

Framing

The standard is maximizing expected well being – Prefer

[1] Pleasure and pain are intrinsic value and disvalue – everything else regresses. Evolutionary knowledge is reliable – broad consensus and robust neuroscience prove.

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Pleasure is not only one of the three **primary reward functions** **but it also defines reward.** As homeostasis explains the **functions of** only a limited number of **rewards, the principal reason why particular stimuli, objects, events, situations, and activities are rewarding** may be **due to pleasure.** This applies first of all to sex and to the primary homeostatic rewards of food and liquid and extends to money, taste, beauty, social encounters and nonmaterial, internally set, and intrinsic rewards.

Pleasure, as the primary effect of rewards, drives the prime reward functions of learning, approach behavior, and decision making and **provides the basis for hedonic theories of reward function. We are attracted by rewards** most and exert intense efforts to obtain them. **just because they are enjoyable** [10].

Pleasure is a passive reaction that derives from the experience or prediction of reward and may lead to a long-lasting state of happiness. The word happiness is difficult to define. In fact, just obtaining physical pleasure may not be enough. One key to happiness involves a network of good friends. However, it is not obvious how the higher forms of satisfaction and pleasure are related

to an ice cream cone, or to your team winning a sporting event. Recent multidisciplinary research, **using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure** [14]. **Pleasure as a hallmark of reward is sufficient for defining a reward,** but it may not be necessary. **A reward may generate positive learning and approach behavior**

because it contains substances that are essential for body function. When we are hungry, we may eat bad and unpleasant meals. A monkey who receives hundreds of small drops of water every morning in the laboratory is unlikely to feel a rush of pleasure every time it gets the 0.1 ml. Nevertheless, with these precautions in mind, we may define any stimulus, object, event, activity, or situation that has the potential to produce pleasure as a reward. In the context of reward deficiency or for disorders of addiction, homeostasis pursues pharmacological treatments: drugs to treat drug addiction, obesity, and other compulsive behaviors. The theory of allostasis suggests broader approaches - such as re-expanding the range of possible pleasures and providing opportunities to expend effort in their pursuit. [15]. It is noteworthy, the first animal studies eliciting approach behavior by electrical brain stimulation interpreted their findings as a discovery of the brain's pleasure centers [16] which were later partly associated with midbrain dopamine neurons [17–19] despite the notorious difficulties of identifying emotions in animals. Evolutionary theories of pleasure: The love connection BO: D Charles Darwin and other biological scientists

that have examined the biological **evolution and its basic principles found various mechanisms that steer behavior and biological development.** Besides their theory on natural selection, it was particularly the sexual selection process that gained significance in the latter context over the last century, especially when it comes to the question of what makes us “what we are,” i.e., human. However, the capacity to sexually select and evolve is not at all a human accomplishment alone or a sign of our uniqueness: vet. we humans, as it seems, are ingenious in fooling ourselves and others—when we are in love or desperately search for it. It

is well established that modern biological theory conjectures that **organisms are the result of evolutionary competition.** In

fact, Richard **Dawkins stresses gene survival and propagation as the basic mechanism of life** [20]. Only genes that lead to **the fittest phenotype will make it.** It is noteworthy that the phenotype is selected based on behavior that

maximizes gene propagation. To do so, the phenotype must survive and generate offspring, and be better at it than its competitors. Thus, **the ultimate, distal function of rewards is to increase evolutionary fitness** by ensuring the survival of the organism and reproduction. It is agreed that learning, approach, economic decisions, and positive emotions are the proximal functions through which phenotypes obtain other necessary nutrients for survival, mating, and care for offspring. **Behavioral reward functions have evolved to help individuals to**

survive and propagate their genes. Apparently, **people need to live well and long enough**

to reproduce. Most would agree that homo-sapiens do so by ingesting the substances that make their bodies function properly. For this reason, foods and drinks are rewards. Additional rewards, including those used for economic exchanges, ensure sufficient palatable food and drink supply. Mating and gene propagation is supported by powerful sexual attraction. Additional properties, like body form, augment the chance to mate and nourish and defend offspring and are therefore also rewards. Care for offspring until they can reproduce themselves helps

gene propagation and is rewarding; otherwise, many believe mating is useless. According to David E. Comings, as **any small edge will ultimately result in evolutionary advantage** [21], additional reward mechanisms like novelty seeking and exploration widen the spectrum of available rewards and thus enhance the chance for survival, reproduction, and ultimate gene propagation. These functions may help us to obtain the benefits of distant rewards that are determined by our own interests

and not immediately available in the environment. **Thus the distal reward function in gene propagation and evolutionary fitness defines the proximal reward functions that we see** in everyday behavior. **That is why foods, drinks, mates, and offspring are rewarding.** There have been theories linking pleasure as

a required component of health benefits salutogenesis, (salutogenesis). In essence, under these terms, **pleasure is described as a state or feeling of happiness and satisfaction resulting from an experience that one enjoys.**

Regarding pleasure, it is a double-edged sword, on the one hand, it promotes positive feelings (like mindfulness) and even better cognition, possibly through the release of dopamine [22]. But on the other hand, pleasure simultaneously encourages addiction and other negative behaviors, i.e., motivational toxicity. It is a complex neurobiological phenomenon, relying on reward circuitry or limbic activity. It is important to realize that through the "Brain Reward Cascade" (BRC) endorphin and endogenous morphine-like mechanisms may play a role [23]. While natural rewards are essential for survival and appetitive motivation leading to beneficial biological behaviors like eating, sex, and reproduction, crucial social interactions seem to further facilitate the positive effects exerted by pleasurable experiences. Indeed, experimentation with addictive drugs is capable of directly acting on reward pathways and causing deterioration of these systems promoting hypodopaminergia [24]. Most would agree that pleasurable activities can stimulate personal growth and may help to induce healthy behavioral changes, including stress management [25]. The work of Esch and Stefano [26] concerning the link between compassion and love implicate the brain reward system, and pleasure induction suggests that social contact in general, i.e., love, attachment, and compassion, can be highly effective in stress reduction, survival, and overall health. Understanding the role of neurotransmission and pleasurable states both positive and negative have been adequately studied over many decades [26–37], but comparative anatomical and neurobiological function between animals and homo sapiens appear to be required and seem to be in an infancy stage. Finding happiness is different between apes and humans. As stated earlier in this expert opinion one key to happiness involves a network of good friends [38]. However, it is not entirely clear exactly how the higher forms of satisfaction and pleasure are related to a sugar rush, winning a sports event or even sky diving, all of which augment dopamine release at the reward brain site. Recent multidisciplinary research, using both humans and detailed invasive brain analysis of animals has discovered some critical ways that the brain processes pleasure.

Remarkably, there are **pathways for ordinary liking and pleasure**, which **are limited in scope** as described

above in this commentary. However, **there are many brain regions**, often termed hot and cold spots, **that significantly modulate** (increase or decrease) **our pleasure or even produce the opposite** of pleasure—that is **disgust and fear** [39]. **One specific region** of the nucleus accumbens **is organized like a computer keyboard, with particular stimulus triggers in rows**—producing an increase and decrease of pleasure and disgust. Moreover, **the cortex has unique roles in the cognitive evaluation of our feelings of pleasure** [40]. Importantly, the interplay of these multiple triggers and the higher brain centers in the prefrontal cortex are very intricate and are just being uncovered. Desire and reward centers it is surprising that many different sources of pleasure activate the same circuits between the mesocorticolimbic regions (Figure 1). Reward and desire are two aspects pleasure induction and have a very widespread, large circuit. Some part of this circuit distinguishes between desire and dread. The so-called pleasure circuitry called "REWARD" involves a well-known dopamine pathway in the mesolimbic system that can influence both pleasure and motivation. In simplest terms, the well-established mesolimbic system is a dopamine circuit for reward. It starts in the ventral tegmental area (VTA) of the midbrain and travels to the nucleus accumbens (Figure 2). It is the cornerstone target to all addictions. The VTA is encompassed with neurons using glutamate, GABA, and dopamine. The nucleus accumbens (NAc) is located within the ventral striatum and is divided into two sub-regions—the motor and limbic regions associated with its core and shell, respectively. The NAc has spiny neurons that receive dopamine from the VTA and glutamate (a dopamine driver) from the hippocampus, amygdala and medial prefrontal cortex. Subsequently, the NAc projects GABA signals to an area termed the ventral pallidum (VP). The region is a relay station in the limbic loop of the basal ganglia, critical for motivation, behavior, emotions and the "Feel Good" response. This defined system of the brain is involved in all addictions—substance, and non—substance related. In 1995, our laboratory coined the term "Reward Deficiency Syndrome" (RDS) to describe genetic and epigenetic induced

hypodopaminergia in the "Brain Reward Cascade" that contribute to addiction and compulsive behaviors [3,6,41]. Furthermore, ordinary **"liking" of something, or pure pleasure, is represented by small regions mainly in the limbic system** (old reptilian part of the brain). These **may be part of larger neural circuits.**

In Latin, hedus is the term for "sweet"; and in Greek, hodone is the term for "pleasure." Thus, the word Hedonic is now referring to various subcomponents of pleasure: some associated with purely sensory and others with more complex emotions involving morals, aesthetics, and social interactions. The capacity to have pleasure is part of being healthy and may even extend life, especially if linked to optimism as a dopaminergic response [42]. Psychiatric illness often includes symptoms of an abnormal inability to experience pleasure, referred to as anhedonia. A negative feeling state is called dysphoria, which can consist of many emotions such as pain, depression, anxiety, fear, and disgust. Previously many scientists used animal research to uncover the complex mechanisms of pleasure, liking, motivation and even emotions like panic and fear, as discussed above [43]. However, as a significant amount of related research about the specific brain regions of pleasure/reward circuitry has been derived from invasive studies of animals, these cannot be directly compared with subjective states experienced by humans. In an attempt to resolve the controversy regarding the causal contributions of mesolimbic dopamine systems to reward, we have previously evaluated the three-main competing explanatory categories: "liking," "learning," and "wanting" [3]. That is, dopamine may mediate (a) liking: the hedonic impact of reward; (b) learning: learned predictions about rewarding effects, or (c) wanting: the pursuit of rewards by attributing incentive salience to reward-related stimuli [44]. We have evaluated these hypotheses, especially as they relate to the RDS, and we find that the incentive salience or "wanting" hypothesis of dopaminergic functioning is supported by a majority of the scientific evidence. Various neuroimaging studies have shown that anticipated behaviors such as sex and gaming, delicious foods and drugs of abuse all affect brain regions associated with reward networks, and may not be unidirectional. Drugs of abuse enhance dopamine signaling which sensitizes mesolimbic brain mechanisms that apparently evolved explicitly to attribute incentive salience to various rewards [45]. Addictive substances are voluntarily self-administered, and they enhance (directly or indirectly) dopaminergic synaptic function in the NAc. This activation of the brain reward networks (producing the ecstatic "high" that users seek). Although these circuits were initially thought to encode a set point of hedonic tone, it is now being considered to be far more complicated in function, also encoding attention, reward expectancy, disconfirmation of reward expectancy, and incentive motivation [46]. The argument about addiction as a disease may be confused with a predisposition to substance and nonsubstance rewards relative to the extreme effect of drugs of abuse on brain neurochemistry. The former sets up an individual to be at high risk through both genetic polymorphisms in reward genes as well as harmful epigenetic insult. Some Psychologists, even with all the data, still infer that addiction is not a disease [47]. Elevated stress levels, together with polymorphisms (genetic variations) of various dopaminergic genes and the genes related to other neurotransmitters (and their genetic variants), and may have an additive effect on vulnerability to various addictions [48]. In this regard, Anvikov, et al. [48] suggested based on review that whereas the gateway hypothesis does not specify mechanistic connections between "stages," and does not extend to the risks for addictions the concept of common liability to addictions may be more parsimonious. The latter theory is grounded in genetic theory and supported by data identifying common sources of variation in the risk for specific addictions (e.g., RDS). This commonality has identifiable neurobiological substrate and plausible evolutionary explanations. Over many years the controversy of dopamine involvement in especially "pleasure" has led to confusion concerning separating motivation from actual pleasure (wanting versus liking) [49]. We take the position that animal studies cannot provide real clinical information as described by self-reports in humans. As mentioned earlier and in the abstract, on November 23rd, 2017, evidence for our concerns was discovered [50] In essence, although

nonhuman primate brains are similar to our own, the disparity between other primates and those of human cognitive abilities tells us that surface similarity is not the whole story. **Sousa et al.** [50] small case **found various differentially expressed genes, to associate with pleasure related systems.**

Furthermore, the dopaminergic interneurons located in the human neocortex were absent from the neocortex of nonhuman African apes. Such differences in neuronal transcriptional programs may underlie a variety of neurodevelopmental disorders. In simpler terms, the system controls the production of dopamine, a chemical messenger that plays a significant role in pleasure and rewards. The senior author, Dr. Nenad Sestan from Yale, stated: "Humans have evolved a dopamine system that is different than the one in chimpanzees." This may explain why the behavior of humans is so unique from that of non-human primates, even though our brains are so surprisingly similar. Sestan said: "It might also shed light on why people are vulnerable to mental disorders such as autism (possibly even addiction)." Remarkably, this research finding emerged from an extensive, multicenter collaboration to

compare the brains across several species. These **researchers examined 247 specimens of neural tissue from six humans, five chimpanzees, and five macaque monkeys.** Moreover, these **investigators analyzed which genes were turned on or off in 16 regions of the brain.** While the differences among species were subtle, **there was a remarkable contrast in the neocortices**, specifically **in an area of the brain that is much more developed in humans than in chimpanzees.** In fact, these researchers found that a gene called **tyrosine hydroxylase (TH)** for the

enzyme, **responsible for the production of dopamine**, was expressed in the **neocortex of humans, but not chimpanzees**. As discussed earlier, **dopamine is best known for its essential role within the brain's reward system; the very system that responds to everything from sex, to gambling, to food, and to addictive drugs**. However, dopamine also assists in regulating emotional responses, memory, and movement. Notably, abnormal dopamine levels have been linked to disorders including Parkinson's, schizophrenia and spectrum disorders such as autism and addiction or RDS. Nora Volkow, the director of NIDA, pointed out that one alluring possibility is that the neurotransmitter **dopamine plays a substantial role in humans' ability to pursue various rewards that are perhaps months or even years away** in the future. This same idea has been suggested by Dr. Robert Sapolsky, a professor of biology and neurology at Stanford University. Dr. Sapolsky cited evidence that dopamine levels rise dramatically in humans when we anticipate potential rewards that are uncertain and even far off in our futures, such as retirement or even the possible afterlife. **This may explain what often motivates people to work for things that have no apparent short-term benefit** [51]. In similar work, Volkow and Bale [52] proposed a model in which dopamine can favor NOW processes through phasic signaling in reward circuits or LATER processes through tonic signaling in control circuits. Specifically, they suggest that through its modulation of the orbitofrontal cortex, which processes salience attribution, dopamine also enables shifting from NOW to LATER, while its modulation of the insula, which processes interoceptive information, influences the probability of selecting NOW versus LATER actions based on an individual's physiological state. This hypothesis further supports the concept that disruptions along these circuits contribute to diverse pathologies, including obesity and addiction or RDS.

[2] Actor specificity – state actors can only use util – outweighs since different actors have different obligations.

A – Aggregation – all policies benefit some and hurts others – only util can resolve these cuz it gives a clear weighing mechanism

B – Collectivism – States are composed of many actors who inevitably disagree about intent means they can only use consequentialism because they don't have to agree

C – Bureaucrats aren't philosophers – policymakers do not have experience with dense frameworks so they don't understand how to apply them to specific instances but they do understand that pain is bad and pleasure is good because it's intrinsic to existing.

[3] Extinction first –

a. Wager – if there is any chance of goodness existing, we ought to preserve our existence to maximize it.

b. Sequencing – if their framework is true, people dying is bad because it means those people can't use their framework

c. Repugnance – if their framework cannot explain why people dying is bad – you should reject it because it cannot disavow of atrocities. You shouldn't vote for a framework that can't say the holocaust was a bad thing.

d. Performativity – us having a moral debate proves moral uncertainty because it means we are not certain about which framework is true - means we should preserve our ability to find the true framework

Fed

Federalism on a brink – giving states regulations back key

Abigail R. Hall, 1-25-2021, "To 'lower the temperature' raise commitments to federalism," TheHill, <https://thehill.com/opinion/white-house/535454-to-lower-the-temperature-raise-commitments-to-federalism>

Constitutionally, **federalism is a feature**, not a bug. State and national governments must coexist and work together, each within its proper sphere, to address citizens' concerns. State governments are intended to check the power of the national government. ADVERTISEMENT

The problem is that state governments have become too reliant on the national government, depending on the feds to provide support for everything in varying degrees from education to health care to drug policy. Instead of 50 different organs of policymaking and 50 different governments providing a counterbalance to the federal government, we increasingly ask Washington to handle all our problems.

Education is a state sector, giving the federal branch power decks federalism.

Brendan Pelsue 2017, "When it Comes to Education, the Federal Government is in Charge of ... Um, What?," Harvard Graduate School of Education, <https://www.gse.harvard.edu/news/ed/17/08/when-it-comes-education-federal-government-charge-um-what>

Students frequently need a refresher on things like understanding the nature of the relationship between the federal government and the states, and what federalism is," she says. With that in mind, the course begins with a civics review, especially the complicated politics of federalism, then moves on to a history lesson in federal education legislation since the Elementary and Secondary Education Act of 1965, and finally to an overview of the actual policy mechanisms through which the federal government enforces and implements the law. Throughout, students "read statutes, they read regulations, they read court decisions," Schifter says — activities she believes are essential since there is no better way for educators to understand the law than to consult it themselves. The civics and history lessons required to understand the federal government's role in education are of course deeply intertwined and begin, as with so many things American, with the Constitution. That document makes no mention of education. It does state in the 10th Amendment that "the powers not delegated to the United States by the Constitution ... are reserved to the States respectively." This might seem to preclude any federal oversight of education, except that the 14th Amendment requires all states to provide "any person within its jurisdiction the equal protection of the laws."

And public strikes are under state jurisdiction –

Milla Sanes and John Schmitt, March 2014", "No Publication, <https://cepr.net/documents/state-public-cb-2014-03.pdf>

While the unionization of most private-sector workers is governed by the National Labor Relations Act (NLRA), the legal scope of collective bargaining for state and local public-sector workers is the domain of states and, where states allow it, local authorities. This hodge-podge of state- and local legal frameworks is complicated enough, but recent efforts in Wisconsin, Michigan, Ohio, and other states have left the legal rights of public-sector workers even less transparent. In this report, we review the legal rights and limitations on public-sector bargaining in the 50 states and the District of Columbia, as of January 2014. Given the legal complexities, we focus on three sets of workers who make up almost half of all unionized public-sector workers: teachers, police, and firefighters, with some observations, where possible, on other state-and-local workers.¹ For each group of workers, we examine whether public-sector workers have the right to bargain collectively;² whether that right includes the ability to bargain over wages; and whether public-sector workers have the right to strike.

Federalism key to good democratic values – turns case

Abigail R. Hall, 1-25-2021, "To 'lower the temperature' raise commitments to federalism," TheHill, <https://thehill.com/opinion/white-house/535454-to-lower-the-temperature-raise-commitments-to-federalism>

So the only hope for peaceful self-government is to halt the centralization and return to more independent governance at the state level. This would not only lessen the stakes at the federal level but also offer citizens more control over their government. Why is this so? It is much easier for citizens to help craft new state-level policies or eliminate ineffective ones than it is at the vaster, less-personal national level. If worse comes to worst, people can always vote with their feet and move. Indeed, that is what many citizens are doing as they flee incompetently governed states like California for competently governed states like Texas. But if the national government goes downhill, what can we do? An individual's one vote in a national election is

inconsequential and expatriating is difficult. FTC charges chip supplier Broadcom with monopolizing the market. Decentralization has its own problems, of course. There are situations where a top-down response from Washington may be appropriate. But these are the exceptions, not the rule. It's clear our political acrimony stems from too little decentralization, not too much. To lower the temperature of politics, we should raise our commitment to federalism while limiting the scale and scope of politics as a whole. Healing the political divide in the United States is no simple task. We've spent decades placing more decision-making authority in the hands of the federal government and then pulling away from one another as a consequence. States must take some authority back. Citizens must take the lead in demanding this. We, the people, bear ultimate responsibility for good governance.

States are key to climate change, public opinion sways them

Rebecca **Bromley-Trujillo** and Mirya R. **Holman**, Christopher Newport University; Tulane University, **5-7-2020**, "Climate Change Policymaking in the States: A View at 2020", Oxford University Press, Publius: The Journal of Federalism, <https://sci-hub.st/10.1093/publius/pjaa008jkk>

Conclusion This article illustrates the variation in state-level policy agendas on climate change and provides evidence that climate change policy in the 2010s is operating in a manner consistent with expectations drawn from scholarship on national policy signals and state-level policymaking (see Allen, Pettus, and Haider-Markel 2004; Rabe 2011). States with strong existing climate policy pathways continue to aggressively pursue climate mitigation strategies, with ramped up efforts over the last few years. Our descriptive statistics indicate that state legislatures have the highest number of bill sponsorships during the Trump era; this is also a time period where climate change concern was particularly high (Gustafson, Leiserowitz and Maibach 2019). As such, causal explanations for this shift may be associated with a variety of factors, including President Trump's policy rollbacks, changes in public opinion, and increased salience due to extreme weather events and temperature changes. Moreover, state legislatures have shifted in their partisan composition, providing varying opportunities for either climate policy retrenchment or pro-mitigation efforts. It appears that we have returned to a period of "state domination" on climate change policy that resembles the 1998–2007 era described by Rabe (2011). Of particular interest is state-level activism on energy policy: numerous states have introduced legislation that would increase the use and development of renewable energy, put a price on carbon, and invest in technology to capture GHGs. In addition, most states that were active during the first period of state domination are proposing expanded renewable energy targets and other more stringent policy goals during the time period we explore. Despite the heightened attention to climate change issues, many states are still unwilling to consider climate change legislative strategies, reflecting the highly partisan nature of climate change policy. Furthermore, some states have considered and passed policies that run counter to climate mitigation goals, particularly in states where Republicans have control of the state legislature and where the fossil fuel industry and utility companies have a strong lobby. Given this, it is unlikely that states acting alone will be able to achieve targets set by the Paris Agreement; however,

states have the capacity to produce significant reductions in GHGs (Lutsey and Sperling 2008). Our results suggest that climate change concern in the population can push state legislatures to consider climate policy, even in some traditionally conservative states. Moving forward, we might expect even more states to act, as temperature anomalies and negative externalities associated with climate change increase the salience of the issue and continue to drive concern. This is not a guarantee; research is mixed on whether extreme weather events consistently lead to a lasting increase in concern about climate change (Konisky, Hughes, and Kaylor 2016; Bergquist and Warshaw 2019). In addition, it may be difficult to sell government action on climate change to conservative Republicans that argue climate change is not the result of human activity. Yet, public opinion polling strongly suggests that Americans are becoming increasingly worried about climate change (Gustafson, Leiserowitz and Maibach 2019), which may keep this issue on state governmental agendas. And, as we have seen in other scholarly works (e.g., Bromley-Trujillo and Poe 2018), concern also drives the adoption decision. Future research might consider the ways that changing levels of concern about climate change may accelerate policymaking unevenly across state legislatures, much in the same way that the race to the top and bottom reflected differing interests in state populations to generally address environmental protection. A review of climate change policymaking by state governments would be amiss if we did not consider the bottom-up nature

of federalism as well. States are not acting in isolation, as cities engage in mitigation and adaptation efforts to address climate-related concerns (Boussalis, Coan, and Holman 2018, 2019). We also have seen efforts by states, particularly conservative states with liberal cities (Einstein and Glick 2017), to engage in preemption on climate policy, limiting the ability of local governments to engage in a variety of climate activities. Future research might consider how and why states adopt these policies and the degree to which this reflects a more general opposition to climate activism or is more in line with other general preemption activities (Fowler and Witt 2019; Goodman 2019).

Warming guarantees extinction

Specktor 19 [Brandon Specktor] "Human Civilization Will Crumble by 2050 If We Don't Stop Climate Change Now, New Paper Claims." Live Science. June 4, 2019.

<https://www.livescience.com/65633-climate-change-dooms-humans-by-2050.html> TG

According to the paper, climate change poses a "near- to mid-term existential threat to human civilization," and there's a good chance society could collapse as soon as 2050 if serious mitigation actions aren't taken in the next decade.

Published by the Breakthrough National Centre for Climate Restoration in Melbourne (an independent think tank focused on climate policy) and authored by a climate researcher and a former fossil fuel executive, the paper's central thesis is that climate scientists are too restrained in their predictions of how climate change will affect the planet in the near future. [Top 9 Ways the World Could End]

The current climate crisis, they say, is larger and more complex than any humans have ever dealt with before. General climate models — like the one that the United Nations' Panel on Climate Change (IPCC) used in 2018 to predict that a global temperature increase of 3.6 degrees Fahrenheit (2 degrees Celsius) could put hundreds of millions of people at risk — fail to account for the sheer complexity of Earth's many interlinked geological processes; as such, they fail to adequately predict the scale of the potential consequences. The truth, the authors wrote, is probably far worse than any models can fathom.

How the world ends

What might an accurate worst-case picture of the planet's climate-addled future actually look like, then? The authors provide one particularly grim scenario that begins with world governments "politely ignoring" the advice of scientists and the will of the public to decarbonize the economy (finding alternative energy sources), resulting in a global temperature increase 5.4 F (3 C) by the year 2050. At this point, the world's ice sheets vanish; brutal droughts kill many of the trees in the Amazon rainforest (removing one of the world's largest carbon offsets); and the planet plunges into a feedback loop of ever-hotter, ever-deadlier conditions.

"Thirty-five percent of the global land area, and 55 percent of the global population, are subject to more than 20 days a year of lethal heat conditions, beyond the threshold of human survivability," the authors hypothesized.

Meanwhile, droughts, floods and wildfires regularly ravage the land. Nearly one-third of the world's land surface turns to desert. Entire ecosystems collapse, beginning with the planet's coral reefs, the rainforest and the Arctic ice sheets. The world's tropics are hit hardest by these new climate extremes, destroying the region's agriculture and turning more than 1 billion people into refugees.

This mass movement of refugees — coupled with shrinking coastlines and severe drops in food and water availability — begin to stress the fabric of the world's largest nations, including the United States. Armed conflicts over resources, perhaps culminating in nuclear war, are likely. The result, according to the new paper, is "outright chaos" and perhaps "the end of human global civilization as we know it."

Econ DA

Post-Covid economic recovery is fragile now- inflation is adding pressure.

Lynch 6-11 [David J. Lynch Washington, D.C. Financial writer covering trade and globalization Washington Post, 6-11-2021, "Rising prices in the U.S. could rattle other countries amid uneven global recovery," <https://www.washingtonpost.com/us-policy/2021/06/11/inflation-fed-biden-recovery/>] 6/13/2021

U.S. leaders stumbled in their initial pandemic response. But they **did flood[ed] the economy with several trillion dollars**, powering through the worst of the health scare and quickly **resuming growth**. Europe provided less direct relief to its citizens and has seen weaker results. By the end of June, U.S. output should be slightly above its pre-pandemic level while the European Union will still be about 4 percent below its starting point, said Sheets. **Still, the U.S. rebound has been anything but smooth. Labor market progress has disappointed and an uneven reopening has led to widespread shortages**, including of semiconductors, resin, ketchup and lumber. **Those supply-chain headaches are going global. An increasing number of countries are suffering supply disruptions, shipping problems and delivery delays, forcing companies to raise prices to compensate**, said Robin Brooks, chief economist for the Institute of International Finance, an industry group. "The world has never seen the kind of global supply disruptions we are seeing now," Brooks wrote this week. **The Federal Reserve insists that May's 5 percent annual inflation reading — the highest since August 2008 — represents a temporary fever.** The supply of goods will improve as more companies resume normal operations while consumer demand will ease as government stimulus payments taper off, it says. Fed officials insist they will stay the course even as rising prices draw attacks from Republican lawmakers and high-profile economists such as Lawrence Summers of Harvard University, a former Democratic treasury secretary. In Summers's view, the Biden administration's lavish multitrillion-dollar spending plan coupled with the Fed's near-zero interest rates means "overheating is now the largest risk" to the U.S. economy. Summers took to Twitter this week to warn that if the Fed or financial markets ultimately push rates higher in response to galloping inflation, "there will be enormous risks to an already fragile and over leveraged global economy." **There is no doubt that pricing pressures are increasing.** G-III Apparel Group, which distributes clothing under brands such as DKNY, Donna Karan, Tommy Hilfiger and Calvin Klein, told investors this week that it plans "to selectively raise prices to largely offset higher freight costs."

Rising raw material and shipping costs likewise prompted Donaldson Co., a maker of filtration systems, to raise prices this year and to draw up plans to do so again, the company said earlier this month. And home builder Hovnanian Enterprises said it will follow suit. "We plan to continue to raise prices to keep up with rising material and labor costs, align sales pace with our ability to start homes and improve our margins," CEO Ara Hovnanian said this month. But amid Summers's alarms, financial markets yawned. The S&P 500 index hit a record high on Thursday while the yield on 10-year Treasury bonds continued a month-long decline, reflecting investor comfort with the outlook. The Fed's patience has been rewarded. Lumber, one of the suddenly scarce commodities that saw prices spike, has fallen by one-third over the past month with the return of more sawmills to normal operations. Despite talk of a labor shortage, the three-month moving average of median hourly wage growth is lower today than at the start of the year,

according to a Federal Reserve Bank of Atlanta gauge. That means **individuals' expectations of future inflation are not yet driving demands for higher pay**, a key component of an unbridled price rise. Central bankers elsewhere are mimicking the Fed. In Canada, where inflation jumped to 3.4 percent in April, the Bank of Canada on Wednesday opted to leave its benchmark lending rate unchanged. "We expect inflation to stay around 3 percent through the summer and then to ease later in the year as remaining slack in the economy pushes inflation down," said Tim Lane, deputy governor of the Bank of Canada, in a speech to a group of financial advisers. In Europe, consumer prices in May breached the European Central Bank's policy goal for the first time since 2018, rising at an annual rate of 2 percent. On Thursday, the ECB said it would continue its bond purchases to support the economy while raising its inflation forecasts for this year and next to 1.9 percent and 1.5 percent, up from 1.5 percent and 1.2 percent. Much of the rise in European inflation is due to developments that are unlikely to be repeated: a doubling in oil prices since October and the reinstatement of a German value-added tax that had been suspended during the pandemic, ECB President Christine Lagarde said. In China, producer prices in May rose 9 percent from one year earlier, the National Bureau of Statistics said on Wednesday. Surging global commodity costs — copper is up 80 percent over the past year — were largely to blame for the highest jump since September 2008. Chinese factories so far are largely absorbing the costs. People's Bank of China Gov. Yi Gang said this week that consumer price growth this year will be below 2 percent, lower than the government's 3 percent annual goal. Hiring troubles prompt some employers to eye automation and machines History offers support for the Fed's sanguine stance. Following the 2008 financial crisis, the Bank of England held its fire while the inflation rate more than doubled to 4.5 percent in about a year and a half. Ultimately, the increase fizzled and the authorities were vindicated. Indications that there remains enormous slack in the labor market, even as the unemployment rate has dropped from 14.8 percent in April 2020 to 5.8 percent today, also explains the Fed's patience. The share of the population age 16 and above that is working or looking for work remains near its lowest point since women entered the workforce in large numbers in the 1970s. Just 61.6 percent of the

population is in the labor force today, down from more than 66 percent in 2007. Fed Chair Jerome H. Powell wants to run the economy hot enough, long enough, to lure many of them back to productive work. If that means enduring a year or more of fast-rising prices, it's a bargain the Fed is willing to take. **The Fed says it won't raise rates for three years. But if it's forced to act sooner, a sudden rate hike would slow the economy and lead to a stronger dollar. That could trigger destabilizing capital flows from developing nations and make repaying dollar loans more expensive for foreign businesses that earn local currency from their operations.**

Unions' demands for higher wages causes an inflationary spiral.

Guida 6-4 Victoria Guida [an economics reporter covering the Federal Reserve, the Treasury Department and the broader economy. She has spent her Washington career writing about bank regulations, monetary policy and trade negotiations.

A Dallas native, she graduated from the University of Missouri with a double major in journalism and political science.] , 6-4-2021, "Biden's back door to wage hikes," POLITICO, <https://www.politico.com/news/2021/06/04/bidens-back-door-to-wage-hikes-491911>

"The 'shortages' we are seeing in lower-wage jobs and the accompanying wage pressures are an early sign of success" for the president's agenda, said Julia Coronado, founder of MacroPolicy Perspectives. That success may be short-lived. **Higher wages could be among the biggest factors in pressuring the Federal Reserve to raise interest rates** if clear signs of an inflation spike appear. They also risk slowing hiring for those who will increasingly seek to return to the workforce as the pandemic subsides, as companies try to keep costs down. **That's why workers' pay was a major focus for Fed officials** in Friday's U.S. employment report for May. **They want to see wage gains** for the workforce — **but what's behind those raises matters.** Wage growth "is positive if it reduces hardship, reduces inequality and is not eaten away or reversed by higher inflation," said Tim Duy, an economics professor at the University of Oregon and a former U.S. Treasury economist. "But **we should be cognizant of the possibility that we're inducing more inflation.**" Income growth has been relatively strong, particularly in the last couple of months, despite disappointing overall job growth. Wages were up about 2 percent in May compared to the year before, and that number likely underestimates the real amount of income growth for technical reasons; lower-wage workers disproportionately lost jobs last year, making the overall average for those who kept their positions look higher then, and the opposite effect is now occurring as Americans return to the labor market. "Anyone looking at the 2.0% increase in yr/yr wages is missing the story," Jason Furman, a Harvard professor and former top economic adviser to President Barack Obama, said in a tweet. "Nominal wages up 1.2% in April/May. That is a 7.4% annual rate. That is huge." The pressure to do more to attract employees could continue to grow in certain public-facing industries. According to the Labor Department's jobs report, about 2.5 million people are still being held back from looking for work because of the pandemic. Wages for non-managerial leisure and hospitality workers grew 1.3 percent last month and are up 3.7 percent compared to May 2020. **At the heart of the fight for higher pay is a desire for workers to share in a greater portion of the nation's economic rewards after decades of sluggish wage growth — the result of the weakening of labor unions,** companies shifting production overseas and increased use of job-displacing automation. This would ideally show up as bigger raises as the economy expands faster. **But if higher wages are instead passed along to customers at higher prices, that can create an inflationary cycle, as opposed to the one-time price increases** that many experts believe the economy can absorb as people's behavior, and global supply chains, return to normal. "In the near term, I wouldn't say this is necessarily a dangerous situation if we're just raising wages for a group of people who have been traditionally disadvantaged," Duy said. But **the longer** there are shortages that make **employers feel more comfortable raising prices as well as wages,** "that's where **you get into this potential shift in the psychology where the wage gains and the price gains become linked.**" Heidi Shierholz, director of policy at the left-leaning Economic Policy Institute and a former chief economist at the Labor Department, said Americans are not seeing the type of widespread shortage-induced wage increases that would be cause for concern. "Things are re-normalizing; it's not like things are out of whack," she said, adding that **some of the wage increases for leisure and hospitality workers** might have **come from a return to normal tipping practices** as restaurants reopened. "I have **longer-run concerns.**" she added. **The wages were too low in that sector before Covid hit, so re-normalizing is not exactly where we want to be.** For its part, the Fed is pursuing a state of "full employment," where wages rise because most people have jobs, and **the central bank has said it's willing to tolerate inflation above its 2 percent target** to get there. **But the hesitance by some workers to return to the labor force is only creating the illusion of that dynamic,** said Adam Ozimek, chief economist at Upwork. **If employers are raising wages right now due to temporary**

shortages, then that risks slowing job growth when those temporary shortages are gone," with millions still out of work, Ozimek said. "If we were at **full employment, and** we were seeing **inflationary pressures**, that **wouldn't concern me** at all," he added. "You're getting it because of good and sustainable reasons. **That's not the same thing as inflation due to temporary supply shortages.**"

That collapses the economy.

Colombo 18 [Jesse Colombo is an economic analyst and Forbes contributor who warns about bubbles and future financial crises], "How Interest Rate Hikes Will Trigger The Next Financial Crisis", Forbes, 9-27-18, <https://www.forbes.com/sites/jessecolombo/2018/09/27/how-interest-rate-hikes-will-trigger-the-next-financial-crisis/?sh=5401bf966717>

On Wednesday, **the U.S. Federal Reserve hiked its benchmark interest rate** by a quarter-percentage point **to 2% - 2.25%, which is the highest level since April 2008.** As **rates continue to climb off their post-Great Recession record lows**, market participants and commentators are showing almost no signs of fear as the stock market is hitting records again and complacency abounds. Unfortunately, "soft landings" after rate hike cycles are as rare as unicorns and **virtually all modern rate hike cycles have resulted in a recession, financial, or banking crisis. There is no reason to believe that this time will be any different.** As I've explained in the past, periods of **low interest rates** help to **create credit and asset booms** in the following ways: By encouraging more borrowing by consumers, businesses, and governments By **discouraging the holding of cash** versus spending and speculating in riskier assets & endeavors Investors can borrow cheaply to speculate in assets (ex: cheap mortgages for property speculation and low margin costs for trading stocks) By **making it cheaper to borrow to conduct share buybacks**, dividend increases, and mergers & acquisitions By **encouraging higher rates of inflation**, which helps to support assets like stocks and real estate **When central banks set interest rates and hold them at low levels in order to create an economic boom after a recession** (as our Federal Reserve does), **they interfere with the organic functioning of the economy and financial markets, which has serious consequences including the creation of distortions and imbalances. By holding interest rates at artificially low levels, the Fed creates "false signals"** that encourage the undertaking of businesses and other endeavors that would not be profitable or viable in a normal interest rate environment. The **businesses or other investments** that are **made due to artificial credit conditions are** known as **"malinvestments"** and typically **fail once interest rates rise to normal levels again.** Some **examples** of malinvestments **are dot-com companies in the late-1990s tech bubble**, failed housing developments during **the** mid-2000s U.S. **housing bubble, and unfinished skyscrapers in Dubai and other emerging markets after the global financial crisis.**

Though it can be difficult to tell precisely which investments or businesses are malinvestments in a central bank-distorted economy, a quote by Warren Buffett is extremely applicable: "only when the tide goes out do you learn who's been swimming naked." For the purpose of this discussion, "the tide going out" refers to rising interest rates. **The mass failure of malinvestments in an economy as interest rates rise typically results in recessions or banking/financial crises.** The chart below shows how recessions or financial crises have occurred after historic interest rate hike cycles: Here is a list of historic recessions, banking, and financial crises that have occurred after interest rate hike cycles (this list corresponds with the chart above): Late-1970s/early-1980s rate hike cycle: 1980 recession: A 6-month recession that concentrated in housing, manufacturing, and the automotive industry. 1981 - 1982 recession: A 16-month recession in which 2.9 million jobs were lost. U.S. savings and loans crisis: 1,043 out of the 3,234 savings and loan associations failed as the interest rate at which they could borrow rose above the fixed interest rates on the loans that they had issued. In addition, savings and loan institutions were limited by interest rate ceilings, which caused them to lose deposits to higher-earning commercial bank accounts. U.S. housing market bust: Mortgage rates surged as high as 18%, which caused housing affordability to sink. As a result, existing-home sales fell by 50% from 1978 to 1981, affecting the whole industry - including mortgage lenders, real estate agents, construction workers, etc. Automotive industry crisis: Similar to the situation in housing, higher interest rates made automobile financing much more expensive. As a result, automobile sales plunged, causing 310,000 jobs (or one-third) in the industry to be cut. Latin American debt crisis: Rising interest rates made it harder for heavily-indebted Latin American countries to pay back their debts. Mid-1980s rate hike cycle: Continental Illinois bank failure: In 1984, Continental Illinois became the largest bank failure in U.S. history (until Washington Mutual's failure in 2008). Rising interest rates and bad loans to Texas and Oklahoma oil & gas producers strongly contributed to the bank's demise. Late-1980s rate hike cycle: Early-1990s recession: An 8-month recession in which 1.623 million jobs were lost. U.S. savings and loans crisis: Higher interest rates and the U.S. real estate downturn caused a continuation of the savings and loans crisis that began in the early-1980s. U.S. real estate downturn: Rising interest rates caused a downturn in both commercial and residential real estate. Mid-1990s rate hike cycle: Emerging markets crisis/Mexican peso crisis: Low U.S. interest rates in the early-1990s made higher-yielding emerging markets assets more attractive to investors. As U.S. interest rates rose, Mexico and other emerging economies experienced painful readjustments and currency devaluations. Orange County, California bankruptcy: Bad bets on highly leveraged interest rate derivatives bankrupted the county as interest rates rose. Early-2000s rate hike cycle: Early-2000s recession: An 8-month recession in which 1.59 million jobs were lost after the tech bubble burst. Tech bubble bust: Higher interest rates helped burst the late-1990s tech bubble that was centered around internet-related companies, dot-coms, the telecom industry, etc. Mid-2000s rate hike cycle: Great Recession: An 18-month recession in which 8.8 million jobs were lost after the U.S. housing and credit bubble burst. U.S. housing bubble

bust/credit crunch: Low interest rates after the early-2000s tech bust led to the formation of a bubble in housing and credit. When interest rates rose again in the mid-2000s, housing prices and mortgage-backed securities plunged. The Current Rate Hike Cycle Won't End Any Differently All of the modern interest rate hike cycles we have examined resulted in recessions or financial crisis, and the current one will be no different. This time around, it will be the "Everything Bubble" that bursts. "Everything Bubble" is a term that I've coined to describe a dangerous bubble that has been inflating in a wide variety of countries, industries, and assets – please visit my website to learn more. After nearly a decade of ultra-low interest rates, the U.S. and global economy are saturated with bubbles and other distortions that will only be revealed by rising interest rates. Because of our record debt burden, interest rates do not have to rise nearly as high as in prior cycles to cause a recession or financial crisis this time around. Here are some examples of interest rate-sensitive sectors that I believe are experiencing bubbles that will burst as interest rates rise: Emerging markets: Ultra-low interest rates and quantitative easing in the U.S. and Europe after the Great Recession caused trillions of dollars worth of "hot money" to flow into emerging economies, which led to the development of credit and asset bubbles in those countries. Emerging market debt nearly tripled to \$60 trillion in the past decade. Turkey, South Africa, and many other emerging markets are being roiled as U.S. interest rates and the dollar rise. U.S. corporate debt bubble: The low interest rate[s] environment after the Great Recession has encouraged public corporations to borrow heavily in the bond market. Total outstanding non-financial corporate debt has increased by over \$2.5 trillion or 40% since its 2008 high. U.S. corporate debt is now at an all-time high of over 45% of GDP (see chart below), which is even worse than the levels reached during the dot-com bubble and U.S. housing and credit bubble. Read my corporate debt bubble warning on Forbes to learn more. U.S. shale energy boom/energy junk bonds: This boom/bubble is closely related to the corporate debt bubble discussed above. Extracting oil and gas from shale via fracking is extremely capital-intensive and would not be feasible in a normal interest rate environment. Thanks to the artificially low interest rate environment since the Great Recession, the shale energy industry's net debt surged to \$200 billion in 2015 - a 300% increase from 2005. Rising interest rates and the bursting of the corporate debt/junk bond bubble will cause a major bust in the shale energy industry. U.S. auto loans: Low interest rates after the Great Recession made financing and leasing automobiles much cheaper, which has resulted in an automobile sales boom. Total outstanding auto loans increased 36% to \$1.118 trillion in the past decade. Rising interest rates will cause monthly auto loan payments to be more expensive, which will result in lower sales and a bust in the automotive industry. U.S. commercial real estate: Commercial real estate is a very interest rate-sensitive arena that has levitated due to low interest rates after the Great Recession. According to Green Street Advisors, U.S. commercial real estate prices have more than doubled since 2009. U.S. residential real estate: As I've recently explained in Forbes, U.S. housing prices now exceed their housing bubble peak and are up 50% from their low point in 2012 thanks to ultra-low mortgage rates. Mortgage rates did not reach such low levels on their own, but due to intervention by the Fed in the form of quantitative easing. The Fed is now reversing its quantitative easing program by \$40 billion per month and, unsurprisingly, mortgage rates just hit a seven-year high and the housing market is decelerating. U.S. stock market investors are dangerously exposed to coming busts in interest rate-sensitive sectors, which will spill over into the highly-inflated stock market. Please read my U.S. stock market bubble report in Forbes for more information. The S&P 500 has risen over 300% since March 2009 due to the Federal Reserve's market manipulation: Many valuation measures show that the U.S. stock market is more overvalued than it was at major generational market peaks, which means that another sharp bear market is inevitable. According to the U.S. stock market capitalization-to-GDP ratio (also known as Warren Buffett's "favorite indicator"), the market is more overvalued than it was during even the dot-com bubble: The current interest rate hike cycle won't end any differently than the others discussed in this piece - if anything, it will likely end in an even worse manner because interest rates were held at record low levels for a record period of time. The coming recession, crisis, and bear market will be proportionate to the unprecedented imbalances and distortions that have built up in our economy.

Causes global nuclear war

Tønnesson 15, Dr. Stein Tønnesson is a Norwegian peace researcher and historian. International Area Studies Review, 18(3), "Deterrence, interdependence and Sino-US peace." <https://journals.sagepub.com/doi/abs/10.1177/2233865915596660> you know how to access it | ahsBC

Mutual economic dependence between China and the US within an integrated global economic system including Japan, South Korea and the ASEAN countries is probably the most cited reason for expecting East Asia to remain peaceful. The cost of conflict is assumed to be **prohibitive**. So

although East Asia does not derive its peace from ^{strategic} **trust**, ^{institutional} integration or shared values, peace may still be preserved because national leaders give priority to their **economic development**, realize how costly a conflict would be, and expect to make further gains from open trade. Lampton (2014: 3, 7, 122, 136) holds that peace is enhanced by 'the idea of global interdependence', and puts forward an 'interdependence theory': institutional and **economic interdependence dampens impulses toward conflict**. While it does not make conflict impossible, and makes war even more destructive should it

occur, it provides 'incentives to keep conflict with major partners manageable'. There is now a 'struggle for the soul of Chinese foreign policy between the realities of interdependence and the impulses of assertive nationalism'. Lampton does not go into detail about the question of when interdependence precludes war and when it does not. Christensen (2015: 41–46), however, is more specific as to why global

interdependence today is of a different kind than in the past and more likely to hinder war: trans-national production chains make it necessary for an aggressor state to 'persuade' a diverse set of foreign investors, suppliers of key components, and logistics companies to continue doing business' after it has invaded a territory, and it is 'easy to see how difficult this may be'.¹ Thus it is less tempting than in the past to go to war: 'While transnational production and interdependence is certainly no

guarantee against war', says Christensen, 'it is still a major force for peace' (Christensen, 2015: 46). The Russian invasions of Georgia and the Crimea, and the US invasions of Afghanistan and Iraq prove Christensen's point about how difficult and costly it is to reconstitute a functioning economy after invading a territory, but show also that some governments disregard the costs when they see weighty geopolitical reasons for resorting to force against an inferior country with no nuclear arms. While conceding that interdependence restrains ambition and rivalry, White (2012: 50–52, 55, 116) doubts that restraints will prove stronger than pressures going the other way. He points at a psychological factor: '...most often people see it as shameful to put economic concerns first when issues of power and status are engaged'. When a choice has to be made in the glare of an international crisis, 'it is very hard to put economics first'. And if both sides think the costs will be worse for their adversary than for themselves, they may wait for the other to blink. Since there is now just 'one big global economy' no major power can slam economic sanctions on another without hurting itself severely, but the momentum of rivalry could build up 'before leaders or public wake up to the economic consequences'. Escalating rivalry could 'begin to erode economic interdependence, rather than interdependence curbing escalation', White adds. This must mean that interdependence actually does prevent or delay open conflict; only after governments have taken action to reduce their dependence are they willing to risk war. Steve Chan's Enduring Rivalries in the Asia-Pacific

(2013) is very optimistic: the general trend in East Asia, he says, is toward abatement rather than exacerbation of rivalries. **Territorial disputes are less likely to escalate today than during the Cold War since** ^{East Asian} **states have shifted to policies emphasizing economic development**. This has created a 'synergistic effect that restrains interstate tension and rivalry'. Ties have been multilateralized, with many third parties gaining a vested stake

in interstate stability. While **China** has increased its military capabilities it has also acquired an interest in preserving regional stability. On its side, the US faces resource constraints that make it wary of providing too strong support to its

allies. This should work against bipolarization of regional relations Chan's optimism is not derived from recent events but from an

assumption that underlying long-range forces create interests securing the peace: 'Economic interdependence and political pluralism promote stakeholders that have a vested interest in stabilizing and expanding foreign ties, and these stakeholders are, in turn, self-motivated to lobby their government to undertake policies that abate rivalry'

(Chan, 2013: 20). Chan finds that the normal mechanism behind the outbreak and escalation of large wars is that a smaller state in an asymmetrical relationship chooses a confrontational behaviour in the hope of gaining support from a major patron; those with little or no hope of receiving foreign support and those with a great deal of confidence in their ally's commitment 'are less likely to initiate such confrontation than those that are in an intermediate position' (Chan, 2013: 108, 114, 186). Given the nature of Sino-US relations, no provocation by a smaller state in East Asia is likely to escalate. North Korea cannot count on Chinese support against South Korea, South Korea, Japan, and the Philippines are subjected to US 'escalation control'. From the perspective of power balance theory, says Chan, greater power parity between China and the US should have 'a stabilizing rather than a destabilizing effect'. This defies Mearsheimer's reasoning but conforms to Yan's analysis. Chan thinks China's rise should stabilize regional relations by 'curtailing any US tendency toward assertive unilateralism ... the last thing Beijing wants to do is to trigger a costly arms race or precipitate forces that will pressure its neighbors to choose between it and Washington' (2013: 82, 102, 104). While this seems reasonable, China's behaviour in the last few years does not quite confirm Chan's argument. The ways and the conditions under which cost concerns enter into Beijing's decision-making need to be gauged. Who calls for caution? At which stage in a crisis? According to Chan the people and governments of East Asia have turned

away from being garrison states to a model of political economy emphasizing economic growth. This presents 'the most powerful firebreak against conflict contagion'. The region-wide transition to 'economy first' policies has been successful, and 'successful policies are likely to be continued ... emulated and replicated'.

But can they continue to be successful if Western markets are no longer able to absorb huge quantities of Asian goods? Chan qualifies his argument: '... when states expect future economic relations to be disrupted or curtailed, they are likely to stop cooperating and might even lash out in war' (2013: 135, 140, 147, 149). This same argument forms the nucleus of Dale Copeland's 'trade expectation theory' (Copeland, 2015), which builds on his 'dynamic differentials theory' (Copeland, 2000). Copeland does not include nuclear deterrence as a part of his theory (he treats nuclear as no different from conventional deterrence), and has not studied Sino-US relations in particular. What he has done is to develop a comprehensive theory of major war, based on defensive realism while including liberal elements, and paying particular emphasis to the security-economy nexus.

His findings, which are based on a number of historical case studies, are of considerable interest in the context of this paper. Copeland includes three kinds of power in his theory: military, economic; and 'potential'. The latter includes several elements, such as size, age and education of the population, access to natural resources, and economic growth prospects. In Copeland's most recent books he focuses more narrowly on just the economic aspect of potential power, namely 'trade expectations'. His *The Origins of Major War* (2000) and *Economic Interdependence and War* (2015) include a number of elements and findings from which interesting implications for Sino-US relations today may be seen. As in the Thucydides trap (see below), third parties can play a significant role in provoking wars between major powers (Copeland, 2015: 443-444). Hence the need to cautiously manage the disputes between the two Korean states, China and Taiwan, China and Japan, and China and the Philippines has lost none of its importance. National leaders act on the basis of their beliefs about phenomena not necessarily on accurate knowledge (Copeland, 2000: 31-

32; Copeland, 2015: 17). Beliefs about likely future trends are particularly salient, and the future cannot of course be accurately known. In bipolar systems a state believing itself to be in decline is much more likely than a rising power to initiate conflict: 'rising states should want to avoid war while they are still rising, since by waiting they can fight later with

more power' (Copeland, 2000: 2-3, 14, 20). Hence China and the US have a mutual interest in preventing each other from fearing decline. Strong military powers who believe themselves to be in decline (have negative trade expectations) are particularly dangerous (Copeland, 2000: 5, 13, 22, 237, 241, 244; Copeland, 2015: 429). Thus Beijing must be weary of tying itself up too closely with a declining Russia and

even more weary of American fears of decline. Dynamic relational factors such as 'potential power' or 'trade expectations' are more important in determining choice between war and peace than static factors, such as the actual level of trade, or a state's form of governance on the 'unit level' (Copeland, 2000: 235-236, 238, 245; Copeland, 2015: 12, 14, 27-50, 435-436). To the extent that unit level differences count, the character of the target state is more important than that of the aggressor; while the liberal assumption that some kinds of regimes are more likely to initiate war than others is wrong, it is true that some kinds of regimes are more likely to be targeted than others.² To avoid becoming a target it may help to be seen as predictable, transparent, respectful of international law, and open to trade and investments. In the conclusion to his exhaustive examination of how trade expectations have influenced various decisions for war in the period 1790-1991, Copeland is optimistic about today's prospects: 'there are strong reasons to believe that China will stay peacefully engaged in the system over the long term, at least as long as the United States proves willing to maintain an open and free-flowing global economic system'; 'the reasons for optimistic economic expectations in both China and the United States should outweigh the

reasons for pessimism for at least a couple more decades' (Copeland, 2015: 432, 444). Chan's and Copeland's optimism depends on the continued success

of globalization. If trade expectations falter on any or both sides of the Pacific the unit-level economy-first policies may lose their pacifying effect. Chan confirms that the dampening effect of economic inter-dependence on conflict behaviour depends on policies of economic openness and integration. Hence there is need to understand global financial politics, global trends and economic expectations in Beijing, Washington, Tokyo and other East Asian capitals before assessing the likelihood that economic interdependence will continue to ensure peace among major nuclear powers