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Beyond the “Tinbergen Rule” in Policy Design: Matching Tools and Goals in Policy Portfolios

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Abstract

Existing studies of policy mixes do not use consistent terminology and fail to carefully define the dependent variable of the inquiry. As a result theorization has lagged, the cumulative impact of empirical studies has not been great and understanding of the phenomena, despite many observations of its significance in policy studies, has not improved significantly over the past three decades. This paper continues the process of revitalizing policy design studies by carefully distinguishing between mix types, first drawing a distinction between ‘instrument mixes’ and ‘policy mixes’ often glossed in existing studies, and then defining key types and sub-types of both kinds of mixes based on the complexity of design variables such as the number of goals, the number of policies and the number of levels of government involved in the design of a policy “portfolio” or “bundle”. The taxonomy helps to assess the validity and applicability of oft-cited design principles such as the “Tinbergen Rule” and unifies studies of synergistic and counter-productive tool relationships while also providing some insights and promising research directions for future studies of policy formulation and design.

Introduction: Tool Mixes and Policy Design Studies

At its most basic, a policy instrument is a tool or technique used by government in order to achieve a policy goal (Howlett 2005). A key question then is how many tools are required or efficient in the attainment of a goal and what to do if there is more than one goal to meet? Multifaceted or ‘complex’ problems involve complex arrangements of institutions and instruments to address them and, as a result, the subject of policy or instrument ‘mixes’, ‘bundles’ or ‘portfolios’ of policy tools (Doremus 2003) has a special place in considerations and studies of policy design (Howlett 2004).

An oft-cited rule in this area is that the optimal ratio of the number of tools to targets is 1:1 (Knudson 2009) an axiom first put forward by Jan Tinbergen in 1952 (Tinbergen 1952). This is a reasonable rule-of-thumb towards which Tinbergen provides some logical justification in his discussion of information and administrative costs associated with redundant tools in the area of economic policy. However, the bundling or mix of policy tools together in complex arrangements raises many difficult questions for

students and practitioners of the subject, especially with respect to the nature of the choice of policy tools and instruments when there are significant interactive effects among policy goals, sectors and governments (Boonekamp 2006; Yi and Feiock 2012) and when the policy design processes involved in their formulation are complex.

This is a vexing problem and even Tinbergen (1952) noted that additional tools – “supplementary” or ‘complimentary’ tools– are often required to control side-effects or otherwise bolster a ‘primary’ tool. And the processes of policy formulation followed in such complex designs, and the manner in which tool choices and policy designs evolve over time (Thelen 2003; van der Heijden 2011; Feindt and Flynn 2009) are additional key questions which require clarity and precision in the definition and operationalization of the dependent variable if they are to be satisfactorily addressed.

That is, while thinking about the design of policy “portfolios” is at the forefront of current research work on policy design (Howlett2011; Howlett and Lejano 2012), existing studies of such mixes do not use a consistent terminology and often fail to define the dependent variable carefully enough. As a result, the cumulative impact of empirical studies has not been great, theorization has lagged, and understanding of the mix phenomena, despite many observations of its significance, has not improved very much over past decades (Chapman 2003; Ring and Schroter-Schlaack 2010).

The aim of this paper is to propose the main elements of a theoretical and methodological framework which will help clarify the different types of mixes which are currently often improperly juxtaposed in the literature on the subject and to provide the basis not only for better designs but also for improved considerations of the formulation processes and actors such complex policy mixes involve. The paper thus continues the

process of revitalizing policy design studies urged by Howlett and Lejano (2013) by carefully distinguishing between mix types, first drawing a distinction between ‘instrument mixes’ and ‘policy mixes’ often glossed over in existing studies, and then defining key types of both mixes based on the complexity of design variables including the number of goals, the number of policies and the number of levels of government involved in the construction and maintenance of a policy “portfolio” or “bundle”. The paper also draws out several sub-types within each category which help to assess the validity and applicability of oft-cited design principles for policy mixes such as the “Tinbergen Rule” (Tinbergen 1952; Braathen 2007; Knudson 2009).

The paper thus contributes to efforts currently being made to assess the success or optimality of complex policy mixes (Mandell 2008). Ultimately it is argued that the Tinbergen maxim has little use in any but the most simple circumstances and types of mixes and that moving beyond that maxim to incorporate both synergistic and counter-productive tool relationships and interactions is required if policy design theory is to better inform policy design practice (Del Rio 2010; LePlay and Thoyer 2011; Grabosky 1995).

Design Criteria for Policy Mixes: Moving Beyond the “Tinbergen Rule”

The issue of the criteria to be used to design ‘optimal’ bundles of tools is a complex one (Peters 2005; Howlett 2005). Most older literature on policy tools focused on single instrument choices and designs (Tupper and Doern 1981, Salamon 1989, Trebilcock and Prichard 1983) and these studies provide only limited insights into the complex arrangements –‘bundles’ or ‘portfolios’ of multiple policy instruments –which are commonly found in most policy fields (Jordan et al 2011 and 2012).

How best to design such policy mixes, for example, raises many significant issues related to the manner in which tool choices are made and how tool bundles evolve over time (Howlett and Rayner 2007). First there are a series of questions about how exactly tools fit together, or should fit together, in a mix. This is the classic and most commonly addressed issue in policy design studies which first received detailed treatment in Tinbergen's (1952) study "*On the Theory of Economic Policy*". It centers on the issue of 'smart' design in a situation of 'replacement' (Thelen 2003). That is, it assumes that policy designers have a relatively freehand in selecting tools from a large toolbox of possibilities in order to address their policy goals and attempts to discern the optimal arrangement of policy goals or "targets", and the means or 'instruments' available to resolve them.

In his work Tinbergen analyzed what he termed the 'normal' case in which it was possible to match one goal with one target so that one instrument could fully address its task and accomplish the goal set out for it. Most observers, however, including Tinbergen himself, were and are well aware that combinations of tools are typically used to address a policy goal, not a single instrument. As Tinbergen (1952 p. 37) himself argued "A priori there is no guarantee that the number of targets always equals the number of instruments" and (p. 71) "it goes without saying that complicated systems of economic policy (for example) will almost invariably be a mixture of instruments".

These admonitions, unfortunately, have generally been neglected in studies ostensibly based on his work, with many studies attempting to force complex situations into the more simple mold required for Tinbergen's simple case rule to apply (Knudson 2009). Moving 'beyond the Tinbergen Rule' is required if policy design studies are to

inform policy design practice in a meaningful way.

The Design Challenges of Policy Mixes

As Tinbergen noted, a major issue for policy design studies related to policy mixes is that the tools involved and invoked in a mix may be inherently contradictory (Tinbergen 1952; Grabosky 1995; Gunningham, Grabosky and Sinclair 1998) in the sense that they evoke contradictory responses from policy targets (Schneider and Ingram 1990a, 1990b; 1993; 1994; 1997; 2005). Other combinations, of course, may be more virtuous in providing a reinforcing or supplementing arrangement (Hou and Brewer 2010). And some arrangements may also be unnecessarily duplicative while in others some redundancy may be advantageous (Braathen and Croci 2005; Braathen 2007).

The existing evidence shows that these suboptimal situations are very common as many existing mixes have developed haphazardly through processes of policy layering in which new tools and objectives have been piled on top of older ones, creating a palimpsest-like mixture of inconsistent and incoherent policy elements (Thelen 2004; van der Heijden 2011; Howlett and Rayner 2007; Carter 2012). These kinds of unplanned mixes focus attention on the sequencing of instrument choices and especially upon how many existing mixes developed without any real sense of an overall conscious design. These kinds of unintentional mixes can be contrasted with ‘smarter’ designs which involve creating new packages specifically intended to overcome or avoid the problems associated with unintentional layering (Considine 2012; Kiss et al 2012).¹

Intelligent design of policy mixes begins with ensuring a good fit not only between packages of tools and government goals but also their institutional and behavioural contexts (Lejano and Shankar 2013).² With the exception of studies of the temporal

dimension of the evolution of mixes, however, most work on the subject fails to define the ‘dependent variable’ in design studies carefully enough to distinguish the impact on design choices of contextual factors influencing the design process. Most studies, for example, fail to differentiate between simple and complex contexts and simple and complex designs and mixes. But the level of complexity is an important characteristic of the problem context which considerations of portfolio design must take into account.

Providing a better model of policy mix types helps reveal some important variations in terms of who makes or is capable of making design decisions, as well as provide information on the content of that decision in specific contexts.

Defining the Dependent Variable: Developing a Taxonomy of Mix Types

The goal of intelligent portfolio design is optimization, meaning not only the avoidance of contradictory or conflicting behaviour related to specific policy tool types but also the maximization of *interactive* affects and synergies (del Rio 2010; Boonekamp 2006).

Criteria such as ‘consistency’, ‘coherence’, ‘congruence’ and level of ‘integration’ have often been used to assess and identify optimal or non-contradictory mixes as well as their less optimal or less well designed counterparts (Meijers 2004; Briassoulis 2005; Meijers and Stead 2004; Stead, Gerlings and Meijers 2004; Howlett and Rayner 2007; LanzaLaco 2011). However while considerations of coherence and integration remain at the forefront of discussions of optimality in mix design, the dimensions of these likely conflicts need to be more clearly specified and their consequences set out more precisely than has been done to date (Mandell 2008; Howlett and Rayner 2007; Kern and Howlett 2009). These dimensions include the possibility of ‘horizontal’ conflicts among the

instruments in a mix as well as the ‘vertical’ conflicts occurring across levels of goals and policies.

The main elements of a theoretical and methodological framework based on the distinctions between the horizontal and vertical aspects of a mix are set out below.³ The framework helps assess the nature of simple and complex mixes and highlights the reasons why multiple different types of tool mixes exist and how conflicts and synergies between individual instruments within different mixes can be usefully identified. This may give a hint on how those conflicts might be mitigated and synergies could be promoted.

Addressing the Dimensionality of Policy Mixes: Horizontality vs Verticality in Mixes

In addressing the issue of mix types and their impact on policy designs and designing, as Tinbergen noted, a distinction must be drawn between single ‘level’ mixes and those with a more complex structure. That is, in addition to the ‘horizontal’ issue addressed by many students of policy mixes – pertaining to the kind of relationships existing between tools within a single level of policy-making – a second, ‘vertical’ dimension is present and often ignored in these studies. This vertical dimension involves not just the number of instruments found in a mix, but also the number of goals they are expected to address, the number of policy sectors they involve, and the number of governments active in these areas (del Rio 2009).

Such a framework allows room for many more complex interactions between tools than typically envisioned or analyzed in most studies. That is, conflicts and synergies between tools can be identified which are horizontal (i.e., between different types of instruments and goals within each level of analysis) and/or vertical (i.e., between

different policy and/or administrative levels). These variations have significant implications for policy design actors and processes. While horizontal interactions can be addressed in largely technical ways— so that, for example, some conflicts can be mitigated just by selecting certain instruments over others – in other cases technical analysis must be supplemented by other political, administrative and organizational logics if more design elements are present.

That is, design contexts cutting across goals, sector and governments are less susceptible to purely technical reasoning than more simple single-level ones and require efforts aimed at achieving administrative coordination and policy integration suitable to the complexity of the mix context. In these latter situations, relevant coordination, for example, needs to be in place between different administrative levels and across policy subsystems and mixes must relate to preferences for different instruments favored in sectors and governments (Freeman 1985; Howlett 2009). Hence different assessment criteria should be used to evaluate “success” or optimality in simple instrument mixes (horizontal conflict) than in different administrative levels involved complex ‘policy mixes’ (vertical conflict) and a single all purpose maxim like the Tinbergen Rule is ill-suited for most design circumstances.

Distinguishing between “Instrument” Mixes and “Policy” Mixes

Developing a typology of mixes based on the level of complexity of conflicts found in a mix therefore is a useful first step in advancing design studies beyond their current weak status. The first key dimension in constructing such a taxonomy relates to distinguishing between two basic types of mixes according to the number of policy goals and instruments found within a level.

As we have seen, even Tinbergen's work envisioned two intelligent designs in the case of very simple single goal mixes: one a limiting case when a single tool can fully attain a single goal (and thus the concept of a 'mix' to a certain extent does not exist) and the second being a situation where multiple tools would be required to accomplish the same task. In the latter case the instruments are not isolated from each other and tools in such mixes interact leading to the potential for negative conflicts ("one plus one is less than two") and synergies ("one plus one is more than two") (Lecuyer and Bibas 2011).

Although a consensus does not exist on the terms and definitions of conflicts, complementarities and synergies (Oikonomou and Jepma 2008; Oikonomou et al 2010 and 2011), nevertheless it can be argued that the types of interaction found between tools will vary such that in some cases there will be (1) a strong conflict: where the addition of an instrument (X) leads to a reduction of the effect of a second instrument (Y) in the combination: $0 < X+Y < 1$; (2) a weak conflict (partial complementarity) where the addition of an instrument to another leads to a positive effect on the combination, but lower than the one that would take place if both were used separately: $1 < X+Y < 2$; (3) a situation of full complementarity where X adds fully to the effect of Y in the combination: $X+Y = 2$ and (4) a situation of synergy where adding X to Y magnifies the impact of the combination: $X+Y > 2$ (del Río 2013)..

In each case we would thus have additional scenarios for mixes in situations in which multiple instruments complement each other in achieving a policy goal while in others or in some aspects they would not (Philibert 2011). This situation becomes even more complicated when multiple goals exist across multiple policy fields or sectors. These latter kinds of multi-policy mixes – what Milkman 2012 calls 'policy bundles' or

what Chapman (2003) and Hennicke (2004) call a ‘policy mix’ – are examples of instrument portfolios which are much more complex than simple or compound Tinbergen-type single or multiple goal mixes and their analysis extends beyond pure technical criteria of efficiency to take into account historical legacies and instrument preferences found in specific sectors and sub-sectors of government activity which affect their effectiveness. That is, these mixes typically involve much more than functional logics amenable to technical analysis but also deal with ideological or even “aesthetic” preferences which cannot always be reconciled but involve trade-offs and bargaining between actors in choosing one tool set over another (Beland and Wadden 2012; Williams and Balaz 1999).

And the issue becomes more complicated again when policy mixes whose responsibility for formulation, decision-making and/or implementation falls on different levels of governments are considered (Hull 2008; Flanagan et al 2011). In such multi-level government and governance contexts (Hooghe and Marks 2003), different levels of government are likely to have some common, but also different goals and instrument preferences (Enderlein et al 2011) and reconciling them involves the use of the overt political calculus of intra- or intergovernmental bargaining and decision-making (Bolleyer and Borzel 2010; Kaiser 2012).

A Basic Taxonomy of Policy Mixes

Taking these three dimensions into account, and assuming simple binary measures of complexity at each level, we have eight possible configurations of complex goal, policy and governmental mixes (see Table 1).⁴ In this model, mixes can be seen to range from the simplest “Tinbergen” type mix (Type I) to the most complex multi-level, multi-

policy, multi-goal type (Type VIII). Six of these mixes are above and beyond those two originally discussed in Tinbergen’s work and illustrate the requirement for better axioms of design than the Tinbergen-rule in their analysis. Four of these eight types, however, do fit some of Tinbergen’s criteria as they are all ‘*Instrument Mixes*’ which involve single policy contexts (Types I, II, V, and VI).

Table 1 - Basic Typology of Tool Mixes

	Types							
Dimension	I	II	III	IV	V	VI	VII	VIII
Multiple Governments	No	No	No	No	Yes	Yes	Yes	Yes
Multiple Policies	No	No	Yes	Yes	No	No	Yes	Yes
Multiple Goals	No	Yes	No	Yes	No	Yes	No	Yes
	Simple Single-Level Instrument Mix (Simple Tinbergen)	Complex Single-Level Instrument Mix (Compound Tinbergen)	Simple Single-Level Policy Mix	Complex Single-Level Policy Mix	Simple Multi-Level Instrument Mix	Complex Multi-Level Instrument Mix	Simple Multi-Level Policy Mix	Complex Multi-Level Policy Mix

Two of these instrument mixes (Types I and V) are very simple ones addressing a single goal while two others (Types II and VI) involve multiple goals. Similarly the inherently more complex policy mixes (III, IV, VII and VIII) also divide into two kinds: those (Types III and VII) which involve single goals and two (Types IV and VIII) which involve multiple ones. The spectrum of tool mix complexity is contained in Table II.

Are all these eight types equally likely to occur? Although much of the literature seems to suggest that a simple Tinbergen-type ‘mix’ (Type I) is fairly common, empirical studies suggest this is not the case (Howlett et al 2006; Hosseus and Pal 1997) and more

complex mixes are commonplace. As pointed out above, even Tinbergen acknowledged the frequent need for additional supplementary instruments to reinforce a primary one, suggesting that the compound rather than simple Tinbergen mix is in fact the ‘default’ type (Type II).

Table II – Spectrum of Tool Mix Complexity

Simple ----- Complex

No Multiple Variables	One Multiple Variable	Two Multiple Variables – Single Goal	One Multiple Variables – Multiple Goals	Two Multiple Variables – Multiple Goals	Three Multiple Variables
Type I	Type III Type V	Type VII	Type II	Type IV Type VI	Type VIII

Most Common Types

That is, prima facie, the taxonomy set out in Table I shows that simple Tinbergen-type single-goal, single policy, single government instrument mix represents only one of four types of instrument mixes. And since both the compound Tinbergen mix and classic policy mixes, as well as the simple and complex intergovernmental mixes, involve more than one tool, this means that the standard Tinbergen design maxim of “one goal – one tool” is unlikely to be put into practice very often.

Similarly, some types are not likely to occur very often, such as when a complex intergovernmental, multi-sectoral policy area involves only a single goal (Type VII) or a single government, single goal mix involves multiple policies (Type III with Type V a variant thereof). This generates the expected frequency of occurrence of mixes set out in Table III.

Table III – Frequency of Occurrence

Frequent Appearance	Less Frequent or Rare Appearance
Type II – multiple goals, single policy, single government – COMPOUND TINBERGEN INSTRUMENT MIX	Type I – single goal, single policy, single government – SIMPLE TINBERGEN INSTRUMENT MIX
Type IV – multiple goals, multiple policies, single government – CLASSIC POLICY MIX	Type III – single goal, multiple policies, single government
Type VI – multiple goals, single policies, multiple government – STANDARD INTERGOVERNMENTAL POLICY MIX	Type V – single goal, single policy, multiple governments
Type VIII – multiple goals, multiple policies, multiple governments – COMPLEX INTERGOVERNMENTAL POLICY MIX OR STRATEGY	Type VII – single goal, multiple policy, multiple government

Design Implications Flowing from this Taxonomy

This typology of design outcomes also contains several implications for design processes or processes of policy formulation. All of the most common types of mixes are complex ones, meaning non-technical factors will feature prominently in their analysis.

Over and Under-Designing Mixes and the Issue of Strong and Weak Conflicts and Synergies

Even with only four main portfolio types (II, IV, VI and VIII) - the design situation is more complex and nuanced than is normally depicted in the existing policy design literature centered on Tinbergen principles. However portfolio design must also allow for ‘*over and under*’ designing: that is, the provision of more or fewer instruments than may be absolutely required in order to accomplish the set of goals a government sets out to achieve.

Such permutations and possibilities must be carefully assessed and measured by policy designers. However to date most work on policy formulation has not managed to link the activities of specific types of formulators to penchants for specific kinds of designs, but rather has focused on providing an accurate depiction of the actors who have been involved in formulations processes and at what point or stage (Thomas 2001).

The typology of outcomes set out in Table I above, however, suggests an increasingly complex environment for formulation as the complexity of portfolio parameters increases, ranging from the relatively simple context involved in Type I and II mixes to the multi-level, multi-goal bundles of higher numbered types.

While relatively simple mix design processes may be dominated by expert actors (Dunlop 2009) and decided upon according to technical or functional criteria (Braathen 2007) moving towards multiple goals brings in additional actors such as those arrayed in ‘epistemic communities’ (Marier 2008) and involves more sophisticated evidence and ideas than is found in more simple contexts (Sanderson 2002). And increasing complexity to multiple policies brings in cross-sectoral or cross-national epistemic actors (Haas 1992), including political ones, and often involves the assessment and use of politically-contested evidence and criteria (Gilabert and Lawford-Smith 2012). Finally the most sophisticated designs involve the most complex design processes and the full range of subsystem actors operating across multiple governance levels (McCool 1998; Hooghe and Marks 2003). Here, in a context of vested interests, lobbying pressures and intergovernmental jurisdictional disputes, fully-blown political criteria such as blame-avoidance, credit claiming, bargaining and log-rolling relevant information (Hood 2010) are features of policy formulation and designs (see Table IV).

Table IV – Actors and Knowledge Base for Mix Formulation

Mix Type	Actor	Episteme
Type II – multiple goals, single policy, single government – COMPLEX TINBERGEN INSTRUMENT MIX	Experts (Dunlop 2009)	Technical Criteria (Braathen 2007)
Type IV – multiple goals, multiple policies, single government – CLASSIC POLICY MIX OR REGIME	Multiple Epistemic Communities (Marier 2008)	Evidence and Ideas (Sanderson 2002)
Type VI – multiple goals, single policies, multiple government – STANDARD INTERGOVERNMENTAL SECTORAL POLICY MIX	International or Cross-National Sectoral Epistemic Community (Haas 1992)	Politically-filtered Evidence (Feasibility) (Gilbert and Lawford-Smith 2012)
Type VIII – multiple goals, multiple policies, multiple governments – COMPLEX INTERGOVERNMENTAL POLICY MIX OR STRATEGY	Sectoral, National and Trans-National Policy Subsystems (McCool 1998)	Political Criteria (Credit Claiming, Blame Avoidance, Bargaining) (Hood 2010)

Conclusion

The multi-dimensional nature of instrument mixes has been ignored in the policy instrument choice and policy design literature, resulting in a lack of clarity and difficulties associating different kinds of actors and evaluation criteria with mixes (Leutz 1999) and the continual use of outdated or inappropriate design maxims in the construction.

The paper argues that complex policy mixes inherently involve interactions between the different instruments of which they are composed, either in the form of conflicts or synergies. These can be horizontal - between different types of instruments, policies or governments - and/or vertical - between different levels of goals, policies and levels of government.⁵ Mitigating these conflicts and encouraging synergies through effective policy design first requires recognizing these different contexts and their implications for what is being designed and by whom (Howlett 2013). Only then can relevant horizontal and vertical coordination take place between and within different administrative levels relating to different instruments or different design elements within

a mix which can further the possibility of synergistic vs counter-productive effects (Keast et al 2007). However, the potential for such effects to be actualized increases in level of difficulty as more goals, policies and governments are involved in a ‘bundle’ or ‘portfolio’ and the number of actors and types of evidence used in designing correspondingly increases in complexity and variability (Escribano 2013).

Developing a multi-dimensional typology of policy portfolios helps us understand both these ‘design’ and ‘designing’ aspects of instrument mixes in ways which simple ‘Tinbergen’-type design principles do not. It allows us, for example, to generate a multi-level model of tool selection and design in which the success of a mix can be seen to depend on the types of relationship and interactions existing between context and instruments and shows that “success” should be defined broadly, to include different criteria and policy goals which are relevant to different administrative levels. And it also shows why the problems (conflicts) in horizontal interactions can be mitigated by coordinating targets, instruments and/or design elements within a level while conflicts in vertical interactions are more difficult to tackle through coordination, given the different goals of different government levels.

These and other similar findings can and should be the bases for future works on the subject of policy mixes and policy design. In particular the multi-level model developed herein suggests several conclusions and areas for future research (del Rio 2009) including the following.

First, that *a broader view of the elements found in policy mixes is needed than is typically found in the literature on the subject* (da Costa 2013). That is, appropriate policy evaluation, appraisal and design cannot be conducted in a narrow context. The focus most

often should not be on the functioning of specific instruments with respect to one specific criterion, but rather upon the functioning of the whole policy mix and the conflicts and synergies with respect to several goals and criteria in this portfolio. This is a particular challenge with overlapping policies and governments. What might be regarded as conflictive in the interactions within an instrument mix might not be so problematic when a broader picture of a policy or governmental mix is considered. Furthermore, it is impossible to satisfy all assessment criteria with different instruments when more than one goal, policy or government is involved. The best way to address inherent trade-offs and conflicts between criteria is to adopt a multicriteria framework which makes those conflicts explicit. This allows policy makers to give weights to those criteria and decide on the trade-off according to their preferences.

Secondly, the discussion here suggests that *analyses of mixes are mix dependent*. That is, while a general theoretical and methodological framework for the analysis of interactions can be built, there are too many differences between policy mixes to provide a general prescription. Thus, extrapolations to other policy mixes are necessarily limited and the analysis of the success is necessarily policy-mix-type specific.

Thirdly, *the devil is in the details*. Mixes can be assessed at a general level by identifying spaces of conflicts, complementarities and synergies between policy fields, but those interactions also depend on the type of tools being adopted and the specific design elements of the instruments adopted within those policy fields. The choice of specific instruments and design elements within interacting policy fields may contribute to mitigate conflicts and promote complementarities and synergies or not. Coordination is easier under certain instruments and design elements than under others.

Fourthly, *design of policy mixes vs. design of specific instruments are separate issues*. Most often the focus should move from the design of specific instruments to the appropriate design of instrument mixes. This is more difficult to do when instruments belong to different territorial/administrative levels.

Fifthly *both horizontal and vertical coordination are very difficult to achieve*. As Tinbergen first suggested there is certainly a role for coordination between goals and instruments to mitigate conflicts and to promote complementarities and synergies in policy mixes. But the existence of different goals at different administrative levels complicates vertical coordination. Different benefits and costs for different constituencies stemming from supranational policies may lead to low levels of social acceptability and considerations of political feasibility. Different goals may create winners and losers at lower administrative levels and, thus, lead to unacceptable distributional effects.

Endnotes

¹Such efforts may take the form of policy 'packaging', that is the creation of new mixes or 'patching' in which only selected aspects of existing mixes are altered. Recognizing the drawbacks of layering, conversion and drift, many critics have increasingly turning to the promotion of complex policy mixes that have been designed, rather than incrementally developed. However it uncertain whether multiple policy tool portfolios which have evolved over a long period time through processes of incremental layering or policy 'patching' can achieve complex and ambitious policy goals in as efficient and effective a way as those designs which are consciously created as interlocking packages of measures (Feindt and Flynn 2009; Kay 2007).

²This subject saw some earlier treatment in studies on 'policy styles' which identified common patterns and motifs in the construction of typical policy designs in different jurisdictions reflecting these concerns (Kagan 1991 and 2001; Richardson et al 1982; Howlett 2004) and contemporary studies have taken this work to heart in locating design decisions within governance arrangements and existing policy regime preferences (Howlett 2009).

³The framework and analysis is based on the interactions (conflicts, complementarities and synergies) taking place in the many policy realms, notably climate change mitigation and renewable energy support (del Río et al 2007 and 2011; del Río 2009, 2010)

⁴In order to focus our research to the most relevant issue, we restrict the analysis of interactions which are implemented simultaneously, not sequentially, although this assumption is limiting and the application of the typology to instrument designs emerging over time is a necessary subject of future research.

⁵ Such interactions can range from ‘no effect’ to ‘direct interaction’ with effects ranging from ‘duplication’ (positive or negative redundancy) to ‘extended coverage’ (positive redundancy). See del Rio 2007 pp. 1368-1369

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