

A Theory of Economic Policy Lock-in and Lock-out via Hysteresis: Rethinking Economists' Approach to Economic Policy¹

Abstract

This paper uses hysteresis to develop the concept of policy lock-in and lock-out. Policy changes may near-irrevocably change the economy's structure, thereby permanently changing the distribution of wealth, income and power. That may lock-in policy by changing the political equilibrium. Exit costs that block policy reversals also cause lock-in. Conventional thinking treats policy as a dial which is adjusted according to the economy's state. Policy lock-in questions the dial formulation and raises new issues for optimal policy design. It also offers insights into economic and political crisis theory. Policy lock-in is illustrated with examples that include tax policy, government spending, the euro, globalization, and the neoliberal policy experiment.

Keywords: Economic policy, lock-in, hysteresis, globalization, euro, neoliberalism
JEL ref.: D7, E6, F5, H3, L5.

Thomas I. Palley
Washington, DC
mail@thomaspalley.com

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1. Introduction: the significance of policy lock-in

This paper explores the notion of policy lock-in and lock-out. It argues that policy decisions may irrevocably or near-irrevocably change the structure of the economy, thereby changing the economy's characteristics and performance. Changes to the economy's structure then generate changed economic outcomes concerning distribution of wealth, income and power, and those changed economic outcomes in turn induce changes in political outcomes.

The interaction between the economy and policy, via politics, has been emphasized by Palley (2013, Chap. 12) and Acemoglu and Robinson (2013). Those analyses are highly complementary to the proposed framework of policy lock-in. The novelty is that the interaction between the policy, the economy, and politics can be characterized by hysteresis whereby policies are locked-in and difficult to reverse.

Policy lock-in changes the policy possibility set, placing certain policies out of reach. Consequently, lock-in tacitly implies lock-out. Furthermore, policy can be intentionally designed to lock-in and lock-out possibilities. These considerations have enormous implications for democracy since policy today can permanently change the space of future democratic policy making.

2. Hysteresis and policy lock-in

The notion of lock-in has been extensively applied with regard to technology and the economic history of technological change (David, 1985; Arthur, 1989). Classic examples of lock-in are the QWERTY keyboard and narrow gauge railways, both of which are sub-optimal from an engineering efficiency sense, yet may persist because of lock-in. The reason is that once in use, sub-optimal technologies can acquire a competitive advantage

that blocks the introduction of other superior technologies.

Once the pool of users is trained with the QWERTY keyboard, workplaces will be equipped with such keyboards and employers will look for workers with QWERTY skills, which gives an incentive for new workers to acquire those skills. As regards narrow gauge railway, once initially constructed, that creates a lock-in incentive for additions to be narrow gauge to fit with the existing track. A related logic applies to new technologies like Facebook, whose network linking users provides the value and lock-in protection. Once in place, new users have an incentive to join the network with the largest number of subscribers, which is Facebook.

These lock-in incentives can be overcome if a significantly more efficient technology becomes available, thereby either giving existing participants an incentive to replace the existing system or giving new participants an incentive to join a new system. However, that is a very high barrier to change.

Lock-in can be viewed as a sub-set of the broader hysteresis phenomenon. Hysteresis is a concept drawn from physical chemistry, and concerns how systems can change their behavioral characteristics by passing through trigger thresholds that act as “switch-on” – “switch-off” mechanisms. Passing through the switch-on threshold acts as a switch that changes the systems behavior. The new behavioral pattern remains in place until the system passes through the switch-off threshold, at which time the system reverts to its old behavior.

In economics, hysteresis has been used to introduce the notion of “history” into models and to enrich the concept of equilibrium (Setterfield, 1997a, 1997b). It has also been applied to explain employment and unemployment patterns in labor markets

(Blanchard and Summers, 1987; Cross, 1993, 1995), and to explain why aggregate demand shocks can persist and generate stagnation (Bassi and Lang, 2015).² The current paper aims to apply it to the theory of economic policy.

Irrevocable lock-in can be viewed as a form of one-sided (switch-on only) hysteresis, with irrevocable change taking place when the system passes through the switch-on threshold. If there exists a switch-off threshold that reverses the change, then the lock-in process is standard two-sided hysteresis.

In physical chemistry the hysteresis thresholds can be precisely defined and measured, and are permanent. Applied to economic policy, hysteresis should be thought of as an illustrative metaphor that helps understand the dynamics and impacts of policy change. Unlike physical chemistry the policy lock-in thresholds are likely to be difficult to numerically operationalize, and they will also be historically and socially contingent (i.e. vary over time with conditions). Despite those difficulties, a hysteresis frame helps understand policy in a social reflexive world.

The logic of policy hysteresis is as follows. Political conditions can be described by a continuous variable S that measures the state of political sentiment. The S variable is systematically impacted by social and economic forces. Passing through a threshold S^+ triggers a change of policy regime. The threshold S^+ represents the switch-on threshold. If the policy regime is reversible there is a switch-off threshold S^- where $S^- < S^+$. If there is no switch-off threshold, the system produces permanent irrevocable lock-in and the old policy regime can never be recovered. If there is a switch-off threshold, the system

² Dutt (2005) provides a clear discussion of hysteresis in the context of a general discussion regarding economic modelling of the effects of history. Blanchard and Summers (1987) is a unit root model, which is not technically hysteresis (Amable et al., 1994). However, unit root models deliver economic patterns with some similarities regarding path dependence and irreversibility.

corresponds to standard hysteresis and the economy can shift between policy regimes according to the evolution of the state of political sentiment.

These two possibilities are illustrated in Figures 1.a and 1.b. Figure 1.a shows the standard hysteresis case where there are two switches. Figure 1.b shows the irrevocable lock-in case where there is only a switch-on threshold. Figure 1.a can be identified with the notion of “weak” hysteresis, while Figure 1.b can be identified with “strong” hysteresis (Amable et al., 1995, p.154 - 160).³ With weak hysteresis, the initial outcome state space can potentially be restored: with strong hysteresis some form of wiping out takes place that blocks return of part or all of the initial outcome state space. In Figure 1.b there is no possibility of return and Regime 1 permanently disappears.

Figures 1.a and 1.b showing the standard hysteresis and permanent lock-in mechanisms.

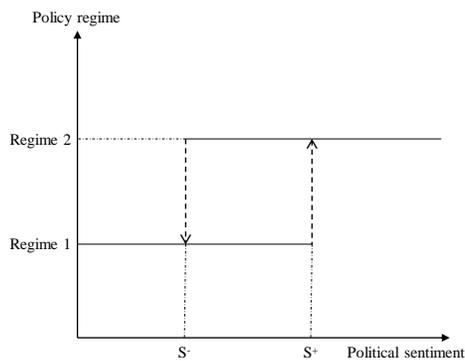


Figure 1.a. Standard hysteresis.

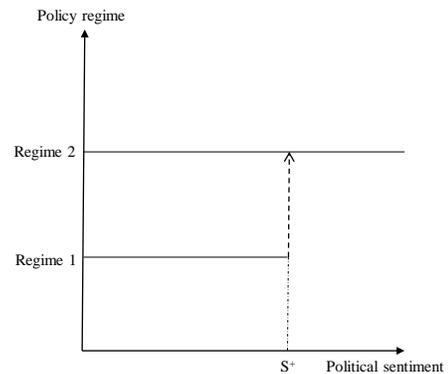


Figure 1.b. Permanent lock-in hysteresis.

³ Applied to conventional economics, Figure 1.a can be interpreted as a particular form of multiple (two) equilibrium world. Shocks can cause the economy to pass through a bifurcation point, whereupon the economy is drawn into the pull of a different equilibrium. The important feature is the bifurcation points are different so that the economy does not revert to its initial point if the initial shock is immediately reversed. Figure 1.b can be interpreted as having parallels with ratchet effects. If the initial shock is reversed, the ratchet blocks return to the original position.

Though highly stylized, the policy lock-in by hysteresis model raises important issues that are not present in conventional treatments of economic policy. Those treatments represent government as having a series of exogenous policy instruments that can be adjusted by policymakers. If a policy change is reversed, the economy simply slides back to its initial position.

The conventional treatment of economic policy makes three implicit assumptions. First, policy change does not permanently change the economy's structure. Second, policy change does not permanently change political conditions that inform policy selection. Third, policy change does not permanently change the policy possibility set. Given these assumptions, there are no restraints, obstacles, or costs to reversing policy, and future policy possibilities are completely unaffected by prior policy decisions.

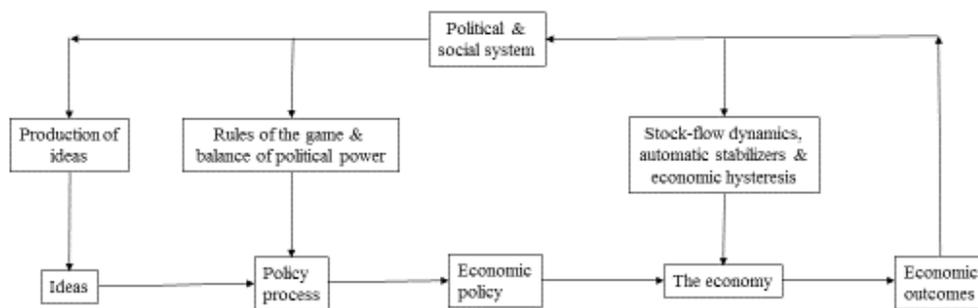
The benefit of the lock-in by hysteresis policy model is it brings these three assumptions into plain sight. First, there is need to identify how policy affects the economy and economic outcomes. Second, there is need to identify how changed economic outcomes affect the policy process and policy selection. Third, there is need to recognize that prior policy change may restrict the future policy possibility set. These considerations prompt new ways of thinking about policy and raise new political concerns.

Analytically, there is need to model the political sector. Just as macro models have a goods-producing and financial sector, so too there is need for a political sector. The political sector is contested, and the party with control can set policy, which can include locking-in policy.

3. Unpacking the black box of policy lock-in.

The hysteresis model illustrates the basic problem of lock-in, but there is need to unpack the black box explaining how change of political sentiment leads to lock-in of a new policy regime. Figure 2 unpacks this box. It shows a sequence loop running from ideas to economic outcomes and back again.

Figure 2. The unpacked black box of policy lock-in.



Ideas enter and inform the policy process, which is the filter through which ideas must pass if they are to become policy. Economic policy then impacts the economy, and the economy generates economic outcomes. Those outcomes then loop back to impact each stage of the process running from ideas to the economy. This loop runs through the political and social system, which tends to be invisible in economists' existing constructions of the economy. Lock-in can take place at several places within this loop.

The link between the economy and economic outcomes is one critical site that can be characterized by hysteresis. This has been the traditional locus of hysteresis analysis in economics, with exogenous developments causing changes in economic structure and

behavior that are hard to reverse (Dixit, 1989, 1992; Cross, 1993, 1995; Bassi and Lang 2015).

The concept of policy lock-in adds the “economic policy” box as a site where hysteresis can take place. Such policy lock-in is absent in conventional discussions of policy, which tend to treat policy as if it is a “dial” that can be smoothly dialed up and down. That can be the case, but often it is not.

The logic of policy lock-in is as follows. Policy innovations can cause changes in the economy and economic outcomes. Those changes loopback to impact both the economy and the political and social order. Changes in the political and social order then loop back to impact the policy process via their impact on the rules of the game and the balance of political power, and via their impact on the production of ideas. Lock-in can take place because of changes in any of those sites.

The right-hand feedback loop between the economy and economic outcomes has been the conventional focus of economics. One standard component of this loop is flow – stock dynamics. Thus, the flow of investment adds to the capital stock, changing the economy and subsequent economic outcomes. The same holds for borrowing which adds to the stock of debt, and also for new financial issues that add to the stock of outstanding financial liabilities. A second standard component is automatic stabilizer arrangements, whereby policy settings respond automatically to economic outcomes.

Hysteresis is a third component that has been added to this loop over the past thirty years. Thus, exogenous shocks to the economy may trigger hysteretic changes within the economy. Moreover, these shocks may originate with policy. For instance, tighter monetary policy (i.e. higher interest rates) may cause unemployment and raise the

natural rate of unemployment (Blanchard and Summers, 1987; Cross, 1995), or it may appreciate the exchange rate and cause increased import penetration (Dixit, 1989).

However, these treatments of policy induced hysteresis are not placed in a frame of policy lock-in (i.e. the effects of policy are hysteretic but policy itself is not locked-in).

Policy lock-in adds the left-hand feedback loop in Figure 2. Economic outcomes now feedback and impact the political and social system, and then impact policy via politics and ideas. With regard to politics, wealth (money) and power confer political influence over the policy process and policy selection. If economic outcomes impact the distribution of wealth and power, economic outcomes will influence the policy process and policy selection. Such feedback effects from policy to policy have been discussed by Acemoglu and Robinson (2013) in the framework of political equilibrium.

The launch point for Acemoglu and Robinson's (2013) analysis is second-best theory (Lancaster and Lipsey, 1956). They are concerned that market failures have unappreciated policy equilibrium consequences because market failures generate rents that impact the political process. Economists have traditionally argued that remedying those market failures is good economic policy, but Acemoglu and Robinson argue that may not be the case if remedying the market failure causes adverse changes in the political equilibrium (i.e. the policy equilibrium).

Policy lock-in adds an additional dimension to the analysis by recognizing that the changed policy equilibrium can be locked-in. Wealth and income distribution represent endowments, and endowments are the material of lock-in since they give agents the power to lock-in new policy equilibria. Consequently, a policy change can lock-in both structural economic change via economic hysteresis and changed policy equilibrium.

In addition to impacting the political order, Figure 2 shows economic outcomes can also influence economic ideas and beliefs, which are part of the raw input into the policy process and policy design. The conventional view is that economic outcomes provide the data for scientific revision of economic hypotheses and theories. However, economic outcomes also influence the production and dissemination of ideas via the influence of wealth and power. That makes the effect of the economy on ideas complicated, and not neutral and objective as claimed by the standard view.

Rodrik (2014) has recently sought to introduce ideas into a political model of policy equilibrium. However, his concept of ideas only partially captures what is intended here. For Rodrik (2014), ideas are akin to policy innovations and they have parallels with technological innovation. The economy is trapped within the production possibility frontier (PPF) by political constraints. Policy innovations serve to relax the political constraint by providing new mutually beneficial resolutions to political conflict, thereby moving the political equilibrium closer to society's PPF. Policy innovations are akin to a better mousetrap.

Rodrik's (2014) framing of ideas is "technological" and viewed through the benevolent lens of progress. Ideas are a form of intellectual innovation that benefits society. That contrasts with the current frame which is "ideological" and in which ideas provide the political justification and rationalization for policies. Political economy is a "war of ideas" (Palley, 2012, Chap. 1; 2013, Chap. 12), and economic theory and economists are enlisted in that war. For instance, when Milton Friedman's (1968) theory of the natural rate of unemployment captured economists' thinking it locked-in a different frame of economic understanding, which changed the policy world and economic policy.

Whether that was for better or worse depends on theoretical and political perspective.

Ideas shape people's understanding of the world, which in turn shapes beliefs about what is possible, economic aspirations, and political expectations. Big theory (e.g. Keynesian versus new classical macroeconomics) shapes specific policy ideas and influences whether specific policy ideas can get a political hearing.⁴ Theoretical hegemony matters, and which theory is hegemonic is influenced by economic outcomes and the distribution of income, wealth, and power. That is the basis of Karl Marx's (1845, p.61) abiding and penetrating observation that: "The ideas of the ruling class are in every epoch the ruling ideas, i.e. the class which is the ruling material force of society, is at the same time its ruling intellectual force."

The notion of hegemony of ideas is suggestive of another source of hysteresis concerning domination and exclusion of ideas. If economic ideas take a turn in one direction, it may be difficult to reverse them subsequently. Siegle et al. (2004) argue that democracies out-perform autocratic political systems because they are adaptable and have feedback mechanisms that prevent economic policy-induced low growth traps. However, that feature of democracy may fail if economics becomes captured by a single school of thought (Palley, 2012, Chap. 11). The possibility of such intellectual capture is facilitated by the fact that the academy is structured as a club, and existing club members may refuse to elect those who hold different theoretical points of view. That can lead to the

⁴ Palley (1993, p.13 - 17; 1996, Chap. 6, 96 - 101) discusses the importance of ideas for macroeconomic modelling, particularly rational expectations. Agents within the macro model have their own views that shape their behaviors and expectations. These agents are then placed within the economist's model of the world, which the economist assumes to be the "true" model. The hegemony of neoliberalism means establishment economists all assume neoclassical economics provides the "true" model of the world, and the club of elite academic economists exclude all who disagree.

extinction of economic policy ideas, which is a form of intellectual lock-in (Palley, 1997).

In sum, Figure 2 reveals two novel features of policy lock-in. First, analysis of policy lock-in requires introducing a circuit capturing the feedback loop between the economy and the political and social world. This includes the political equilibrium of Acemoglu and Robinson (2013), but the loop is also broader since politics is influenced by ideas.

Second, policy lock-in can occur owing to hysteretic developments in several places. Changes in the structure of the economy can make it difficult to reverse policy. Changes in the structure of the political process can also make it difficult to reverse policy, and so too can changes in ideas and ways of thinking. This latter source of lock-in captures the notion that experience and changed ways of thinking leave an indelible imprint that contribute to making history a one way train. The net result, in terms of the policy dial metaphor, is that once policy is “dialed up” it may not be possible to dial it back down.

4. Mechanisms of policy lock-in

The mechanisms of hysteresis within the economy are numerous and varied. A first mechanism is network effects whereby a product or service gains value as the number of users increases. Network effects are particularly important as regards persistence of sub-optimal technologies, and they can also work to exclude competition (Katz and Shapiro, 1994).

A second mechanism is increasing returns to scale. By moving down their cost curves and reaping economies of scale, early market entrants can acquire a cost advantage that deters additional new entrants who cannot match early entrants' costs.

A third mechanism is sunk costs, which are treated as water under the bridge. Consequently, the decision to enter prior to incurring costs is asymmetric relative to the decision to exit. Having incurred sunk costs, firms may decide to stay on the basis of current conditions even if they would not enter under those same conditions (Dixit, 1992). The logic of sunk costs is also used by Dixit (1989) to explain hysteresis in import penetration.

A fourth mechanism is fixed adjustment costs, owing to which firms do not make any adjustments until sufficient disequilibrium pressures have built up, whereupon they adjust all at once. This gives rise to discrete $[S, s]$ adjustment rules widely associated with inventory theory, but which have broader economic relevance (Caballero and Engel, 1991).

A fifth mechanism is disequilibrium learning. Thus, consumers' preferences may depend on consumers' actual consumption experience (Georgescu-Rogan, 1966), and firms may learn by doing (Arrow, 1961). Furthermore, just as there can be disequilibrium learning, there can also be disequilibrium unlearning. This latter mechanism has been invoked to explain hysteretic variation in the natural rate of unemployment. Unemployed workers' skills erode over time so that actual unemployment turns into "natural" unemployment.

A sixth mechanism is group power. This mechanism is used by Blanchard and Summers (1987) in their insider – outsider model of employment and unemployment.

Insiders have the power to set wages and do so to benefit themselves. Economic shocks change the number of insiders, which then changes the path of wage setting and employment,

Economic policy change that triggers any of these mechanisms can in principle cause policy lock-in. That is because hysteretic changes in the economy may then make it infeasible or inadvisable to reverse policy. Beyond that generality, there are specific hysteresis mechanisms that apply explicitly to policy lock-in.

The first mechanism concerns costs. Existing applications of the sunk costs hysteresis mechanism emphasize “entry costs”. With regard to policy lock-in, it is “exit costs” that matter. Thus, introducing a policy may be relatively cost free, but exiting a policy can be very costly. Exit costs can therefore generate policy lock-in. As shown below, this exit cost mechanism is important re globalization, the euro, reversing privatization, and reversing economic concentration created by merger and deregulation policy.

A second mechanism concerns group power. Policy creates vested interests and those vested interests may then band together to prevent policy reversal. Endowment effects (Kahneman et al., 1990) and learning are important parts of the mechanism. *Ex-ante* the group did not form to implement the policy. *Ex-post*, with policy having conferred a gain, agents may become more motivated to retain that gain. Additionally, whereas the policy may have been implausible *ex-ante*, agents may learn that it is viable *ex-post*. This form of hysteresis is relevant for tax policy and government spending. Obamacare is an example that can be argued to combine both endowment effects and learning.

A third mechanism is wealth and income effects that influence politics and ideas. Hysteresis can enter in two ways. First, if the policy change causes hysteretic changes in the economy (via the mechanisms previously discussed above), the induced changes in income and wealth distribution can have permanent influences on policy via the effect of money on politics and ideas.

Second, those who gain from the policy change may create a second round of hysteretic effects by investing in politics and the production of policy ideas, with the aim of blocking future policy reversals. That channel is an additional source of hysteresis. Policy is governed by politics, and the economic winners may invest in political capital and in changing the rules of the game to block future change. Similarly, the economic winners may invest in the production and advocacy of economic ideas (e.g. via think-tanks and sponsored academic research) which transforms public understanding. This type of mechanism has been important in the era of financialization (Palley, 2013, Chapter 2). Finance has been a big winner from neoliberal policy, and financial interests have invested in politics and the production of ideas to block policy change they dislike.

The above wealth and income hysteresis effects enrich the political equilibrium frame proposed by Acemoglu and Robinson (2013). According to standard economic theory, initial endowments influence the equilibrium, and changing initial endowments changes the equilibrium. Acemoglu and Robinson propose adding a political sector to standard general equilibrium models of the economy so that policy assessment takes account of both direct economic effects and induced indirect effects operating via changes in the political equilibrium. Hysteresis and policy lock-in emerge if policy change causes “direct” hysteretic economic effects, or if there are “indirect” induced

hysteretic effects caused by agents investing in in political capital and ideas with the aim of blocking future policy reversals.

A fourth mechanism of policy lock-in can be labelled Humpty-Dumpty hysteresis. Economic policy change can cause the destruction of social and organizational capital. Such capital is produced and accumulated historically. Unlike standard capital, policymakers may not know how to reproduce it once it is destroyed. Consequently, all the king's horses and all the king's men may not be able to put Humpty together again. As discussed below, this logic may apply to the phenomenon of deindustrialization and the decline of union membership.

5. Implications of policy lock-in for the theory of optimal policy.

The concept of policy lock-in may have some interesting implications for optimal policy. The conventional way of modelling policy assumes a single social welfare function and a single true model. In such a world, it is as if there is only one political party and only one way of understanding the economy. Consequently, except in instances of time inconsistency (Kydlund and Prescott, 1977), there is no advantage to policy lock-in which would be tantamount to a form of self-imposed handcuffs.

However, in a world in which political parties have different social welfare functions, incumbent parties will have an incentive to consider policy lock-in. Policy lock-in can serve as a way of protecting against the event that an incumbent loses power and its political rivals try to replace existing policies.

Similarly, if political parties hold different views of how the economy works (i.e. hold different models as suggested in Palley, 1993), there is also an incentive for optimal policy to consider lock-in. Again, the reason is the incumbent party has an incentive to

protect against the event that it loses power and prevent its political rival from imposing a new policy mix based on an alternative model of the economy.

Real world politics is characterized by competing political parties which have different social welfare functions and different views of how the economy works. That suggests there is a place for policy lock-in and lock-out in the design of optimal policy in a politicized world.

6. Examples of policy lock-in and lock-out

The best way to motivate the importance of lock-in is to provide some examples. Two initial points are in order. First, the examples below are drawn from policy developments over the past thirty years, which has been an era of neoliberal policy domination. The examples highlight the proclivity of neoliberal policies to produce lock-in. That surfaces additional political concerns about neoliberalism and further illustrating the relevance and importance of lock-in as a concept for political economy. Second, lock-in does not apply to just neoliberal policies. It potentially applies to all policy regimes, and an analysis of the earlier Keynesian New Deal era would likely also show many instances of lock-in.

(a) Tax policy. Taxation is a policy area subject to lock-in. Macroeconomic textbooks treat taxation as an instrument that can be dialed up or down in the service of aggregate demand management. However, tax rates may be subject to downward political “ratchet” effects. One reason is that taxation affects the distribution of income and wealth, which can permanently affect political influence and the policy equilibrium. Those who gain today may invest in political activity that blocks future repeal, thereby locking in a new policy equilibrium.

A second reason is asymmetry in political response. Cuts are politically popular

with beneficiaries, but tax increases are politically unpopular with those who must pay more. That asymmetry means it is easier for politicians to put tax cuts in place (switch-on) and much harder to reverse them (switch-off): switch-on is politically supported, while switch-off is politically opposed.

(b) *Government spending policy.* Government spending is another policy area subject to policy lock-in. A recent example from the US is Obamacare (The American Health Care Affordability Act, 2009) which has provided medical insurance coverage to almost twenty million uninsured Americans. Republicans are currently seeking to repeal the Act and replace its provisions with their more market-oriented policies. However, that is proving very difficult because repeal is likely to generate political backlash. First, the uninsured will resent loss of their coverage and may become more politically active and hostile. Second, the general public may have come to see government sponsored health insurance more favorably, making them more politically disposed to it. Consequently, Obamacare can be viewed as having created a form of policy lock-in.

Likewise, spending on the military-industrial complex may create lock-in by creating powerful political constituencies in favor of defense spending. Here, a tried and tested strategy is to spread the location of military bases and production facilities across congressional districts, thereby creating political support within each district for military spending.

These spending lock-in effects work via a number of channels. One channel is a form of “endowment” effect. For instance, giving the uninsured subsidized insurance will make them more politically active in defense of that insurance should politicians try to take it away. The same endowment effect may apply for defense installations which, once

installed, gain local support as providers of jobs. A second channel is learning and changed understandings. Thus, the general public may become more supportive of a program if it works better than anticipated.

(c) *Mergers and deregulation.* A third source of hysteresis concerns the creation of increased market power as a result of mergers and deregulation that change business concentration. These developments change the structure of the economy, which changes economic outcomes that feedback into the policy process and longer-term idea formation.

A classic example is the increase in financial sector concentration that preceded the financial crisis of 2008, and was then accelerated by the crisis as policymakers used bank mergers to contain the crisis. Mergers (switch-on) are costly to undo (switch-off) so that increased concentration embeds lock-in via. Once in place, concentration tends to stay in place owing to significant exit costs.

A second reason is that increased financial concentration may have increased the financial sector's share of income, and finance has increased its investment in politics and the production of ideas. That has changed the political equilibrium, thereby locking-in policies favorable to finance. This political economy loop between the financial sector, politics, ideas, and policy is a core element of the phenomenon of financialization (Palley, 2007a, 2013). It explains why financialization contains elements of hysteresis that make its reversal difficult.

(d) *Privatization and government policy capacity.* Privatization can be another source of hysteresis. Privatization and contracting-out (switch-on) can result in the destruction of government's capacity to undertake policy because it may destroy government's organization capital (i.e. government's capacity to produce services). Once destroyed, it

may not be worth government investing to re-build that organization capital (switch-off).

Lock-in from policy capacity destruction operates via exit costs. Once privatization has destroyed government's organization capital, a subsequent new government, that is in principle favorable to public production and provision of services, may still stick with privatized arrangements because the fixed costs of rebuilding lost organization capital are too high. That creates a margin where private contractors can under-deliver relative to their initial promises (in terms of productive efficiency and price), yet it is still not worth reinvesting in public production capability. Only when the inefficiency or price gouging gets beyond a threshold does reinvestment in public production capacity become worthwhile.

Furthermore, the destruction of policy capacity may not only lock-in inefficient private production of public goods, it may also shrink the policy possibility set by taking policy options off the table. That can have additional lasting impacts via changed public choices.⁵

(e) *The euro*. The introduction of the euro in 1999 provides another example of policy lock-in.⁶ Adoption of the euro changed the structure of member countries' economies. Countries gave up their monetary sovereignty by giving up their separate currencies, exchange rates, and power to issue money. That power was surrendered to the European Central bank (ECB). Analytically, this surrender of monetary sovereignty reduced the

⁵ The destruction of government capacity has some similarities with the effects of increased government debt. A high debt-to-GDP ratio reduces fiscal space and opportunities for public investment. Austerity is an ineffective way of reducing the debt-to-GDP ratio and, historically, growth has been the only successful remedy. However, if growth is not forthcoming, a country can find itself trapped without fiscal space owing to large past budget deficits that increased the debt-to-GDP ratio. In this fashion, large debt-financed budget deficits can be used as a pre-commitment mechanism to pre-empt the policy space of future governments.

⁶ Another classic example of lock-in was Argentina's currency board which was eventually abandoned in 2002 under extreme economic and political duress.

financial status of countries to that of provinces since, like provinces, countries no longer have a central bank to back their debt or finance their budget deficits.

At the individual country level, the euro has parallels with the gold standard, with the euro serving the role of analog gold (Palley, 2010). The big difference from the classical gold standard is that the ECB has the power to issue euros and relax the analog gold constraint, but the ECB is significantly constrained in the way it does so and cannot do so on a country-by-country basis.

The euro has created policy lock-in because countries that enter may find it impossible to exit owing to massive exit costs. Once a country enters, its liabilities, which were previously denominated in its own currency or the currency of other member countries, are converted into euros. This creates asymmetric lock-in. Economically weak countries (e.g. Greece) cannot exit because they are saddled with euro denominated debt. If they create a new currency and exit, they will immediately confront an exchange rate collapse that increases the burden of their euro debts, creating a debt crisis. In contrast, strong economies (e.g. Germany) that create a new currency and exit will find their new exchange rate appreciates, diminishing the burden of any euro denominated debts. Consequently, they can exit.⁷

The adoption of the euro has therefore created asymmetric lock-in, with weak countries locked-in to the system. Moreover, it has created expansionary fiscal policy lock-out for weak countries as they can no longer finance budgets by printing money, and

⁷ There would be costs to a German exit of the euro (e.g. creating a new money), but these costs are orders of magnitude smaller than a Greek exit. Not only would Greece have to create a new money, it would also have to bear the costs of debt-deflation. The exit of creditor and debtor countries is fundamentally asymmetric.

nor can they use bond financed budget deficits if they are frozen out of the bond market.⁸

(f) Deindustrialization and unions. Another example of policy induced lock-in stems from international economic policies like exchange rate over-valuation and trade policy. Not only do these policies impact the level of aggregate demand and economic activity, they also change the economy's structure by causing deindustrialization which, in turn, causes de-unionization as unions have been concentrated in manufacturing for historical reasons.

Hysteresis arises for two reasons. First, manufacturing may not come back if the policies are reversed. That is because companies may undertake fixed cost investment in foreign countries during the period of over-valuation. When the undervaluation reverses, they are unwilling to close those investments and repatriate production. The threshold for moving production (switch-on) is different from the threshold for repatriating production (switch-off). The logic of this threshold asymmetry is similar to that identified by Dixit (1989) in connection with the dynamics of import penetration.

Second, unions may not come back even if manufacturing comes back. That is because unions are organizations that were formed in a different social and political time (the Great Depression) when worker social solidarity and political and economic consciousness was different. Having destroyed union institutional organization (switch-on), current socio-political conditions do not support its reconstitution even if deindustrialization is reversed (switch-off). This is an example of Humpty-Dumpty

⁸ The justification for the euro was provided by new classical macroeconomics (NCM) which was the dominant macroeconomic theory in the 1980s and early 1990s. NCM views money as neutral and saw the euro's analog gold standard as unproblematic. There was no need to consider the monetary – fiscal connection, and severing that connection was beneficial as it imposed monetary (central bank) dominance. The only problem concerned the surrender of individual exchange rates. NCM's justification for the euro's architecture illustrates how ideas matter for policy, as shown in Figure 2.

hysteresis.

The destruction of unions also has other effects via the upper branch of the feedback loop in Figure 2. First, it changes income distribution in favor of capital. Second, unions are important political actors who influence the policy process, and diminished union size means diminished union political influence. These two changes – increased capital income share and reduced union size – may then feedback to impact the policy equilibrium via reduced union input (increased business input) in the policy process, and via diminished union impact on the ideas shaping policy thinking. These constitute “indirect” hysteresis effects stemming from the “direct” hysteresis effect on economic structure initially caused by policy. These indirect slower developing effects can have permanent historical impacts by changing society’s economic trajectory.

(g) Globalization. Lastly, globalization can also be looked at through the lens of policy lock-in (Palley, 2007b). This lock-in is accomplished via a combination of network effects, exit costs, and permanently changed political equilibrium.

Trade agreements create new rules, which foster new patterns of global production that set the basis for negotiation of future trade and investment agreements. This process of expanding globalization resembles the building of a network. For instance, NAFTA established the template for the WTO. Exiting the network is costly for individual countries as they face loss of market access and punitive retaliatory measures. Additionally, country go-it-alone reversal of globalization is discouraged by other exit costs associated with reorganizing production and supply chains along more national lines.

Lastly, policy lock-in results from permanent changes in the political equilibrium.

Businesses that have made sunk investment costs in globalization will lobby to retain the system. That includes multinational corporations which have invested offshore, and domestic businesses which rely on imports and have invested in global supply chains. Furthermore, domestic manufacturers have shut down and their organization capital has been destroyed, while unions which were concentrated in domestic manufacturing have been decimated. Consequently, globalization contains a lock-in dynamic that operates by strengthening the political forces favoring it and weakening the forces against it.

The consequences of globalization lock-in are enormous. That is because globalization constrains the policies that countries can pursue. Trade and investment agreements place specific constraints on policies countries can pursue. Additionally, countries may feel constrained from pursuing policies they are allowed to pursue for fear of becoming internationally uncompetitive. Thus, by pressuring countries to be maximally competitive internationally, globalization *de facto* diminishes the policy choice set. In this fashion, globalization reduces national policy space directly and indirectly.

That poses considerable political problems because the current globalization was largely stitched together in the last quarter of the 20th century, a period of labor political weakness and *laissez-faire* revival. Consequently, arrangements were forged without attention to adverse labor, social, and environmental consequences. Now, there are political demands at the national level to remedy those consequences, but the system has locked-out the policies for doing so.

Figure 3 provides a graphical formalization of the relationship between globalization and policy space. It illustrates how globalization diminishes policy space. A

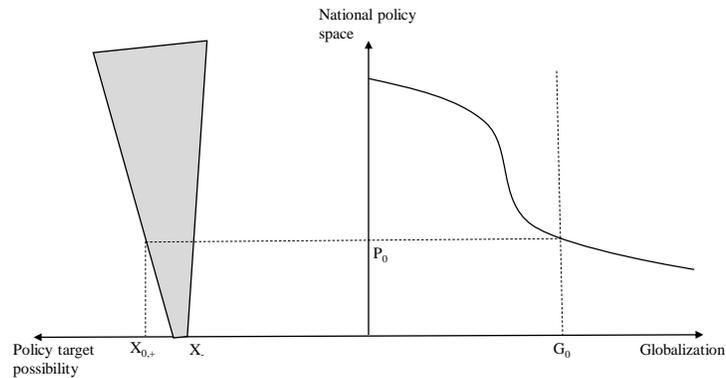
country's policy space is described by a policy index (P) which determines the amount of policy space it has. Higher values of P confer greater policy space, which yields a wider feasible range for the policy target (X). As globalization (G) increases, the policy index declines which reduces the feasible range for the policy target variable. In Figure 3 there is a single policy target (which enables two dimensional graphical representation). In reality, there is a vector of policy targets, and globalization can be viewed as reducing the feasible target space for the vector of targets.

The right-hand panel shows that policy space decreases as the globalization increases. The relationship is represented as non-linear. Initially, globalization may produce only small losses of policy space: then the losses may steepen; and once the system is highly globalized, the policy space losses from further marginal increases in globalization may slow again. The current level of globalization is G_0 , and lock-in means that policymakers can further deepen the level of globalization (i.e. increase G) but not reverse it (i.e. decrease G).

The left-hand panel shows the range of the policy target variable (e.g. income equality) that national policymakers can achieve. As globalization increases and national policy space declines, the achievable range shrinks. For a given level of globalization, G_0 , the achievable range of the policy variable (X) that the policymaker can hit is $[X_{0,+}, X_-]$. The upper limit is $X_{0,+}$ and the lower limit is X_- . In Figure 3, the range shrinks as globalization deepens owing to a decline in the upper limit (i.e. the best outcome) that the policymaker can achieve.

7. 7

Figure 3. Globalization and the lock-in of reduced national policy space.



7. Lock-in and the theory of economic and political crisis

The theory of policy lock-in can also contribute to economic and political crisis theory. Lock-in explains why polities may remain attached to dysfunctional political and economic policy regimes. In the presence of lock-in, breaking with the current regime only happens when costs of failing to address existing problems have become significant and exceed the costs of exiting the system.

That simple observation explains why economic policy regime breaks tend to be big, costly, and discrete. When the burdens of the policy regime system are small, it is not worth paying the large costs of exit. Those exit costs are only worth paying when the burdens have become large. At that stage, the regime may collapse abruptly, imposing large costs in the process. However, the large costs can be worth it as they may be less than the cumulative smaller on-going costs of staying with the regime.

The metaphor of a volcanic eruption is appropriate. The costs of exit are

represented by the volcanic eruption. The costs of regime dysfunction are represented by the accumulating pressure prior to the eruption, which may even be relatively invisible. This type of dynamic appears to characterize recent “populist” political developments which challenge the neoliberal policy paradigm and globalization. Another example is the on-going euro zone crisis. As of now, no member country has chosen to exit the euro because the exit costs are still judged to exceed the costs of remaining in the system.

8. Conclusions: rethinking economists’ approach to policy and political economy.

This paper has proposed a theory of economic policy lock-in and lock-out via hysteresis. Hysteresis is a concept that has been applied to describe path dependence in the real economy, especially as regards unemployment (Blanchard and Summers, 1987; Cross, 1993, 1995). It turns out hysteresis has significant relevance for understanding the impact of economic policy.

A policy lock-in perspective connects with and extends the political equilibrium approach to policy described by Acemoglu and Robinson (2013). Economic policy changes the economic structure, thereby generating new economic outcomes. Those new outcomes change endowments (e.g. the distribution of wealth, income, and power) which can then change the political equilibrium, giving rise to further economic outcome changes. Policy lock-in adds hysteresis into the mix so that policy change can be difficult to reverse.

The lock-in approach to policy also has implications for optimal policy design. Conventional macroeconomic stabilization theory seeks to establish rules for dialing policy stimulus up or down, depending on the state of the economy. In the conventional view, the challenge is to get the timing right, and often that may be done best via some

form of automaticity (i.e. automatic stabilizers). A policy lock-in perspective supplements that by adding design considerations that make policies difficult to reverse in the event of future unfavorable political change.

The proposed lock-in approach to policy may have further applications in development economics and be fruitful for understanding countries' development paths. Finally, policy lock-in also has important applications for political economy. For instance, neoliberalism is usually assessed in terms of its impact on inequality and growth (Palley, 2012). A policy lock-in perspective suggests it should also be interpreted as a system of domestic and international policy lock-in that changes future possibilities and limits possibilities for reversing its effects. At the domestic level this is accomplished via such measures as privatization, deregulation, the destruction of government policy capacity, taxation, and deindustrialization and de-unionization. At the international level this is accomplished via global trade and governance agreements, abolition of financial capital controls, international financial integration, and currency unions.

For those opposed to neoliberalism there is a double challenge. First, how does one go about escaping the policy lock-in created by neoliberalism. Second, how does one design competing social democratic policies that deliver similar lock-in effects, thereby nailing down the future political economy trajectory. A clear counter-example to neoliberalism is President Franklin Roosevelt's New Deal. The New Deal can be understood as instance of successful social democratic lock-in, and its success is evident in its persistent durability despite decades of political challenge and technological innovation. Neoliberalism can be viewed as intentionally aiming to undermine the New Deal and lock-in an antithetical policy regime.

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