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## A theory of economic policy lock-in and lock-out via hysteresis: Rethinking economists' approach to economic policy

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

*Thomas Palley*

**Abstract**

This paper explores lock-in and lock-out via economic policy. It argues policy decisions may near-irrevocably change the economy's structure, thereby changing its performance. That causes changed economic outcomes concerning distribution of wealth, income and power, which in turn induces locked-in changes in political outcomes. That is a different way of thinking about policy compared to conventional macroeconomic stabilization theory. The latter treats policy as a dial which is dialed up or down, depending on the economy's state. Lock-in policy is illustrated by the euro, globalization, and the neoliberal policy experiment.

**JEL** D7 E6 F5 H3 L5

**Keywords** Economic policy; lock-in; hysteresis; globalization; euro; neoliberalism

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## **1. Introduction**

This paper explores the notion of lock-in and lock-out via economic policy. The paper 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 economic outcome changes in turn induce changes in political outcomes. The latter effect has been emphasized by Palley (2013, Chap. 12) and Acemoglu and Robinson (2013), both of whose analysis is highly complementary to the proposed framework of policy lock-in.

Furthermore, the paper argues that policy decisions can also irrevocably or near-irrevocably change the policy possibility set. Such changes constitute economic policy lock-in. Just as important, lock-in also tacitly implies lock-out, since policies that were part of the possibility set can become excluded. 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 applied to explain employment and unemployment patterns in labor markets (Blanchard and Summers, 1987; Cross, 1993, 1995), and it has also been applied to explain why aggregate demand shocks can persist

and generate stagnation (Bassi and Lang, 2015).<sup>1</sup> 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 full impacts of policy change.

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 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

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<sup>1</sup> 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.

a switch-on threshold.

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

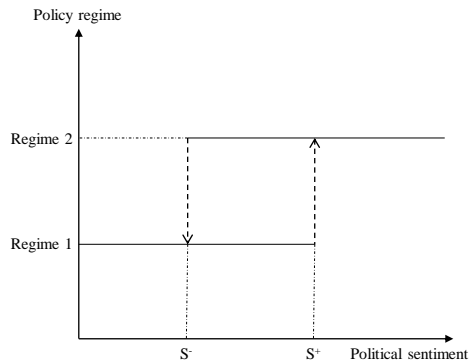


Figure 1.a. Standard hysteresis.

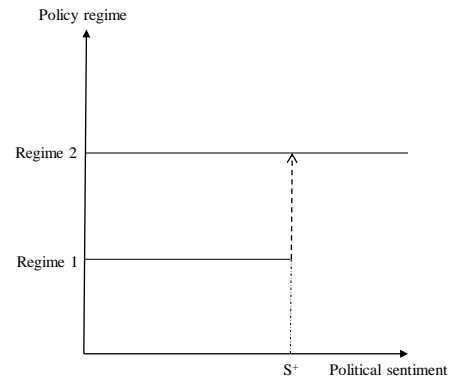


Figure 1.b. Permanent lock-in hysteresis.

Though highly stylized, the policy lock-in by hysteresis model raises important issues that are not present in the treatment of policy within conventional economic models. Those models 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.

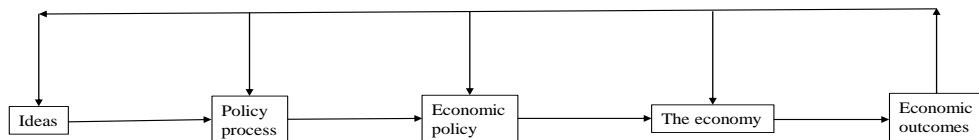
The benefit of the lock-in by hysteresis policy model is it brings these three

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 new political concerns.

### 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. The linkage from policy to the economy is particularly important since policy can change the structure of the

economy, and once the structure is changed it may be very difficult to reverse the new policy. This type of 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 feedback loop from economic outcomes can be explained as follows. Economic outcomes feedback and impact the structure of the economy. The major conventional feedback is via flow – stock relations. 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.

The link between the economic policy, the economy, and economic outcomes is a critical locus that may be characterized by hysteresis. This has been the traditional focus of hysteresis analysis in economics, with exogenous changes causing changes in economic structure and behavior that are hard to reverse (Cross, 1993, 1995; Bassi and Lang 2015).

The upper loop in Figure 2 shows that economic outcomes also feedback and impact economic policy via multiple channels. One standard feedback is via automatic stabilizer arrangements, whereby policy settings respond automatically to economic outcomes. A second standard feedback is via discretionary policy adjustments.

Economic outcomes may also feedback to affect the policy process. Here, one enters the realm of political process. For instance, wealth (money) and power matter in politics, giving 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. They are implicitly talking about a feedback loop such as is described in Figure 2. Economic policy affects outcomes that in turn change the political equilibrium – which I prefer to call “policy 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. According to economists, remedying those market failures is good economic policy. However, 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).

The launch point for the current analysis is lock-in. First, policy change causes changes in the economy’s structure, which may be one source of lock-in. Second, changes in the economy’s structure cause changed economic outcomes that may generate secondary (indirect) sources of lock-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 and changed policy equilibrium.

Lastly, as shown in Figure 2, economic outcomes may influence economic ideas and beliefs, which are part of the raw input into the policy process and policy design. The standard 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 he explicitly parallels policy innovation with innovative activity in technology. Thus, ideas (i.e. policy innovations) are either a way of shifting the production possibility frontier (PPF), or they can provide a new mutually beneficial resolution to political conflict so as to move the policy equilibrium closer to society's PPF. That construction is a "better mousetrap" approach to ideas.

Rodrik's (2014) framing of ideas is technological and benevolent, and it contrasts with current framing 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. Big theory (e.g. Keynesian versus new classical macroeconomics) shapes specific policy ideas and influences whether specific policy ideas can get a political hearing.<sup>2</sup> 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

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<sup>2</sup> 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.

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

In sum, there are two critical features of the policy process loop described in Figure 2. First, it is very different from the standard representation in which policy is a dial that is simply dialed up or down in response to economic conditions, with no permanent impact on either the economy, the political system, or the policy possibility set. In contrast, the representation of policy in Figure 2 shows it to be a multiple stage feedback loop in which policy is not exogenous with respect to the economy. Instead, policy should be viewed as an embedded part of the economy, and understanding the economy requires understanding the way in which the policy process is embedded. Second, multiple elements of the policy loop are subject to hysteresis which produces policy lock-in and lock-out. In terms of the policy dial metaphor, once policy is “dialed up”, it may not be possible to dial it back down. Identifying how policy lock-in and lock-

out works requires a complete representation of the policy process since lock-in and lock-out can take place in different stages of the process.

#### **4. Examples of policy lock-in and lock-out**

*(a) The euro.* The introduction of the euro in 1999 represents a classic example of policy lock-in.<sup>3</sup> 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 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 it 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. 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

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<sup>3</sup> Another classic example of lock-in was Argentina's currency board which was eventually abandoned in 2002 under extreme economic and political duress.

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.

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 nor can they use bond financed budget deficits if they are frozen out of the bond market.<sup>4</sup>

*(b) 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, 1992) in connection with the dynamics of import penetration.

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<sup>4</sup> 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.

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 hysteresis via history.

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.

**(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. Once in place, concentration tends to stay in place.

Increased financial concentration may have increased the financial sector's share of income. More importantly, it has increased the financial sector's influence over the policy process and the generation of ideas shaping understandings of the economy. These latter influences are core elements of the phenomenon of financialization (Palley, 2007a, 2013), which should be understood as a hysteretic process that locks-in transformational change.

**(d) Tax policy.** Taxation is another 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, taxation affects the distribution of income and wealth, which can permanently affect political influence and the policy equilibrium. In terms of a sequential period model, wealth and income distribution constitute initial conditions. By changing wealth and income distribution, current tax policy impacts future initial conditions, which permanently changes the future policy equilibrium.

Tax rates are also subject to political "ratchet" effects. Tax cuts are politically popular, while tax increases are politically unpopular. That asymmetry means it is easy to put tax cuts in place (switch-on), but much harder to reverse them (switch-off). Consequently, tax policy is subject to hysteresis that affects economic outcomes (income and wealth distribution), which in turn have additional permanent impacts on the policy equilibrium.

**(e) 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).

The dynamics of policy capacity destruction are similar to those of deindustrialization and import penetration hysteresis (Dixit, 1989, 1992). 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 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.<sup>5</sup>

**(f) Globalization.** Globalization is another important source of policy lock-in (Palley, 2007b). Globalization creates new institutions and new patterns of economic activity.

Trade agreements create new rules, which foster new patterns of global production that

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<sup>5</sup> 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.



set the basis for negotiation of future trade and investment agreements. For instance, NAFTA established the template for the WTO. The lock-in aspect comes from the facts that trade agreements and treaties cannot easily be reversed because of both political and economic costs. Country go-it-alone reversal is difficult, and there are massive costs associated with global reorganization of production that discourage reversal. Trade agreements, both bilateral and multilateral, also constrain the policies that countries can pursue. That reduces national policy space.

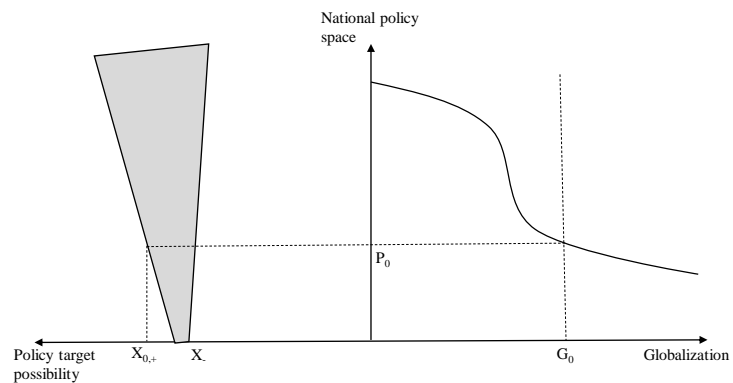
Politically, the problem is that today's globalization was designed with little attention to labor and social issues. That is because the system was largely stitched together in the last quarter of the 20<sup>th</sup> century, a period of labor political weakness and laissez-faire revival. Consequently, arrangements were forged without attention to labor, social or environmental concerns. Despite these failings, like a narrow gauge railway system, the system keeps getting extended out, driven by the combination of corporate interests and the costs of shifting to an alternative globalization.

This configuration is illustrated in Figure 3. 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.

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



## 5. Globalization: trilemma or dilemma?

Rodrik (2011) has argued that globalization poses a trilemma between globalization, national sovereignty, and democratic politics. He argues that you can have any two, but not all three. The framework in Figure 3 qualifies that interpretation. From the perspective of the nation state there is no trilemma, only a dilemma.

National sovereignty can be identified with national policy space. Globalization creates a trade-off between national policy space and the degree of globalization, with

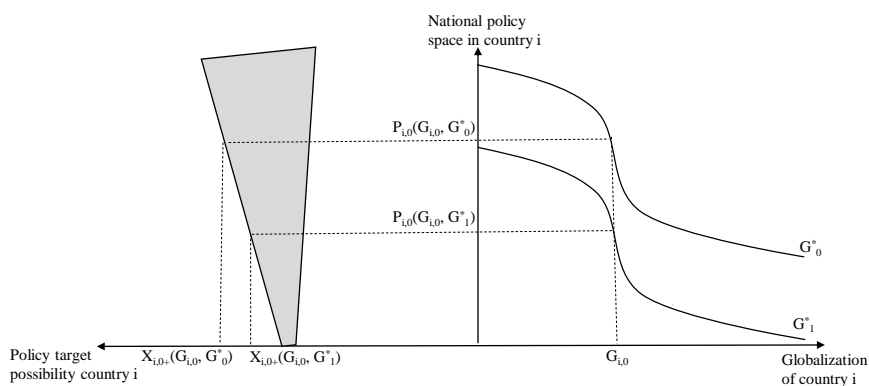
national policy space declining as globalization deepens. Democracy is not at issue. Countries can be outside of globalization and democratic, or they can be engaged in globalization and democratic. Democratic politics is always viable. The problem is globalization diminishes the “content” of democratic politics, as measured by the achievable range of the policy target.

It is these type of concerns that motivate criticism of trade agreements like the Trans-Pacific Partnership. Whereas trade agreements fifty years ago were about reducing tariffs and quotas, today they are “global governance agreements (Palley, 2016)” that are writing the rules of a new world order. These global governance agreements fundamentally impact national policy space. A clear example of this is the new system governing disputes between governments and foreign-based corporate investors, which involves an extra-legal investor – state dispute settlement (ISDS) process that is outside of nations’ own legal systems. As Renato Ruggerio (1996), the first General Secretary of the World Trade Organization observed at its onset: “We are no longer writing the rules of interaction among separate national economies. We are writing the constitution of a single global economy.”

In fact, the problem is likely more complex than illustrated in Figure 3 because a country that seeks to avoid globalization may still find its policy space impacted by globalization. This is illustrated in Figure 4. As globalization increases in the rest of the world ( $G^*_0 < G^*_1$ ), policy space decreases in country  $i$  despite unchanged local engagement with globalization ( $P_{i,0}(G_{i,0}, G^*_0) > P_{i,0}(G_{i,0}, G^*_1)$ ), which reduces the achievable range of the policy target ( $X_{i,0+}(G_{i,0}, G^*_0) > X_{i,0+}(G_{i,0}, G^*_1)$ ). That is because globalization is relational. When other countries deepen their globalization, that imposes

additional constraints on countries that do not follow suit because it negatively impacts the latter's network of relations. The exact nature of this shift will depend on the type of globalization adopted by the rest of the world.

Figure 4. The effect of increased globalization in the rest of the world ( $G_0^* < G_1^*$ ) on national policy space in country i.



## 6. 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 occasionally 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 general and frequent relevance to understanding the impact of economic policy which locks-in features within the economy and also locks-out other possibilities.

Viewing economic policy through the lens of lock-in also connects with the political equilibrium approach to policy described by Acemoglu and Robinson (2013), and that approach can be interpreted as a form of lock-in analysis. Economic policy

changes the structure, which in turn generates new economic outcomes. Those outcomes change endowments (e.g. the distribution of wealth, income, and power), which can then permanently change the political/policy equilibrium.

That frame is dramatically different from the policy “dial” approach of textbooks which identify neither lock-in effects nor feedback effects on the policy equilibrium. The existing textbook approach treats policy as if it were exogenous to the economy. A lock-in policy equilibrium approach seeks to make policy an integral part of the economy, a segment to be understood and modelled just as the goods market, labor market, and financial sector are. Economic outcomes are then the product of the joint interaction of all four sectors – the political sector, the goods market, the labor market, and the financial sector.

The proposed lock-in approach to policy may have further applications in development economics and be fruitful for understanding countries’ development paths. It also has important applications for political economy. For instance, neoliberalism is usually assessed in terms of its impact on inequality and growth (Palley, 2012). This paper suggests it should also be interpreted as a system of domestic and international policy lock-in. 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.

The lock-in approach to policy is a different way of thinking about policy design compared to the conventional Keynesian approach based on macroeconomic stabilization theory. The latter seeks to dial 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 stabilizer). A policy lock-in perspective adds thinking about designing policies that are difficult to reverse in the event of future unfavorable political change.

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