Methods for the analysis of policy interdependence[*]

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1 Introduction

Policy making takes place in a context of interdependence. This statement is uncontroversial and there are many examples of cases in which decision makers in one country (or state, city, etc.) are somehow influenced by the choices made in other countries (or states, cities, etc.). For instance, consider the following exchange on "Big Society," a project by David Cameron, the British Prime Minister, aiming to reinvigorate civil society in the context of drastic cuts in public spending:[1]

> Francis Maude [the Minister for the Cabinet Office] was unconcerned about the unevenness of services that the Big Society is likely to entail. In his view, one of the program's key virtues is its potential for heterogeneity. "People will associate to form a bigger, stronger society in many ways which will be random," he said. "It'll be fantastically different in different places." "What if it's fantastically better in some places?" I asked. "The advantage of where we are with technology is that it becomes much easier for the ones where it isn't fantastic to look a what's going on where it's fantastic and draw from it," he replied.

This argument is remindful of that famously made by U.S. Supreme Court Justice Louis Brandeis in 1932 in defense of the view that decentralization enables policy innovation and the

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[1]Lauren Collins, "All Together Now! What's David Cameron's Big Society about?" *The New Yorker*, October 25, 2010.

spread of best practices: "It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country."[2]

Many cases of policy interdependence have received considerable academic attention, and some have even generated their own literatures. For instance, the idea of tax competition is premised upon the fact that the tax rates set in one jurisdiction are shaped by those of other jurisdictions (Genschel and Schwarz, 2011). Second, following Vogel's (1995) influential work, "California effect" has come to denote configurations in which stricter regulations set by important markets (in Vogel's original work, the automobile emission standards set by California) influence the behavior of private actors in exporting countries, and possibly even the policies of the latter. Finally, it is well known that smoking bans have spread first within the U.S. (Shipan and Volden, 2006) and then within and across European countries, and beyond.

Thus, policy interdependence is ubiquitous. At the same time, the methodological consequences of interdependence are seldom taken into account systematically, despite the fact that the they correspond to the famous "Galton's problem" (Ross and Homer, 1976), which is known to affect virtually any comparative analysis. The name derives from a point raised by Francis Galton as a response to a presentation at an anthropology conference in 1889. Galton argued that the customs of different societies could originate from a single model, in which case the number of independent observations that can be leveraged in a comparison is, in fact, just one (Tylor, 1889). Of course, the problem affects most comparison in public policy. For instance, if we analyze the determinants of the adoption of smoking bans in Europe, we need to take into account the fact that European countries were influenced by the American example. In social policy, the fact that researchers categorize welfare states as "Beveridgean" or "Bismarckian" is an explicit reminder that many countries constructed their social security systems based on the same model.

In most texts on the comparative method, the fact that units of analysis are not independent from one another is usually mentioned briefly as an unavoidable complication, but it is seldom treated in depth. Moreover, interdependence is more than a nuisance. It is a phenomenon that is interesting in itself, with significant implications for policy making, such as the appropriate degree of centralization or harmonization in federal systems, in the European Union, or at the

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[2] "New State Ice Co. v. Liebmann" (`http://goo.gl/CZPmi`).

international level. Given this importance, it is not surprising that policy interdependence has been studied from a variety of theoretical perspectives. However, the methodological implications and options for comparative policy analysts are usually not discussed explicitly. By contrast, the goal of this chapter is precisely to show how interdependence can be taken into account systematically.

The chapter is structured as follows. Section 2 unpacks interdependence by distinguishing three related concepts, namely policy diffusion, policy transfer, and policy convergence. Both diffusion and transfer emphasize interdependence explicitly. They share the basic idea that policy choices in one unit are shaped by policy choices in other units, although they put emphasis on different aspects of this idea. By contrast, policy convergence, that is, the increased similarity of policies over time, can but need not be related to interdependence. However, convergence is often discussed in this context. Section 3 discusses the quantitative tools that comparative scholars can employ to analyze policy interdependence in its various manifestations, while Section 4 presents qualitative strategies. On the quantitative side, the main methods are spatial regression and dyadic analysis. In the former, interdependence is measured through "spatial lags," that is, weighted averages of the dependent variable in other units, where weights reflect meaningful forms of interdependence. In the latter, units of analysis are pairs of countries (or states, cities, etc.), which makes it possible to integrate directly relational information, such as whether two countries are neighbors or share the same language. On the qualitative side, case selection and, especially, within-case analysis and process tracing allow researchers to uncover detailed evidence on the mechanisms driving diffusion, which is harder to do with quantitative methods. The conclusion of the chapter considers how quantitative and qualitative methods can be combined in the study of policy interdependence.

2 Conceptual issues

Policy interdependence has been studied from three perspectives relying on different concepts, namely transfer, diffusion, and convergence. The following definitions are commonly accepted. They are very general; regardless of the specific formulation, they apply to any type of policy-making authority.

Policy transfer is "the process by which knowledge about policies, administrative arrangements,

institutions and ideas in one political system (past or present) is used in the development of policies, administrative arrangements, institutions and ideas in another political system" (Dolowitz and Marsh, 2000, 5). For instance, Jacobs and Barnett (2000) analyzed the role of a particular taskforce in importing and adapting health policy proposals from the U.S. and the U.K. in New Zealand.

Policy diffusion occurs "when government policy decisions in a given country are systematically conditioned by prior policy choices made in other countries" (Simmons, Dobbin and Garrett, 2006, 787). For instance, Gilardi, Füglister and Luyet (2009) found that countries were more likely to adopt hospital financing reforms if other countries seemed to benefit from them.

Policy convergence means that policies become increasingly similar over time (Bennett, 1991). For example, based on expenditures data, Starke, Obinger and Castles (2008) concluded that OECD welfare states have actually not become significantly more similar since the 1980s and, therefore, there has been only limited convergence.

Transfer and diffusion are clearly very close. Some authors have highlighted their differences (Marsh and Sharman, 2009), but the two concepts refer essentially to the same phenomenon, despite the fact that the literatures remain distinct, especially with respect to the methodological approaches that are used (transfer analyses tend to be qualitative, while diffusion analysis are mostly quantitative). By contrast, convergence should not be confused with either transfer or diffusion. While the latter are concerned with how interdependence shapes the policy making process, convergence refers to its outcome. Importantly, the increase similarity of policies can, but needs not, be a consequence of interdependence. While it can be that policy makers adopt similar policies because they influence one another, it is entirely possible that convergence is the result of common pressures, either in the form of similar problems calling for similar solutions or because many units are exposed to the influence of powerful organizations or countries. Relationship between the European Union and member states, or between a federal state and subnational units, or the World Bank or the IMF and countries in need of financial support, are all cases in point. Although, strictly speaking, these forms of vertical influence are not part of a strict definition of policy interdependence, we include them in the discussion because many studies consider them an integral part of transfer, diffusion, and/or convergence.

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	Convergence	Transfer	Diffusion
Focus	Outcome	Process	Policy change
Dependent var.	Change in similarity	Adoption/process	Adoption
Method	Quantitative	Qualitative	Quantitative

Table 1: *Policy convergence, transfer, and diffusion (adapted from Holzinger, Jörgens and Knill, 2007).*

Table 1 compares the three concepts with respect to their focus, dependent variable, and methodology. Convergence is focused on the outcomes of interdependence, it takes changes in policy similarity as the dependent variable, and it is usually studied quantitatively. Transfer is focused on process of change and can take both the adoption of the policy and the process of change itself as dependent variable. The analysis is usually qualitative. Finally, diffusion is focused on policy change, the dependent variable is the adoption of the policy, and the methodology is mostly quantitative.

A common theme in all three literatures is the quest for mechanisms. That is, scholars do not simply ask whether policy interdependence can be observed empirically. They are usually concerned with the factors that make policies transfer, diffuse, or converge. The terminology varies, but the common idea is that interdependence has different shapes and, therefore, the transfer, diffusion, and convergence of policies are influenced by different factors. For instance, working within the policy transfer tradition, Bennett (1997) found that different logics account for the spread of different innovations in bureaucratic accountability. The institution of the ombudsman spread through lesson-drawing, freedom of information legislation as a legitimation instrument for policy makers, and data-protection laws as a consequence of harmonization within international organization. Similarly, Shipan and Volden (2008) analyzed the diffusion of antismoking policies among U.S. cities and concluded that it was driven by four mechanisms, namely learning from early adopters, competition among cities in the same region, imitation of larger cities, and coercion by state governments. Finally, in their study of the convergence of environmental policies among 24 OECD countries, Holzinger, Knill and Sommerer (2008) found evidence that these policies became significantly more similar especially as a result of international harmonization and transnational communication, but not because of regulatory competition.

Even this brief overview makes it clear that, while these literatures are all concerned with mechanisms, they do not employ a consistent terminology. However, most mechanisms can be usefully grouped under four broad headings (Gilardi, 2012):

Learning, namely, the process whereby the experience of other units influences policy making because it can be used to estimate the likely consequences of policies. For instance, policy makers may become more willing to adopt a policy if they see that it enjoyed high popular support in other countries, or if it has proven effective in addressing a given problem.

Competition, namely, the fact that policy makers anticipate or react to the policies of other units in order to attract or retain resources such as investment. Tax competition is the prototypical example here.

Emulation, which emphasizes the socially constructed properties of policies such as norms of appropriateness emerging from social interactions. In the long run, some policies may become accepted as the normal response to a given issues. For instance, same-sex marriage has become much more accepted in recent years.

Coercion, which underlines the influence of powerful countries, international organizations, and other actors. IMF or EU conditionality are cases in point.

Thus, the conclusion of these literatures is that interdependence matters, but it takes different forms. That is, policies spread in an interdependent process that can be driven by different mechanisms. But the question is, how do we know? How can we use empirical information to establish whether interdependence matters, and if it does, why? The next section considers quantitative options, and that following it qualitative strategies.

3 Quantitative approaches

Section 2 has shown that interdependence is not just a nuisance or complication that needs to be fixed. It is an interesting phenomenon in its own sake. However, interdependence is also a methodological issue that, if it is not taken into account, can lead to biased results. Many statistical techniques such as regression assume the independence of observations. If this is not the case and interdependence is not modeled appropriately, then analyses will produce

unreliable results (Beck, Gleditsch and Beardsley, 2006; Franzese and Hays, 2007). There are two main options to model interdependence. The first relies on spatial lags, namely, weighted averages of the dependent variable, which are included in the analysis as an additional variable, while the second reshapes dataset so that units of analysis are pairs of countries (or states, cities, etc.) and relational variables can be included directly. The analysis of convergence does not focus on interdependence itself but, rather, on changing degrees of similarity between units. This can be measured in two ways. First, we can look at how the variation of policies changes over time (σ-convergence). Second, we can examine the relationship between policy levels at the beginning of the observation period and policy change during this same period (β-convergence).

3.1 Interdependence

A first set of methods can be employed to measure the existence and nature of interdependence. In principle, these methods are relevant for both the transfer and diffusion literatures, but, because the former is to a large extent qualitative, they are found especially in the latter.

The first method is spatial regression (Beck, Gleditsch and Beardsley, 2006; Franzese and Hays, 2007; Ward and Gleditsch, 2008). These models capture interdependence trhough the so-called spatial lag, which is added to the regression as an additional variable. As mentioned earlier, a spatial lag is simply a weighted average of the dependent variable in other units. If the dependent variable is a policy, as is usually the case, then the spatial lag measures the average policy in other units. The idea is quite simple and, in fact, is often used informally by researchers. To illustrate, suppose that we are interested in the unemployment replacement rates of OECD countries (Allan and Scruggs, 2004). Our model will typically include a series of political, institutional, and economic variables, such as the partisan composition of governments, the number of veto players, and economic openness. In this case, the spatial lag would measure, for each country, the average value of unemployment replacement rate in other countries, weighted following a theoretical criterion.

Figure 1 shows a simplified example. The top panel shows the so-called connectivity matrix for five countries, which includes information on their linkages. In this simple example, two countries are considered connected if they share a border, and not connected if they do not. The bottom panel shows how the spatial lag is constructed, namely, by multiplying the connectivity

Connectivity matrix

	DEN	FRA	GER	ITA	SWI
DEN	0	0	1	0	0
FRA	0	0	1	1	1
GER	1	1	0	0	1
ITA	0	1	0	0	1
SWI	0	1	1	1	0

$$
\begin{pmatrix}
0 & 0 & 1 & 0 & 0 \\
0 & 0 & 1/3 & 1/3 & 1/3 \\
1/3 & 1/3 & 0 & 0 & 1/3 \\
0 & 1/2 & 0 & 0 & 1/2 \\
0 & 1/3 & 1/3 & 1/3 & 0
\end{pmatrix}
\begin{pmatrix}
63.8 \\ 70.8 \\ 65.6 \\ 45.2 \\ 77.2
\end{pmatrix}
=
\begin{pmatrix}
65.6 \\ 62.7 \\ 70.6 \\ 74.0 \\ 60.5
\end{pmatrix}
$$

Row-standardized connectivity matrix · Dependent variable · Spatial lag

Figure 1: *Construction of a spatial lag. Unemployment replacement rates, 2000 (Allan and Scruggs, 2004).*

matrix (after it has been row-standardized) with the dependent variable. Taking the example of France, the procedure works as follows:

$$0 \times 63.8 + 0 \times 70.8 + 1/3 \times 65.6 + 1/3 \times 45.2 + 1/3 \times 77.2 = 62.7.$$

That is, the value of the spatial lag for France is equal to the average of replacement rates in its (in this simplified example) three neighbors, Germany, Italy, and Switzerland.

Row-standardization means that each cell is divided by the sum of the corresponding row, which makes it possible to interpret the spatial lag intuitively as a weighted average.[3] Thus, 65.6 is the unemployment replacement rate of Denmarks' only neighbor (Germany), 62.7 is the average replacement rate of France's three neighbors (Germany, Italy, Switzerland), and so on. The construction of the connectivity matrix is a crucial step of the analysis, in which theory plays an important role. The connections should be defined such that they can be linked with diffusion mechanisms as clearly as possible. Geography is a useful starting point, but it is usually an ambiguous indicator because it cannot be clearly linked to a specific mechanism. Moreover, geographic neighborhood may be misleading, as some units may be technically neighbors but, in reality, not strongly related with one another. Therefore, although the task is not easy,

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[3]On the pros and cons of row-standardization, see Plümper and Neumayer (2010).

researchers should try to come up with the best possible indicators for diffusion mechanisms. For instance, in their study of the adoption of the flat rate tax, Baturo and Gray (2009) measured learning by including in the connectivity matrix information on one relevant outcome of that policy, namely foreign direct investment. Another example is Gilardi and Wasserfallen (2011), which used data on commuter flows across jurisdictions to measure tax competition among Swiss cantons. Commuter flows are a good indicator because if many people work in, say, Zurich but live in Aargau (a neighboring canton), it means that many people could move from the former to the latter canton to benefit from lower taxes without disrupting their professional lives. Thus, Zurich is likely to be responsive to the tax policy of Aargau. In this example, the indicator overlaps with geography, but it is not always the case. For instance, Ticino and Valais are technically neighbors but, in fact, they are linked only by a mountain road that is closed for the better part of the year. Thus, it is unlikely that these two cantons can compete for taxpayers. However, this is the assumption if we operationalize competition with simple geographic proximity, as is often done.

As Beck, Gleditsch and Beardsley (2006) put it, "space is more than geography," and researchers should be creative and find measure that go beyond geographic distance and permit to measure interdependence in a more theoretically meaningful way.

An alternative method is the dyadic approach, in which units of analysis are pairs of countries (or states, cities, etc.). This approach is common in the international relations literature because many of the phenomena it studies are dyadic in nature. Conflict, trade, and treaties, for instance, all occur between countries and cannot be measured if one takes countries as observations. The dyadic approach was adapted to the study of policy interdependence by Volden (2006), who investigated the diffusion of policies within the Children's Health Insurance Program (CHIP) among U.S. states. The units of analysis in this study were all logical pairs of states (except same-state pairs), and the dependent variable was defined as taking the value of one if, in a given year, the first state of the dyad (the potential "receiver" of the policy) adopts a policy that was already in place in the second state of the dyad (the potential "sender"). The goal of the analysis, then, is to find out how the probability that this occurs varies as a function of characteristics of the first state, of the second state, and of their relationship.

The advantage of the dyadic approach is that it can easily incorporate many variables at

Unit$_i$	Unit$_j$	t	DV$_1$	DV$_2$	DV$_3$	DV$_4$	Policy$_{1,i}$	Policy$_{2,i}$	Policy$_{1,j}$	Policy$_{2,j}$
A	D	1			0.36		0.90	0.30	0.70	0.60
A	D	2	1	1	0.22	-0.14	0.60	0.40	0.70	0.60
B	D	1			0.45		0.30	0.40	0.70	0.60
B	D	2	1	0	0.41	-0.04	0.60	0.20	0.70	0.60
C	D	1			0.21		0.65	0.80	0.70	0.60
C	D	2	0	0	0.34	0.13	0.55	0.90	0.70	0.60

Table 2: *An artificial dyadic dataset.*

all three levels (sender, receiver, and the relationship between the two), which is much more complicated within a spatial regression framework. Moreover, in the dyadic approach we can take into account several dimensions of the dependent variable at the same time (for instance, tax rates for different income categories), which is much less straightforward with spatial regressions. Conversely, if the dependent variable has just one dimension, then some of the added value of the dyadic approach is lost.

Using this method, Volden (2006) found evidence of policy learning. States were more likely to adopt a policy that another state already had if the latter was successful, namely, if it could increase insurance rates among poor children, which is one of the main objectives of CHIP. Other examples of studies using the dyadic approach applied to policy diffusion are Gilardi (2010) and Füglister (2011), both of which, like Volden (2006), focus on learning.

There are many methodological issues that one needs to consider when using the dyadic approach (for an overview, see Gilardi and Füglister, 2008). An especially important point is the construction of the dependent variable. Table 2 shows a simplified example with four units (A, B, C, and D) and two periods. In this example, only D is shown as the potential sender, but in reality the dataset would comprise all logical combinations of units. The example assumes that the policy has two dimensions; indeed, the dyadic approach is most useful when policies consist of several dimensions because it can incorporate them more easily than spatial regression can. Handling multidimensional policies is one of the added values of the dyadic approach. Thus, the first line in the table refers to the dyad AD, where A is the potential receiver, and D the potential sender. t denotes the period, the next four columns (DV$_1$ – DV$_4$) four possible dependent variables, and the last four columns (Policy$_{1,i}$ – Policy$_{2,j}$) the values of two policy dimensions for A and D.

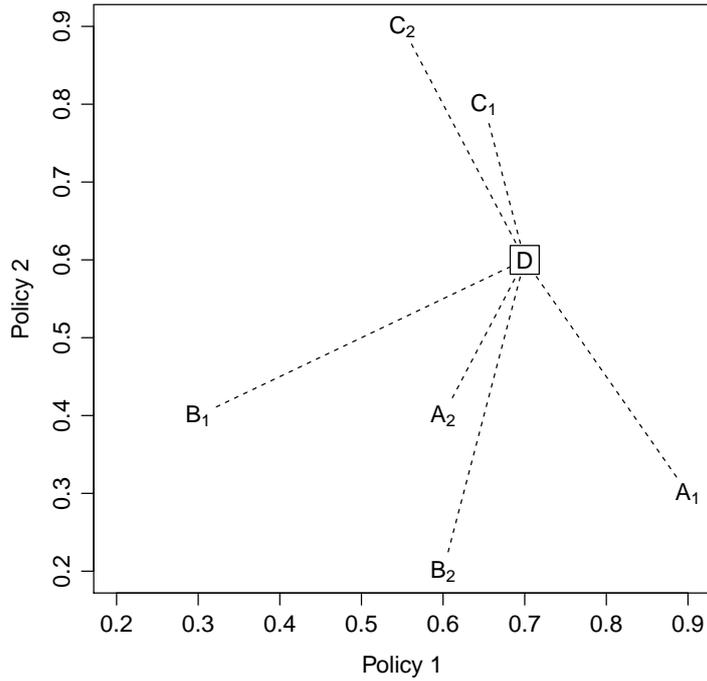Given this setup, there are several ways how the dependent variable can be constructed.

Figure 2: *Construction of the dependent variable in the dyadic approach.*

The first is to code it 1 if A moves closer to D on at least one policy dimension. Following this rule, DV_1 is coded 1 for the dyad AD because both $Policy_{1,A}$ and $Policy_{2,A}$ move closer to, respectively, $Policy_{1,B}$ and $Policy_{2,B}$. On the other hand, DV_1 is coded 0 for the dyad CD because C moves away from D on both dimensions. The dyad BD is more ambiguous. $Policy_{1,B}$ moves closer to $Policy_{1,D}$, but there is a movement in the opposite direction for $Policy_2$. Consistently with the rule, DV_1 is coded 1 in this case. However, another reasonable coding rule could be that the dependent variable is coded 1 if the two units become more similar on one dimensions without becoming more dissimilar on another. If we follow this criterion, DV_2 is again coded 1 for AD and 0 for CD, but now also BD must be coded 0. As the number of dimensions increases (for instance, there are six in Volden 2006 and four in Füglister 2011), coding the dependent variable dichotomously following these rules can quickly become impractical and decisions are based on ad hoc thresholds. As an alternative, we can compute the Euclidean distance between units in a multidimensional policy space, as shown in Figure 2. The x-axis represents the policy position on the first dimension and the y-axis that on the second. The Euclidean distance between units is represented by the dashed lines connecting units A, B, and C (both at time 1 and 2) with D, and it can be used to code a third dependent

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variable (DV_3). Hence, 0.36 is the distance between A and D at time 1. Finally, DV_4 can be coded as the difference between DV_3 at time 1 and at time 2. Interestingly, DV_2 was coded 0 for BD because of the inconsistent direction of change in the two policy dimensions, but D_4 shows that, on the whole, B has moved closer to D between time 1 and time 2. In sum, the construction of the dependent variable in a dyadic framework is a crucial analytical step for which there is no straightforward solution, but several plausible options.

In conclusion, spatial regression and the dyadic approach are two alternatives two study policy interdependence quantitatively. The former offers a well-understood way to model interdependence in the context of standard time-series-cross-section datasets, while the other gives more flexibility, especially when working with several policy dimensions, at the cost of additional methodological complications.

3.2 Convergence

There are two standard ways to measure convergence quantitatively, which rely on the concepts of σ- and β-convergence. The terms are technical, but the meaning is intuitive. σ-convergence means simply that we look at the variation of policies across units at different points in time. Convergence occurs if variation decreases over time. β-convergence means that units that are further away from the eventual convergence point have more catch up to do.

The concepts are illustrated in Figures 3 and 4 using unemployment replacement rates (Allan and Scruggs, 2004). Consistent with the idea that convergence means that policies become more similar over time, σ-convergence is based on a measure of variation such as the standard deviation. Figure 3 shows quite clearly that the unemployment replacement rates of OECD countries have become more similar between 1980 and 2000, and the standard deviations shown on the top of the graph clearly demonstrate it. For instance, the spread between the Netherlands and Italy is visibly smaller in 2000 than in 1980. At the same time, the average (shown by the horizontal lines) remained essentially unchanged, so that we have hear a good example of convergence to the mean.

β-convergence focuses on another aspect of the phenomenon, namely that, if units are to become more similar, those with more extreme values at the beginning of the observation period must undergo greater adjustment. Thus, we should observe a negative relationship between the
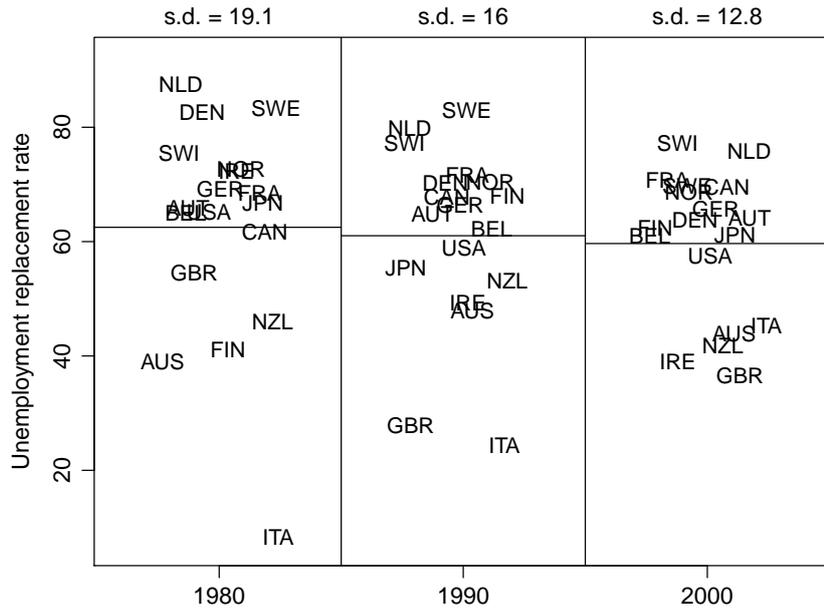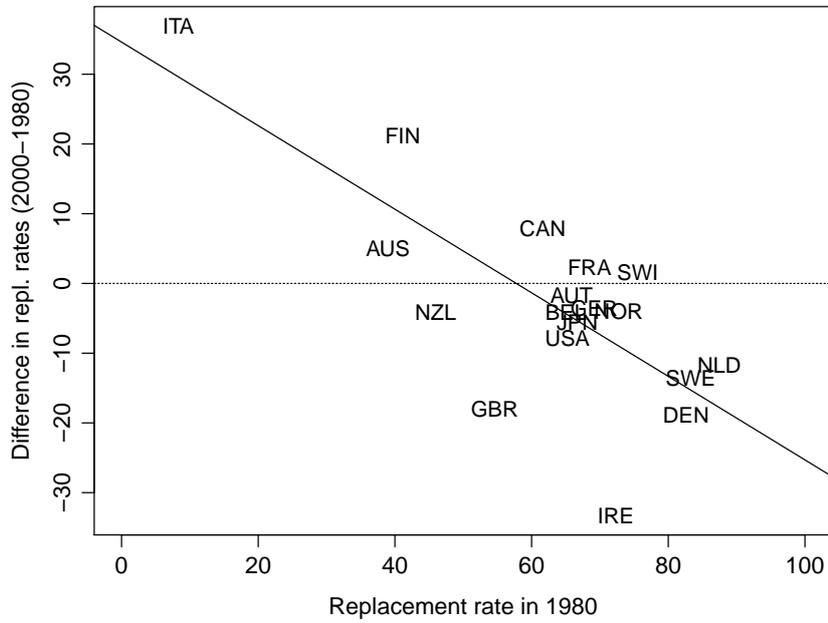
Figure 3: *σ-convergence.*

Figure 4: *β-convergence.*

initial level of the policy and its change over time, as shown in Figure 4. Italy had the lowest replacement rates in 1980 and the greater increase between 1980 and 2000, while in countries such as Denmark, Sweden, and the Netherlands, replacement rates where above average in 1980 but have decreased since then. The formal test is a regression of change on initial values in which we expect a negative and significant coefficient (which, in conventional notation, is called β), which is dutifully the case in our example.[4]

These measures look simple enough but, in fact, there are several complications. Plümper and Schneider (2009) note that convergence can easily remain undetected by σ-convergence. For example, if convergence occurs in clusters and the clusters are sufficiently apart from one another, then policy variation in the whole sample can increase even though, within the clusters, it decreases. For instance, it could be argued that, in Figure 3, the standard deviation under-estimates the extent of convergence. In effect, two clusters are visible, namely a larger one, in which replacement rates range about from 60 to 80 per cent in 2000, and a smaller one where replacement rates are lower. Within these clusters, the decrease in variation is probably larger than implied by the standard deviation computed for all countries. Similarly, when employing β-convergence, researchers should carefully look not only at convergence in the whole sample, but also within clusters, conditional on contextual factors, and at different levels. The point here is simply that the methods assume convergence at a global level, but this can occur also within subgroups. If this is not recognized, both σ- and β-convergence can produce misleading results.

Furthermore, Holzinger (2006) argues that convergence analysis is more difficult when one considers different levels of details in the measurement of policies, such as their presence or absence, the types of instruments applied, and the settings of these instruments. Therefore, she advocates a dyadic approach similar to that discussed earlier. The main difference is that dyads are undirected, that is, the dependent variable captures similarities but without differentiating between potential senders and potential adopters. An example of application is Holzinger, Knill and Sommerer (2008), which investigated 40 environmental policies and 89 policy items. As mentioned earlier, this study found that convergence was driven mainly by international harmonization and transnational communications.

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[4]Difference $2000 - 1980 = 34.61(8.72) - 0.60(0.13)\times$ repl. rate. in 1980 (OLS regression, standard errors in parentheses).

4   Qualitative approaches

Qualitative approaches to policy interdependence have been used especially in the policy transfer literature, but examples also exist for policy diffusion. It contrast to quantitative approaches, there are few distinct tools to tackle the specific question of interdependence. However, in a recent paper, Starke (2011) examined some exemplary works and discussed how critical steps of qualitative analysis, such as case selection (see Chapter XX) and process tracing (see Chapter YY), can be employed for the study of policy transfer or diffusion.

First, case selection could benefit from a "diverse cases" strategy, which "has as its primary objective the achievement of maximum variance along relevant dimensions" (Gerring, 2007, 97). A traditional method of difference could in principle be adopted, namely, by selecting cases with different outcomes, similar control variables, and different diffusion variables. Alternatively, the method of agreement would require that cases differ on the outcome and on key diffusion variables, but are similar on the control variables. However, it is well known that Mill's methods do not work well in practice because cases never fit cleanly in Mill's schemes. Therefore, it is advisable to strive for good variation on diffusion mechanisms instead of trying hopelessly to find "most similar" or "most different" cases or to squeeze them acrobatically in these categories. At any rate, case selection alone gives only limited analytical leverage and must always be combined with other strategies.

Second, and most important, qualitative researchers should highlight the nature interdependence by concentrating on the process of diffusion within cases. This step corresponds to what is known as process tracing. There is no doubt that a fine-grained focus on process and mechanisms is the most important contribution that qualitative work can offer to the understanding of diffusion. Thus, qualitative research should strive to uncover crucial "causal-process observations," that is, "an insight or piece of data that provides information about context, process, or mechanism, and that contributes distinctive leverage in causal inference" (Brady and Collier, 2004, 277). For instance, Weyland (2007) showed in detail how pension privatization in Chile played an important role for reforms in other Latin American countries. In Bolivia, a crucial event was the Finance Minister's budget director's attending a keynote speak by the architect of Chile's pension privatization; similarly, in El Salvador the Chilean model was put on the agenda through a consultant who was involved in the Chilean reform, and who was originally

hired to assist with a smaller-scale project (Weyland, 2007, 101). By contrast, contacts with experts and policy makers from Argentina and Colombia, which also had introduced reforms of the pension system, were much more limited (Weyland, 2007, 105–106).

Another example of detailed within-case analysis is Biedenkopf (2011), which studied how EU environmental legislation affected policies in the US, both at the federal and at the state level. One of the findings is that the influence of the EU was quite differentiated. For instance, in Washington State legislators took inspiration from the EU at the conceptual level rather than for concrete details. At the same time, many actors in this state demonstrated a good knowledge of EU legislation, which leads the author to conclude that learning has taken place, at least to some extent. This was not always the case. In California, for instance, policy makers were strived to achieve a leadership role within the US by following the example of the EU, but they paid less attention to the concrete details of EU legislation, which indicates that the emulation mechanism was stronger than learning in this case.

In some instances, researchers may even uncover "smoking guns" supplying very strong evidence. For example, in his study of national tax blacklists, Sharman (2010) provides examples of countries that literally copied and pasted legislation from others. The most striking case is Venezuela (Sharman, 2010, 625):

> [T]he Venezuelan legislation made reference to the wishes of the Mexican legislature and the need to be consistent with the Mexican constitution. Worse still, the original Mexican list had included Venezuela, and thus by copying the Mexican list, Venezuela succeeded in blacklisting itself.

Such "causal-process observations" are absent from purely quantitative studies but are essential for a good understanding of policy interdependence, and they can also play an important role in theory building. In sum, the strength of qualitative approaches is their capacity to identify processes and mechanisms in detail. Case selection is important, but not as central as process tracing for the study of policy interdependence.

5 Conclusion

Policy interdependence means that the policies of a given unit (country, state, city) are shaped by those of others. It is a ubiquitous phenomenon that has been studied from different perspectives, notably policy transfer, policy diffusion, and policy convergence. Conceptually, scholars have focused on the nature of interdependence and have formulated different mechanisms that characterize it, such as learning, competition, emulation, and coercion. Methodologically, the quantitative arsenal is well stocked. Convergence can be measured with standard concepts such as σ and β-convergence, even though several issues need to be taken into account. Interdependence can be integrated within standard regression models via spatial lags, which are weighted averages of the dependent variable, where weights are defined to capture theoretically meaningful relationships among units. Alternatively, the dyadic approach considers each unit as a potential sender and a potential receiver of a policy and examines what factors make it more likely that the receiver adopts a policy that the sender already has. This strategy allows for considerable flexibility to model various types of interdependencies and to take into account policies that consist of multiple dimensions, but at the cost of additional methodological complications. In particular, the construction of the dependent variable is not straightforward and the data structure becomes more complex. Turning to qualitative approaches, there are fewer standard procedures for the analysis of policy interdependence but their contribution is both crucial and unique. In particular, they allow to uncover important "causal-process observations" that demonstrate the presence of interdependence and help to interpret its nature on the basis of theoretical mechanisms.

It is a commonplace to say that research benefits from the integration of qualitative and quantitative research, but it is true. Despite several methodological contributions (e.g., Lieberman, 2005), how this should be done exactly remains unclear. However, the comparative advantages of quantitative and qualitative methods for the study of policy interdependence are obvious. The former offer consolidated procedures to detect interdependence and, to some extent, to uncover some clues on the mechanisms behind it. This is not something that qualitative approaches do well. However, only qualitative research can provide detailed account of what interdependence means exactly, and of the extent to which theoretical mechanisms can be found met in reality. The most powerful analyses are certainly those that can combine these

two dimensions, no matter if the combination is a little ad hoc or does not fit nicely in a grand methodological scheme.

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