Civic Muscle 40%*, Black=*Even Balance 25%*, Brown=*Best Pivot*.

Change in Average Life Expectancy (Figure S4): As seen previously in Figure S1(c), life expectancy declines further, and the recovery is slower and less complete for the more disorganized community (with its greater initial suffering fraction and lower civic muscle) than for the baseline community. In Figure S4, only two of the scenarios manage to rebound back to the starting point and beyond within 10 years after the shock, namely *Belonging and Civic Muscle 40%* (which does so only in Year 12) and *Best Pivot* (which does so soon after Year 9).



**Figure S4.** Change in average life expectancy under six allocation scenarios for the more disorganized community. Blue=*Status Quo*, Red=*Vital Conditions 40%*, Green=*Equity 40%*, Grey=*Belonging and Civic Muscle 40%*, Black=*Even Balance 25%*, Brown=*Best Pivot*.

Summary: These alternative simulations support the idea that a more disorganized community would have a more difficult time in rebounding from a severe shock. This is in part because the shock would send even more people into suffering, and because a more disorganized community starts with a lower level of belonging and civic muscle and thus less ability to gather assets for renewal. However, full recovery and even further gains for such a community are not impossible, and the *Best Pivot* strategy again appears to be the best bet.

The key conclusion in our main article thus appears reasonably robust to variation in the community's initial level of disadvantage. But, of course, there is a limit. Here, we considered a community with twice the suffering and half the level of necessary assets compared to the baseline setup. Certainly, a community with several times greater disadvantage than the baseline would need more assets to successfully recover and achieve greater levels of equitable well-being, even with the *Best Pivot* strategy. This suggests that the tentative conclusions in the main article are likely to apply to a large majority of American communities, but the most disorganized places would probably need additional assets beyond those they could gather internally.