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ARTICLE

Influence of the EU Chemicals Regulation on the US Policy Reform Debate: Is a 'California Effect' within REACH?

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Abstract
In 2006, the EU adopted the REACH Regulation – the world's most demanding chemicals regime so far. Even before it entered into force, the European Commission declared its ambition to make REACH a global standard, and several authors see a potential for far-reaching influence via the 'California effect', as conceptualized by David Vogel. Economic preconditions are indeed fulfilled with the chemicals industry being highly globalized, the EU as an attractive export market and REACH applying to imports. Following Vogel, firms exporting to the EU might have an incentive to lobby for similar requirements in their country. This article examines whether American chemical producers do, indeed, push for EU-like provisions in the debate on US policy reform. While there is some influence on the US, it is shown that REACH does not (yet) trigger a 'California effect'. The business case does not seem to be strong enough.

Keywords: Chemicals Regulation, California Effect, European Union, United States, REACH, Toxic Substances Control Act (TSCA)

1. INTRODUCTION

An enormous range of goods today contain chemical substances: from household cleaners, computers and cars, to clothes, cosmetics and children's toys. While some chemicals possess hazardous properties, most are probably harmless; in many cases, however, we do not know exactly. The regulation of chemicals, which has hardly been harmonized at the international level, has long been a fragmentary and deficient affair across the globe. Governments presumed chemicals to be innocent until proven guilty, and made few attempts to fill the data gaps on the thousands of chemicals that existed at

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the time legislation was passed. The main United States (US) federal law on chemicals, the Toxic Substances Control Act (TSCA),[1] is a classic example of this passivity. Not amended since its entry into force in 1976, it is now seen as a 'paper tiger'[2] or 'the lapdog of US environmental law'.[3]

In 2006, after a long 'legislative battle', the European Union (EU) adopted the REACH Regulation (Registration, Evaluation and Authorization of Chemicals),[4] which applies to all chemicals outside agriculture and cosmetics. It is more demanding than any other regime in its data requirements, and introduces an authorization regime for certain chemicals with the burden of proving safety imposed on industry (producers, importers, users). Even before REACH was passed, the European Commission declared its ambition to make it a global standard[5] – in line with the popular notion of the EU as the new world standard-setter in environmental and health policy.[6] To achieve this, the EU could seek an international treaty. Alternatively, non-European politicians and non-governmental organizations (NGOs) could learn from REACH and create a similar regime without much effort by the EU.

Although it may appear counterintuitive, the push for a levelling-up of standards might also come from the (foreign) chemical industry itself. This is at the heart of David Vogel's 'California effect',[7] which is part of a literature on the effects of free trade on national regulatory standards.[8] Vogel's argument, as originally formulated, goes as follows. To export to a high-standard market, firms in low-standard jurisdictions have

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1 Toxic Substances Control Act; 15 U.S.C. 2601-2692 (1976).

2 L. Koch & N.A. Ashford, 'Rethinking the Role of Information in Chemicals Policy: Implications for TSCA and REACH' (2005) 14 *Journal of Cleaner Production*, pp. 31–46, at 41.

3 N.M. Sachs, 'Jumping the Pond: Transnational Law and the Future of Chemical Regulation' (2009) 62(6) *Vanderbilt Law Review*, pp. 1817–69, at 1818.

4 Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) [2006] OJ L396/1.

5 European Commission, *Chemicals Orientation Paper*, communication by Mr. Liikanen and Ms. Wallström, Brussels, 1 Apr. 2003.

6 For a long time, the US had the most stringent environmental regulation and, given its large market, it was seen as the 'world standard-setter', also exerting upward pressure on Europe: see D.A. Wirth, *The EU's New Impact on U.S. Environmental Regulation* (2007) 144 *Legal Studies Research Papers*, Boston College Law School, at pp. 97, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1028733. Roles of leader and laggard are said to have switched with the EU now as the 'locus of policy innovation': see D. Vogel, 'The Hare and the Tortoise Revisited: The New Politics of Consumer and Environmental Regulation in Europe' (2003) 33(4) *British Journal of Political Science*, pp. 557–80, at 558. The EU is seen as 'increasingly replacing the United States as the de facto setter of global product standards': see H. Selin & S.D. VanDeveer, 'Raising Global Standards: Hazardous Substances and E-Waste Management in the European Union' (2010) 48(10) *Environment*, pp. 6–18, at 14.

7 D. Vogel, *Trading Up: Consumer and Environmental Regulation in a Global Economy* (Harvard University Press, 1995); and 'Trading Up and Governing Across: Transnational Governance and Environmental Protection' (1997) 4(4) *Journal of European Public Policy*, pp. 556–71. 'California' was chosen because of the levelling-up effect that the state's car emissions standards once had on others. Recently, Bradford coined the term 'Brussels effect'with regard to EU regulations: see A. Bradford, 'The Brussels Effect', paper presented at the Columbia Law School Faculty Workshop Series, 17 Nov. 2011, available at: http://www.scribd.com/doc/84816669/The-Brussels-Effect-Bradford.

8 For a critical overview, see C. Radaelli, 'The Puzzle of Regulatory Competition' (2004) 24(1) *Journal of Public Policy*, pp. 1–23. Both races-to-the-bottom (laxity) and races-to-the-top (strictness) are predicted and both have been seen as desirable or undesirable: see P.P. Swire, 'The Race to Laxity and the Race to Undesirability: Explaining Failures in Competition among Jurisdictions in Environmental Law' (1996) 14(2) *Yale Law & Policy Review*, pp. 67–110.

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to design their products in accordance with the standard abroad. Having made the investment to fulfil this standard, and potentially applying it to all products based on economies of scale, exporting firms may lobby for similar standards at home – to remove the cost advantage of competitors who do not export or care about standards elsewhere. If government reacts by a legal ratcheting-up, we have a Vogel-type 'race-to-the-top' ('top' not necessarily meaning more effective, just more demanding).[9] The term 'California effect' has been applied to different phenomena and drivers of levelling-up[10] but, following Vogel and Kagan, it is understood here as regulatory reform that is essentially driven by business actors as a result of economic incentives.[11] I use this narrow definition because the market-based explanation is the most interesting aspect of moves towards regulatory tightening, and because it is the one put forward by those who predict a levelling-up in the case of chemicals regulation.

A 'California effect', of course, does not occur unconditionally. The high-standard country has to be an attractive export market, so that the benefits of continued trade and compliance outweigh firms' compliance costs. The larger the market of the stricter country relative to the less strict one, the more a 'California effect' is likely to occur.[12] A second precondition is that the high-standard country is allowed to restrict imports. Under World Trade Organization (WTO) rules, trade barriers for health or environmental reasons are possible because of product characteristics but difficult for production methods.[13] In addition to these economic and legal preconditions, socio-political

9 In her work on the 'Brussels effect', Bradford (n. 7 above) differentiates between a 'de facto Brussels Effect' (whereby firms apply high foreign standards to all their products), and a 'de jure Brussels Effect' (whereby the standards are also incorporated into their home country's law). The latter is an essential part in my definition of the 'California effect'. Other scholars have the same understanding: see, e.g., S. Princen, 'Trading Up in the Transatlantic Relationship' (2004) 24(1) *Journal of Public Policy*, pp. 127–44, at 129.

10 Several authors have used the term 'California effect' for international and EU harmonization through which 'green' countries (with the help of supranational institutions) push others to set common standards at a relatively high level: see, e.g., P. Genschel & T. Plümper, 'Regulatory Competition and International Cooperation' (1997) 4(4) *Journal of European Public Policy*, pp. 626–42. The term has also been applied to a levelling-up with regard to voluntary standards, not only governmental regulation: see, e.g., A. Prakash & M. Potoski, 'Race to the Bottom? Trade, Environmental Governance, and ISO 14001' (2006) 50(2) *American Journal of Political Science*, pp. 350–64.

11 See D. Vogel & R.A. Kagan, 'National Regulations in a Global Economy', in D. Vogel & R.A. Kagan (eds.), *Dynamics of Regulatory Change: How Globalization Affects National Regulatory Policies* (University of California Press, 2004), pp. 1–41, at 14–5: Although 'market mechanisms do not exhaust the vehicles through which nations may export stricter regulatory standards, we use the term "California effect" to refer only to market mechanisms'.

12 S. Princen, 'The California Effect in the EC's External Relations: A Comparison of the Leghold Trap and Beef-Hormone Issues between the EC and the US & Canada', paper prepared for the ECSA 6th Biennial International Conference, Pittsburgh, PA, 2–5 Jun. 1999, available at: http://aei.pitt.edu/2367.

13 WTO law does not allow countries to discriminate among like products through trade-related measures (Art. III of the General Agreement on Tariffs and Trade (GATT), Marrakesh (Morocco), 15 Apr. 1994, in force 1 Jan. 1995, available at: http://www.wto.org/english/docs_e/legal_e/06-gatt_e.htm). Exemptions for different standards only based on production methods are possible under Art. XX GATT, if a measure is 'necessary for the protection of human, animal or plant life or health', or 'relating to the conservation of exhaustible natural resources'. While the article had been traditionally interpreted to rule out policies aimed at protecting the environment outside a country's own borders, the situation is less clear after the ruling in the *Shrimp/Turtles* case said that the protection of turtles as a migratory species fulfils the requirement of a 'sufficient nexus': see Appellate Body Report, *United States – Import Prohibition of Shrimp and Certain Shrimp Products* (*Shrimp/Turtles*), WT/DS58/AB/R, adopted on 6 Nov. 1998, available at: http://www.wto.org/english/tratop_e/envir_e/edis08_e.htm.

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factors influence the occurrence of a legislative levelling-up. There is no 'trade determinism' where regulatory standards are determined only by economic pressure.[14] Arguments for adopting foreign rules are more likely to be taken up by a government, if tying in with perceived problems, prevalent values and existing regulatory traditions.[15] Costs and expected effectiveness play a role – as well as support (for example, by NGOs in a 'Baptist-bootlegger coalition') or opposition by other stakeholders.

Explicitly referring to a market-driven and legally implemented 'California effect', several authors have predicted or see potential for REACH to become a world standard (including in the US).[16] As the EU is an attractive export market with one fifth of global chemical use,[17] and since REACH applies to imports, the basic conditions for a 'California effect' are fulfilled. So far, however, the foreign industry's position has not been empirically investigated. This is the first work to analyze whether, in the current debate on TSCA reform, US chemical exporters push for rules similar to REACH (the first and necessary step for a 'California effect'). Contrary to expectations, I show that chemical exporters are currently not lobbying for REACH-like requirements, and I suggest explanations for why this is not the case. A normative judgment on REACH or industry's position is not intended.

This article starts by reviewing the role that competitiveness arguments played in the making of the EU chemicals regulation, before presenting the key features of REACH in comparison with its US counterpart, TSCA (Section 2.1). It then turns to the applicability of the 'California effect' to REACH by analyzing the fulfilment of preconditions and identifying which concrete provisions industry might lobby for elsewhere (Section 2.2), and to empirical evidence for REACH's globalization so far (Section 2.3). Following a short introduction to the US reform debate and the actors participating therein (Section 3.1), Section 3.2 features the article's main contribution by presenting – mainly based on the analysis of public statements – the stance of US industry. Possible explanations for why the 'California effect' does not work here are then discussed (Section 3.3). The article ends with a summary and an outlook on the influence of REACH in the US.

2. REACH AND ITS POTENTIAL FOR A GLOBAL REACH VIA THE 'CALIFORNIA EFFECT'

As in other fields of risk regulation, chemicals policy is focused on collecting knowledge about hazard potential and managing substances that pose unacceptable risks to human health or the environment. There were early European Community (EC) rules on classification, labelling and packaging, but regulation on testing and restriction was

14 Princen, n. 9 above, at p. 141.

15 Ibid., at p. 128.

16 See Sachs, n. 3 above, and Wirth, n. 6 above. See also V. Heyvaert, 'Globalizing Regulation: Reaching Beyond the Borders of Chemical Safety (2009) 36(1) *Journal of Law and Society*, pp. 110–28; and J. Scott, 'From Brussels with Love: The Transatlantic Travels of European Law and the Chemistry of Regulatory Attraction' (2009) 57 *American Journal of Comparative Law*, pp. 897–942.

17 Verband der Chemischen Industrie (VCI) [German Association of the Chemical Industry], *Chemiemärkte weltweit: Umsatz, Handel und Verbrauch von Chemikalien* (2011), available at: https://www.vci.de/Downloads/Media-Weitere-Downloads/2011_08_04_VCI-Studie_Chemiemaerkte_weltweit_2011.pdf.

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only introduced in 1979 – as a response to the then new US federal law, TSCA. When adopted, TSCA was seen as a demanding regime for new chemicals, posing a 'serious threat for European exports to the lucrative American market'.[18] The ratcheting-up in the EC was taken by Vogel as an example of the 'California effect': European businesses feared that, unless EC standards were comparable with those of the US, they would lose market access.[19] In contrast to TSCA, the EC regime was regularly amended, but the regulation of existing chemicals did not improve significantly. A reform debate began in the late 1990s in order to correct the flaws and, according to Selin, in an attempt by 'green' Member States to export their stricter restriction rules to the EC level – a harmonization type of levelling-up.[20]

While the principles of reform stayed the same, specific rules were weakened (from a precautionary perspective) over the course of legislation in response to industry lobbying and increasing concerns about the competitiveness of the European chemical industry. Only environmentalists argued that a strict policy gives a competitive advantage by fostering innovation and pioneer effects.[21] Political actors saw environmental and health benefits, but neither a majority of them nor industry saw economic benefits. Industry was worried about costs and negative effects on competitiveness.[22] Strong opposition also came from US business and government. This is not surprising since a strict policy also imposes costs on US industry – US$390 million in 11 years, according to an early calculation by its association[23] – while environmental and health benefits are enjoyed elsewhere. But heavy lobbying[24] did not stop REACH from coming into force in June 2007. The following section presents the main provisions of the Regulation on the production, import and use of chemical substances (different rules apply for *articles* containing such substances).

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18 G. Majone, 'Cross-National Sources of Regulatory Policymaking in Europe and the United States' (1991) 11(1) *Journal of Public Policy*, pp. 79–106, at 98.

19 Vogel, 'Trading Up and Governing Across', n. 7 above, at p. 563.

20 H. Selin, 'Coalition Politics and Chemicals Management in a Regulatory Ambitious Europe' (2007) 7(3) *Global Environmental Politics*, pp. 63–93, at 71.

21 This argument corresponds with the 'race-to-the-top' concept in M. Porter, *The Competitive Advantage of Nations* (Free Press, 1990). Porter's predictions, however, are unlikely to hold in chemicals regulation, as shown in T. Frohwein & B. Hansjürgens, 'Chemicals Regulation and the Porter Hypothesis: A Critical Review of the New European Chemicals Regulation' (2005) 2(1) *Journal of Business Chemistry*, pp. 19–36.

22 See, e.g., F. Ackerman & R. Massey, 'The True Costs of REACH', Nordic Council of Ministers, 2004, available at: http://www.norden.org/da/publikationer/publikationer/2004-557/at_download/publicationfile. The EU Commission estimated costs at €2.3 billion in 11 years (around 0.05% of industry turnover, 2% of profit). Calculations in industry-financed studies ran up to €10 billion. In the first *ex post* study, the compliance costs estimate for the first registration period is €2.1 billion (between estimates of the Commission and industry). See Centre for Strategy & Evaluation Services, 'Functioning of the European Chemical Market after the Introduction of REACH', 30 Mar. 2012, available at: http://ec.europa.eu/enterprise/sectors/chemicals/files/reach/review2012/market-final-report_en.pdf.

23 American Chemistry Council, 'Impact of the Proposed EU Chemicals Policy on U.S. Exports', 11 Jan. 2002, available at: http://www.chemicalspolicy.org/downloads/ACC2.doc.

24 D. Brownfield, 'Reform of U.S. Chemicals Regulation May Not Be Out of REACH' (2008) 21(2) *Global Business & Development Law Journal*, pp. 223–49, at 239.

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2.1. *REACH's Regulatory Requirements – A Comparison with TSCA*[25]

The first main element of REACH is the *registration* of a chemical together with a basic data set. This acts as a precondition for market activity ('no data, no market') for all chemicals produced in quantities above 1 ton per year (t/y) – including those already in commercial use, which is one of REACH's 'revolutionary aspects'[26] because chemicals already existing at the time of legislation were traditionally advantaged. New chemicals must be registered immediately; the estimated 33,000 existing chemicals above the volume threshold (around 60,000 chemicals are estimated to be below it) over a period of 11 years, with different deadlines depending on their production volume and toxicity concerns. Firms are required to submit a Technical Dossier with information about the chemical's properties, classification and applications (across the supply chain), guidance for its safe use, and tests performed. For chemicals produced in quantities of more than 10 t/y, an additional Safety Report is obligatory; this features laboratory hazard findings (exact testing requirements depend on the quantity), exposure scenarios covering all known uses, and risk management recommendations. The flow of information to downstream users is also an important element of REACH.

When TSCA was enacted, existing chemicals were automatically registered without any data requirements ('grandfathering'). Section 4 of TSCA allows the US Environmental Protection Agency (EPA) to require testing if available data is insufficient to make adequate risk determinations and if the chemical 'may present an unreasonable risk' or is used in substantial quantities. This creates a 'Catch-22': the 'EPA must find that a chemical presents an unreasonable risk before it can require testing, but to make that risk determination, the EPA first needs test data'.[27] Thus, the EPA has formally required testing for only about 200 of 62,000 existing chemicals since 1979. It has initiated testing programmes negotiated with industry but these have been criticized by NGOs. For new chemicals, section 5 of TSCA requires firms to notify the EPA and submit a data sheet 90 days before producing or processing a chemical. This rule is wider in scope than the REACH registration provisions since it applies regardless of volume, but the data requirements are quite below those attached to REACH's Safety Report for chemicals above 10 tons.[28]

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25 For a detailed comparison of REACH and TSCA (and the Canadian policy), see R. Denison, 'Not That Innocent: A Comparative Analysis of Canadian, European Union and United States Policies on Industrial Chemicals', Apr. 2007, available at: http://www.edf.org/sites/default/files/6149_NotThatInnocent_Fullreport.pdf. For a shorter but more analytical comparison, see J.S. Applegate, 'Synthesizing TSCA and REACH: Practical Principles for Chemical Regulation' (2008) 35 *Ecology Law Quarterly*, pp. 721–69.

26 Denison, n. 25 above.

27 Brownfield, n. 24 above, at p. 228.

28 The so-called pre-manufacture notification (PMN) must contain information (mostly confidential) on the chemical identity, physical characteristics, processing and use, and toxicity data – but only data which is already available. Firms rarely have the incentive to conduct additional testing. For that reason, health and safety data exist for only about 15% of chemicals: see US Government Accountability Office, 'Chemical Regulation: Options Exist to Improve EPA's Ability to Assess Health Risks and Manage Its Chemical Review Program', GAO-05-458, Jun. 2005, available at: http://www.gao.gov/new.items/d05458.pdf. The EPA faces the same difficulties in requiring additional testing as it does with regard to obtaining data about existing chemicals. To screen new chemicals in the 90-day period, it relies mainly on existing knowledge about chemicals with similar molecular structures.

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Under REACH, the *evaluation* regime allows the European Chemicals Agency (ECHA) to request more information in order to clarify suspicions of risks. Evaluation may lead to the conclusion that action under the restriction or authorization procedures is needed. *Restriction* of chemicals is foreseen when they pose an 'unacceptable risk to human health or the environment' which needs to be addressed at the Community level. Under TSCA, the trigger for restriction is 'unreasonable risk' (section 6). Strict judicial interpretation has set very high demands for scientific certainty and proof of cost-effectiveness so that the EPA has so far restricted the use of only five existing chemicals or chemical classes. To meet the burden of proof for an 'unreasonable risk' and survive court scrutiny, the EPA must develop 'substantial evidence', demonstrate that a measure is the least burdensome alternative, and that benefits outweigh costs. The EPA has not restricted a single chemical since 1990 when a ban on asbestos was struck down in court because the judges regarded the ban not to be the least burdensome measure available. It is too early to judge whether EU restrictions will be applied more strictly, since this will depend on their interpretation by the EU institutions.

A revolutionary aspect of chemicals regulation under REACH, unknown under TSCA, is the *authorization* of chemicals. Public authorization is required for the production and use of chemicals considered to be especially worrisome: so-called 'substances of very high concern' (SVHC) listed in Annex XIV.[29] Even existing chemicals falling within an appropriate category may, after the lapse of a sunset date, be produced, traded and used only if public approval has been obtained. The applicant firm must furnish proof in the form of an extensive file with a risk assessment and risk management recommendations. Where it is shown that risks to the environment and human health are 'adequately controlled', the European Commission (always taking into account the opinions of the ECHA and its advisory committees) must authorize the use. Where it is impossible to fully contain the risks, the Commission still may grant authorization if the 'socio-economic benefits outweigh the risk' and if there is a substitution plan, or if it is shown that no suitable alternatives exist. If substitutes become available later, the Commission may amend or withdraw the authorization.

Given the data requirements and the authorization regime, REACH is currently the world's most demanding chemicals safety regime. Heyvaert lists several reasons why the EU would be interested to export REACH:[30] (i) it believes in the inherent superiority of the regime; (ii) it wants to bolster the legitimacy of the approach in light of concerns regarding WTO compatibility; and (iii) it seeks equally costly regulations abroad to avoid a competitive disadvantage of its firms in the global market. In as early as 2003, two members of the European Commission stated that the competitive impact of REACH can be justified only if it establishes 'itself as a new international standard'.[31] Finally, some would argue more critically that exporting REACH is an instrument of

[29] Substances concerned are so-called CMR (causing cancer, mutations, or being toxic to reproduction), PBT (being persistent, bioaccumulative – meaning that they build up in people and animals – and toxic); vPvB (very persistent and very bioaccumulative); or when giving rise to equivalent concerns. In Feb. 2011, the EU added the first six chemicals to Annex XIV; many more are on the 'candidate list'.

[30] Heyvaert, n. 16 above, at p. 112–4.

[31] European Commission, n. 5 above.

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EU 'empire-building'.[32] However, the focus of this article is not on the exporting but the importing of REACH and, more specifically, whether a 'California effect' occurs.

2.2. *The Potential of REACH Provisions to Globalize via a 'California Effect'*

In the case of REACH, the preconditions for industry incentives and pressure *à la* 'California effect' seem to be fulfilled.[33] Firstly, REACH applies to imported chemicals and the EU is able to close its borders to those not in compliance. There were some doubts, inter alia by US commentators, on whether REACH is compatible with WTO rules. But the fact that REACH does not discriminate between foreign and European products speaks in its favour.[34] Secondly, the chemicals market is very international (40 per cent of global production is traded across borders) with the EU being the largest producer region (with one fourth of global production) and a 'highly desirable'[35] export market with one fifth of global chemical use.[36] According to Ackerman et al., US exports to the EU have a 6 per cent share of the total US chemicals production value, with half falling under the scope of REACH.[37] Valuing 'REACH exports' at $14 *billion* per year, the benefits of continued trade and compliance would far outweigh the compliance costs of about $14 *million* per year. Today, export figures are even higher[38] and, in addition to exports, US firms produce directly in the EU and this production must also comply with REACH. Unfortunately, no figures are available as to what share of all the various substances produced by US firms (or globally) is affected by REACH.

US industry was initially strongly opposed to REACH but, given that it now complies with the regime, Scott speaks of there being a 'strong incentive for comparable standards' domestically.[39] Heyvaert has been more precise than anyone else on which provisions of REACH are most likely to be imported. According to her, the feature most

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32 Heyvaert, n. 16 above, at p. 114.

33 See also V. Heyvaert, 'Regulating Chemical Risk: REACH in a Global Governance Perspective', in J. Eriksson, M. Gilek & C. Rudén (eds.), *Regulating Chemical Risks: European and Global Challenges* (Springer, 2010), pp. 217–38.

34 S. Harrell, 'Beyond "REACH"? An Analysis of the European Union's Chemical Regulation Program under World Trade Organization Agreements' (2006) 24 *Wisconsin International Law Journal*, pp. 471–522. And, so far, no country has challenged REACH (a precondition for WTO rulings).

35 Heyvaert, n. 33 above, at p. 230.

36 Verband der Chemischen Industrie, n. 17 above.

37 F. Ackerman, E. Stanton & R. Massey, 'European Chemical Policy and the United States: The Impacts of REACH' (2006), Working Paper 06-06, Global Development & Environment Institute, Tufts University, Sep. 2006, available at: http://www.ase.tufts.edu/gdae/Pubs/wp/06-06USREACH.pdf.

38 As a result of different categorizations, production and export figures differ. According to the VCI (n. 17 above), chemical production in the US was valued at €584 billion in 2010, with €129 billion exported. No specific figure is provided for exports to the EU, but applying the 6% from Ackerman et al. (ibid.) would mean €35 billion in EU-exports (i.e. more than 25% of total US exports), of which half would fall under REACH.

39 Scott, n. 16 above, at p. 909.

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likely to 'globalize' is the registration and information gathering regime since it acts as a precondition for market entry for so many chemicals.[40] Heyvaert also sees harmonization incentives for the authorization and restriction regimes, although fewer chemicals are involved, creating fewer situations of competitive disadvantage for importers into the EU: for example, complying with different maximum concentration limits imposed in different jurisdictions upon a single substance could be inefficient.

Regarding the latter, one could add that if chemicals are also restricted or prohibited in jurisdictions other than the EU, this would expand market opportunities for firms having investigated into substitutes. Heyvaert's analysis only briefly touches upon the possibility that procedures and criteria are harmonized, but still lead to different administrative decisions regarding, for example, concentration levels. In the case of authorization, however, there could still be a harmonization incentive: exporters might want their domestic competitors to have a similar *procedural* burden (in terms of proving adequate control of risk) for the same or similar substances, or that they – being the original testing conductor and data submitter – are compensated (as foreseen under REACH) by those firms which register later.

Against Heyvaert's assumption that the *registration* regime is the one with the greatest incentives to lobby for, one can argue that data requirements are not a classical product standard for determining design, technology, efficiency levels, etc. They are rather about information (with costs for gathering being incurred only once) attached to the product, and a chemical producer could just leave out the data sheets where not required. There are no real economies of scale for a firm that shifts from producing products that fulfil different standards to one product that fulfils the highest standard. This implies that Bradford's 'non-divisibility' condition for a 'Brussels effect' may be unfulfilled. The 'non-divisibility' condition requires that:

> [the] benefits of adopting a uniform global standard exceed the benefits of adhering to multiple, including laxer, regulatory standards. This is the case in particular when the firms' conduct or production is non-divisible, meaning that it is not legally or technically feasible, or economically viable, for the firm to maintain different standards.[41]

However, with average testing costs estimated (in 2003) to be €200,000 for high-volume chemicals,[42] exporters may, as Sachs writes in line with the 'California effect', still 'lobby for similar mandatory testing and disclosure rules in the [US] to level the playing field' with competitors selling their products in the US but not exporting them to the EU.[43]

A 'California effect', as understood here, finally requires legislative change. Instead of copying the complex EU-specific institutional design, governments will rather anchor

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40 Heyvaert, n. 33 above, at p. 231.

41 See Bradford, n. 7 above, at p. 3. Bradford nevertheless mentions REACH as a case for the 'Brussels effect'.

42 F. Pedersen, J. de Bruijn, S. Munn & K. van Leeuwen, 'Assessment of Additional Testing Needs under REACH', EU Commission, Joint Research Center, Institute for Health and Consumer Protection, Sep. 2003, available at: http://ec.europa.eu/enterprise/sectors/chemicals/files/reach/testing_needs-2003_10_29_en.pdf.

43 Sachs, n. 3 above, at p. 1863.

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rules within the domestic institutional structure.[44] Still, much of REACH is about regulatory processes which are less likely to be adapted by other governments.[45] Even with regard to principles and substantive provisions, Tickner et al. write that, in spite of similar problems, 'solutions may not be exactly the same due to political, economic, legal and cultural differences'.[46] Indeed, the EU is associated with preventive regulatory action, the US with risk-based approaches and tort law. Although this distinction is too simplistic[47] and REACH is not an extreme example of the precautionary principle,[48] it reverses some core features of chemicals regulation. Finally, the power of the model could be questioned: the effectiveness of REACH is not yet proven, and the huge amount of data that public authorities have to deal with may have a deterrent effect on non-EU regulators contemplating reform. Thus, it might be that chemical exporters push for REACH rules but their governments decide differently.

2.3. *Empirical Evidence for REACH's Global Influence to Date*

Is there empirical evidence yet for an importing of REACH by non-EU countries? Evidence for a real 'California effect' is poor to date because the scholarship has so far not investigated industry's position. Work outside this conceptual framework indicates some, but – kept in perspective – rather limited influence. Although Norway has incorporated the whole REACH regime into national legislation and has even recognized the authority of EU institutions, this is not surprising and it is no test for the 'California effect' since the country was legally required to do this as part of the European Economic Area (EEA).[49] In his weblog, Denison writes that 'a number of [REACH's] core principles are going global, shaping or showing up in new policies and regulations all over the world in places as various as South Korea, China and Turkey'.[50] But although some provisions are similar to those of the EU, there are also many differences and there is no single

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44 Heyvaert, n. 33 above, at p. 232.

45 A.R. Young, 'Political Transfer and "Trading Up"? Transatlantic Trade in Genetically Modified Food and U.S. Politics' (2003) 55(4) *World Politics*, pp. 457–84, at 483.

46 J. Tickner, K. Geiser & M. Coffin, 'The U.S. Experience in Promoting Sustainable Chemistry' (2005) 12(2) *Environmental Science and Pollution Research*, pp. 115–23, at 116.

47 J. Wiener & M.D. Rogers, 'Comparing Precaution in the United States and Europe' (2002) 5(4) *Journal of Risk Research*, pp. 317–49.

48 As Heyvaert shows, REACH has not much that could have not been included without the principle: see V. Heyvaert, 'Guidance Without Constraint: Assessing the Impact of the Precautionary Principle on the European Community's Chemical Policy', in T.F.M. Etty & H. Somsen (eds.), *Yearbook of European Environmental Law, Vol. 6* (Oxford University Press, 2005), pp. 27–60. If at all, it is the principle's weak version since REACH takes economic aspects into account, e.g., for authorization. Keating actually calls it a 'risk-based' policy and TSCA 'hazard-based': see D. Keating, 'EU Chemicals Policy Reaches Out Beyond Europe', *ENDS Europe*, 11 Dec. 2009; available at: http://www.endseurope.com/22844/eu-chemicals-policy-reaches-out-beyond-europe.

49 Heyvaert, n. 33 above, at p. 230–1.

50 R. Denison, 'Data and Safety Requirements for New Chemicals: China Blows Past the US', *Environmental Defense Fund*, 16 Nov. 2010, available at: http://blogs.edf.org/nanotechnology/2010/11/16/data-and-safety-requirements-for-new-chemicals-china-blows-past-the-us; and A. Tracey, 'One Solid Step for REACH, One Giant Leap for Chemicals Policy', *Environmental Defense Fund*, 21 Mar. 2011; available at: http://blogs.edf.org/nanotechnology/2011/03/21/one-solid-step-for-reach-one-giant-leap-for-chemicals-policy.

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regulatory element of REACH that seems consistently to inspire legislative reforms abroad.[51] What Denison does not write about is industry's role and position in this process of regulatory interaction.

To date, the only detailed and theoretically based analysis of the influence of REACH is Naiki's study regarding Japan.[52] Faced with the usual regulatory gaps, especially with regard to existing chemicals, Japan changed its chemicals policy in 2009. New and old chemicals above a REACH-like 1 t/y threshold now have to be registered together with hazard and use information. But the burden on industry is much smaller than it is under REACH and the new policy is actually closer to Canada's prioritization approach:[53] only existing data has to be submitted; further testing is necessary only for chemicals that are then prioritized. In the end, any required risk assessment is undertaken by the government. According to Naiki, putting a higher burden on industry would have gone against the traditional domestic approach. There was no 'Baptist-bootlegger coalition': neither NGOs nor industry did push for REACH-like legislation. Unfortunately, Naiki did not analyze industry's positions and motives in detail.

Before finally turning to the US federal reform debate, it is worth taking a look at the US sub-national level. According to Tickner et al., US federal states have been the innovator in environmental policy, including chemicals regulation.[54] Between 2003 and 2010, 71 chemical safety laws and rules (mostly on particular substances) were adopted in 18 states.[55] This is seen as a reaction to the stalemate at the federal level and also to regulatory developments abroad.[56] Seeing federal states as a 'point of entry for foreign law',[57] Scott has analyzed the influence of REACH on them, but again without specific consideration of industry's position. California, for instance, has shown a 'healthy interest and respect' vis-à-vis REACH, including the commission of a report in 2004 which states that REACH could lead to a long-term EU competitive advantage.[58]

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51 Turkey uses the same 1 t/y threshold above which it requires data submission for existing chemicals but, with regard to hazard data, only existing information has to be submitted and only for chemicals above 1,000 t/y. The South Korean government has recently proposed a law requiring risk assessment information for chemicals above 100 t/y. Meanwhile, the Chinese regulation is more demanding than REACH on *new* chemicals: minimum data sets are required for all new chemicals, regardless of the production volume; risk assessments of new chemicals are already necessary when more than 1 t/y is produced.

52 Y. Naiki, 'Assessing Policy Reach: Japan's Chemical Policy Reform in Response to the EU's REACH Regulation' (2010) 22(2) *Journal of Environmental Law*, pp. 171–95.

53 Canada decided in 1999 to examine *existing* information on the approximately 23,000 chemicals in commerce: see Denison, n. 25 above. Based on this information, the government identified those chemicals (mainly PBT) which require further assessment and perhaps restriction (no legal details exist for this). 4,300 chemicals were identified as requiring further assessment, among them 500 as 'high priority'.

54 Tickner et al., n. 46 above, at p. 119.

55 Safer Chemicals, Healthy Families, 'Healthy States', 17 Nov. 2010; available at: http://blog.saferchemicals.org/2010/11/healthy-states-protecting-families-from-toxic-chemicals-while-congress-lags-behind.html.

56 D.W. Ditz, 'The States and the World: Twin Levers for Reform of U.S. Federal Law on Toxic Chemicals' (2007) 8(1) *Sustainable Development Law & Policy*, pp. 27–30, at 27.

57 Scott, n. 16 above, at p. 935.

58 M.P. Wilson, D.A. Chia & B.C. Ehlers, 'Green Chemistry in California: A Framework for Leadership in Chemicals Policy and Innovation', California Policy Research Center, 2006, Executive Summary p. xiv, available at: http://www.ucop.edu/cprc/documents/greenchemistryrpt.pdf.

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Legislation was passed in 2008,[59] the same year as in Maine,[60] but it did not include data and authorization rules of the kind that characterize REACH. Scott writes: 'We see an openness to being inspired by it, and a willingness to borrow from it. What we do not see, however, is any unequivocal or passive endorsement of it.'[61]

3. DOES REACH TRIGGER A 'CALIFORNIA EFFECT' IN THE US?

State activity represents a 'bottom-up pressure' for the federal level[62] and, after not having been amended since its enactment in 1976, TSCA reform has been increasingly debated since 2005. The following section starts with a short introduction to this debate and its actors before focusing on the key driver of a 'California effect': industry (Section 3.2). Some dozens of public statements by the chemical industry, policy-makers and civil society have been analyzed – among others, all Congressional testimonies delivered by industry on TSCA reform between 2009 and 2011, from associations (mainly the American Chemistry Council) and individual firms (mainly the two largest US producers, Dow Chemicals and DuPont). In addition, the findings rely on a written interview with a regulatory affairs director at Dow Chemicals.[63]

3.1. *Political Setting: The Reform Debate at the Federal Level*

The basic economic and legal preconditions for a 'California effect' were shown, in Section 2.2 above, to be fulfilled. In addition, political circumstances for US federal reform have been relatively favourable in recent years. Congress members announced reform plans and started hearings, and the Obama Administration put TSCA on its list of policies that need broad transformation and priority attention.[64] Apart from the state activity mentioned above, as well as public awareness arising from headlines on toxic chemicals in toys and baby products,[65] REACH has been an impetus for the attention given to TSCA reform. Scott writes that REACH 'has served to intensify already existing concerns about the adequacy of current policy, and to feed the impetus for reform'.[66]

For public interest groups, REACH is even regarded as a 'lodestar for reform'.[67] Dozens of public health and environmental organizations (research and advocacy) created the campaign network 'Safer Chemicals, Healthy Families'.[68] While the

[59] California Assembly Bill No. 1879, Chapter 559.

[60] Me. Rev. Stat. Ann. tit. 38, §§ 1691–1699-B (2008) (Maine Toxic Chemicals in Toys Act).

[61] Ibid., at p. 936.

[62] Ditz, n. 56 above, at p. 27.

[63] Correspondence by e-mail (questions and answers) in Jul. and Aug. 2011 with a Director for US Chemicals Management Policy (on file with the author).

[64] US Government Accountability Office, 'High-Risk Series: An Update', GAO-09-271, Jan. 2009, available at: http://www.gao.gov/new.items/d09271.pdf.

[65] Sachs, n. 3 above, at p. 1859.

[66] Scott, n. 16 above, at p. 938.

[67] Sachs, n. 3 above, at p. 1861.

[68] See http://saferchemicals.org.

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'Baptist' part of Vogel's concept did not hold in the case of Japan,[69] NGOs in the US do promote REACH as a model, although they ask for an even more demanding regime – as NGOs did in Europe when REACH was drafted.[70] Also similar to the EU debate, NGOs argue – with some support from workers' associations – that strict regulation would be competitively advantageous for the chemical industry.[71] Thus, US firms pushing for REACH would be harnessed by the NGO perspective. In the parliamentary arena, meanwhile, the outlook is more mixed.

In 2010, Democratic Congress members introduced reform bills with a highly precautionary approach in both Houses of Congress. Based on similar draft bills from 2005, Senator Lautenberg introduced a Safe Chemicals Act in April 2010[72] (slightly modified towards a prioritization approach one year later[73]), and Representatives Rush and Waxman a somewhat different TSCA 2010[74] just three months later. Both bills would require Minimum Data Sets (MDS) with hazard, use and exposure information, not only for new chemicals (immediately) but also for existing substances within five years following enactment or 18 months after a chemical has been prioritized. In a major departure from the current TSCA, many chemicals would require a health-based safety determination in order to enter or remain on the market. New chemicals and new uses would have to undergo a safety assessment before manufacturing, while existing chemicals would be assessed over time according to a continuously updated priority list. Both bills define the standard as ensuring 'reasonable certainty of no harm' from the aggregate exposure (with special regard to vulnerable and disproportionally exposed populations). The burden would be on the firm to prove that its substance meets the standard, while the EPA would have to determine whether it has done so. Chemicals that do not meet the standard would be prohibited (with existing chemicals to be phased out in one year) unless subject to a critical use exemption. There are also special provisions on PBTs, for which the EPA should impose immediate restrictions without further assessment.

Those who drafted the bills have no ideological reluctance towards REACH, although they do not often refer to it in statements, and the provisions and language of the bills certainly do not copy the EU regime. The principle of shifting the burden towards industry is the same, but differences are numerous:

69 Naiki, n. 52 above.

70 Three key demands of the NGO network are: (i) gathering full health and environmental information on all chemicals (also regardless of volume); (ii) applying a safety standard (with consideration of total exposure) on all chemicals; and (iii) immediate regulatory action on PTBs: see Safer Chemicals, Healthier Families, 'What We Want', 2012, available at: http://saferchemicals.org/about/want.html.

71 Safer Chemicals, Healthier Families, 'The Business Case for Comprehensive TSCA Reform', 2012, available at: http://www.saferchemicals.org/resources/business.html.

72 S. 3209 (111th Congress): Safe Chemicals Act of 2010; available at: http://www.govtrack.us/congress/bills/111/s3209

73 S. 847 (112th Congress): Safe Chemicals Act of 2011; available at: http://www.govtrack.us/congress/bills/112/s847

74 H.R. 5820 (111th Congress): Toxic Chemicals Safety Act of 2010; available at: http://www.govtrack.us/congress/bills/111/hr5820

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(a) polymers would not be exempted in the US;
(b) registration and data submission in the US would be pre-manufacture, not pre-marketing;
(c) downstream users would have to submit a pre-processing notification;
(d) requirements in the US would not depend on production volume;
(e) existing chemicals would have to be registered within five years, as opposed to eleven in the EU;
(f) hazard and exposure information would be necessary in all MDS, not just for chemicals above 10 t/y as in the EU;
(g) while in the EU it is only SVHCs that need authorization, the EPA would have to make a safety determination for a much broader range of chemicals (including all new ones);
(h) while in the EU the benchmark for authorization is 'adequately controlled risk', the US would deploy a 'no harm' standard (the notion of 'reasonable certainty of no harm' is also used in food and pesticides regulation);
(i) TSCA would require 'aggregate exposure' from all uses to be taken into account in the risk assessment (while REACH demands adequate risk control only for single uses); and
(j) particular regulatory attention is given to issues characterizing the US chemicals discourse, such as green chemistry, 'vulnerable populations', and 'hot spots'.

In a nutshell, the Congress bills are more about (deeply) reforming TSCA than importing REACH,[75] but at the same time show an openness to a precautionary policy in the US. The stringent regulatory demands, however, made the bills a target for Republican Congress members. In their criticism one can see persistent ideological reluctance towards precautionary approaches.[76] Moreover, it would hardly please industry that the bills are even more demanding than REACH, since this would create an additional burden instead of a harmonization effect. Still, exporting firms could call for EU-like regulation as an alternative – or a compromise between the status quo and the proposed bills.

Because of the Republican opposition, the draft bills have not made it beyond the stage of committee hearings (July 2012). Hence, even if industry pushes for REACH-like reform, a 'California effect' may still not materialize for lack of a regulatory response. The following investigation concentrates on the first and, by definition, necessary precondition for a 'California effect': whether US chemical exporters push

[75] E. Fisher, 'The "Perfect Storm" of REACH: Charting Regulatory Controversy in the Age of Information, Sustainable Development, and Globalization' (2008) 11(4) *Journal of Risk Research*, pp. 541–63, at 555.

[76] Republican Senator Inhofe said: 'The legislation would eliminate the current risk-based review system under TSCA and force EPA to use the precautionary principle – a regulatory principle that I adamantly oppose': Opening Statement before the Senate Committee on Environment and Public Works, Hearing 2 Dec. 2009. Senator Vitter stated that a policy modelled on REACH is unacceptable since it would threaten innovation and US competitiveness and, assuming REACH will become a global standard, would be wrong: Verdant Law, 'Senate Subcommittee Holds Hearing on TSCA Reform', blog entry 6 Feb. 2011, available at: http://blog.verdantlaw.com/2011/02/06/senate-subcommittee-holds-hearing-on-tsca-reform.

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for REACH-like reform. If they do not, there can be no 'California effect' in the market-driven sense. If they do, a 'California effect' may be within reach although Congress may still decide differently. Given the divided political situation, it seems that industry's position might be of particular importance.

3.2. *The Position of US Chemical Exporters on 'Far-REACHing' TSCA Reform*

At first sight, the situation seems promising for TSCA reform and verification of the 'California effect': US chemical industry representatives declared themselves to be supporters of reform – first and foremost, the American Chemistry Council (ACC) mentioned above, which is dominated by large exporting firms. After a long opposition to TSCA reform, the ACC President, Cal Dooley, stated in a Congress hearing in February 2009 that 'Congress should begin the effort to modernize TSCA'.[77] Later, the ACC published ten reform principles,[78] and multinational corporations (MNCs) have expressed that they 'fully support' these.[79] Other groups are more hesitant. The National Petrochemical & Refiners Association sees TSCA as a 'solid foundation' and expressed support for 'responsibly updating' it.[80] The Society of Chemical Manufacturers & Affiliates (SOCMA)[81] believes TSCA only needs 'revitalization': a better use of existing provisions and voluntary codes. If any, 'some possible enhancements' are 'worth considering'.[82]

However, the ACC is not only opposed to the current reform bills, but also to REACH-like regulation. In the above-mentioned hearing, ACC President Dooley said that 'ACC is not advocating the adoption of the European Union's REACH system',[83] and he has repeated this on many occasions. Other associations attack REACH more strongly as 'fundamentally flawed',[84] and urge to 'shy away from moving towards this type of program'.[85] While there is definitely ACC opposition to EU-style data requirements (see the next paragraph), the assessment and approval of chemicals of

77 American Chemistry Council (ACC), Testimony before the House Subcommittee on Commerce, Trade, and Consumer Protection, Hearing 26 Feb. 2009.

78 ACC, '10 Principles for Modernizing TSCA', 2009, available at: http://www.americanchemistry.com/Policy/Chemical-Safety/TSCA/10-Principles-for-Modernizing-TSCA.pdf.

79 Dow Testimony and DuPont Testimony before the Senate Subcommittee on Superfund, Toxics and Environmental Health, Hearing 9 Mar. 2010.

80 National Petrochemical & Refiners Association, Testimony before the House Subcommittee on Commerce, Trade, and Consumer Protection, Hearing 26 Feb. 2009.

81 The Society of Chemical Manufacturers & Affiliates (SOCMA) is an association representing the batch, custom and specialty chemical industry with mostly small and medium-sized (but usually still exporting) member firms which produce chemicals for specific uses in small quantities. See Frohwein & Hansjürgens, n. 21 above.

82 SOCMA, 'SOCMA's Approach to Chemical Risk Management in 2009 and Beyond: A Response to Calls for TSCA Reform', 2008, available at: http://www.socma.com/assets/File/socma1/PDFfiles/GR_PDF_files/SOCMAsApproach-to-CRM-in-2009andBeyond.pdf.

83 ACC, n. 77 above.

84 SOCMA, Testimony before the Senate Subcommittee on Superfund, Toxics and Environmental Health, Hearing 9 Mar. 2010.

85 National Petrochemical & Refiners Association, n. 80 above.

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concern meets with less resistance. One of the ACC's main reform propositions is that the EPA should make safety determinations on 'high priority chemicals'.[86] While the safety standard in the reform bills is heavily criticized for the 'reasonable certainty of no harm' and consideration of aggregate exposure,[87] industry might be open to the REACH authorization standard of 'adequate control' for particular uses. But industry has rejected the bill proposal without offering any alternative – a shortcoming that has been heavily criticized by policy-makers.[88] It is clearly not the driver for a REACH-like approval process as predicted by the 'California effect' hypothesis.

Where the 'California effect' definitely does not work is in the case of registration and data requirements – the provisions for which it was most likely to occur. Here, industry is not only a non-driver but an opponent of REACH requirements. The ACC thinks that the current TSCA regime works well with regard to new chemicals and that the reform bills require too much data without consideration of risk (depending not only on hazard but also exposure).[89] Since their data provisions are comparable with those in the EU for chemicals above 10 t/y, it can be concluded that EU data requirements are not wanted. This is even less the case with regard to existing chemicals, for which industry insists that additional information should only be gathered if those chemicals are prioritized for a safety determination. This prioritization, in turn, should be based on existing information as is the case in Canada, an example to which the associations regularly refer in a positive manner. This means that only a small part of the approximately 30,000 existing chemicals likely to be registered under REACH would require data gathering, information on use, and exposure consideration in the US. This position of chemical producers is also supported by the downstream industry.[90]

Before dismissing the 'California effect' too quickly, it is useful to take a closer look at the position of the largest US chemical producer, which could be more progressive than the compromise represented by an association. Taking exports and production in the EU together, Dow has one third of its sales in Europe,[91] so to a significant degree it must comply with REACH. It has even announced an intention to gather REACH-required data for all chemicals, whether sold in the EU or not, until 2015 and communicate the data to downstream users. Hence, Dow should have a particular interest in REACH-like requirements in the US. In fact, it does use less critical language on the issue of REACH: 'There are aspects that we do support and other aspects that

86 ACC, n. 78 above.

87 ACC, Testimony before the House Subcommittee on Commerce, Trade, and Consumer Protection, Hearing 29 July 2010.

88 Senate Committee on Environment and Public Works, Hearing 17 Nov. 2011, webcast available at: http://epw.senate.gov/public/index.cfm?FuseAction=Hearings.Choose&Hearing_id=a2714f34-802a-23ad-4b23-3ba5732a0172.

89 ACC, n. 87 above; and SOCMA, Testimony before the House Subcommittee on Commerce, Trade, and Consumer Protection, Hearing 29 July 2010.

90 Associations representing the food and cleaning product industries advocate the same prioritization approach as the ACC does. See B. Greggs, Testimony [on behalf of CSPA, GMA and SDA] before the House Subcommittee on Commerce, Trade, and Consumer Protection, Hearing 17 Nov. 2009. The CEO of the Soap and Detergent Association was quoted as saying 'don't do what Europe did': see Keating, n. 48 above.

91 Dow Chemicals, n. 63 above.

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we believe can be done more effectively.'[92] Dow also wants safety assessments on priority chemicals in order of risk potential; thereafter 'assessments should continue . . . on other substances' (which would mean much later than under REACH). With regard to the EU's authorization standard of 'adequate control', 'there has not been sufficient experience with REACH . . . to support this standard in the [US]' but Dow anticipates a similar safety standard. However, Dow seems to assume that many safety determinations could be achieved without further testing and, importantly, it does not call for anything like the REACH Safety Report with high data requirements and exposure consideration for all chemicals above 10 t/y.

One could claim that industry's behind-the-scene position might differ from what it says publicly. But two years have passed since the bills' introduction in Congress (already presented in a similar form in 2005); if chemical producers pushed behind the scenes, there might not be such a stalemate in Congress. And if industry were more open towards 'far-REACHing' reform, would it not reap the public opinion benefits? In fact, NGOs have recently been joined by Democratic Congress members in voicing their dissatisfaction at the unwillingness of producers to cooperate constructively towards reform.[93]

3.3. *Possible Explanations for Why the 'California Effect' Does Not Work Here*

Surprisingly, the literature referenced here has only discussed reasons why a foreign government would not adopt REACH (for reasons of socio-cultural differences). Even those speculating about a market-driven 'California effect' do not say anything on why industry might not lobby for the EU regime in the first place. One explanation might be ideological reluctance with REACH being perceived as too precautionary and market-intervening. There is evidence in industry's statements of cultural animosity towards REACH, but this could have probably been outweighed by clear-cut economic advantages of harmonization. An alternative or additional – and in my opinion more important – reason lies in Vogel's main variable: the 'business case' for REACH-like standards in the US seems to be insufficient.

A first market-oriented explanation is based on the assumption that too many chemicals produced in the US do not cross the Atlantic, or fall below the 1 t/y registration threshold in REACH. If, despite the globalized sector and large EU market, many chemicals are not covered by REACH and therefore do not yet need data gathering, the benefits to exporters derived from an American REACH could be outweighed by the new burden on those chemicals. They would lose the current cost advantage vis-à-vis EU firms and would have a greater disadvantage in low-standard markets (if the domestic firms in these markets do not export to the EU). This is in line

[92] Ibid.

[93] See especially the battle of words between Senators and ACC President Dooley in the latest Senate Hearing (n. 88 above) on defining the safety standard.

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with industry warnings that excessively strict standards result in a loss of competitiveness.[94] The explanation presented is difficult to verify since there is no data available on how many chemicals produced in the US or globally are affected by REACH and how many are not.[95] The share of substances affected surely varies across producers. I assume that for firms with a limited share of 'REACH chemicals', the explanation has some validity.

However, this does not explain the position of Dow, which seeks to apply EU standards to all its chemicals. Indeed, there might be different reasons why different firms do not have an incentive to lobby for an American REACH. A plausible market-based explanation for why an American MNC, heavily producing in and exporting to the EU, does not push for a level regulatory playing field is that compliance with REACH does not lead to a decisive competitive disadvantage in the home market. One reason may be that it is rarely in direct competition with firms that do not export and care about REACH. In the highly globalized chemical market, all large competitors export into the EU and comply with REACH, too. Even many small and medium-sized enterprises (SMEs) export. Of course, some SMEs do not export or are below the 1 t/y threshold, but MNCs are rarely in direct competition with SMEs because they tend to produce different types of product. In the chemicals market, large firms generally produce basic chemicals in large quantities, and supply small firms which make highly specialized products.[96] Still, a MNC's chemical can have a competitive disadvantage vis-à-vis a rival product of a Chinese firm exporting to the US but not the EU.

Another reason, particularly for Dow's voluntarily wide adoption of REACH standards, may be that compliance costs for many chemicals of a MNC have, so far, not been high enough to create a decisive competitive disadvantage (or, in the case of Dow, additional compliance costs are lower than reputational gains). An industry survey covering the first registration period (addressing high-volume chemicals) has indicated registration costs to be in the range of €25,000 to €100,000 for half of the substances – with a median of €87,000 for large firms.[97] With total registration costs representing less than 0.5 per cent of annual turnover for a majority of firms, producers of basic chemicals especially have mostly absorbed REACH costs – that means they have preferred lowering profit margins to increasing prices, and have thus been able to avoid a price disadvantage.[98] Large firms are advantaged because they produce chemicals in large quantities, and because data requirements are not a classic product

[94] ACC, n. 87 above; SOCMA, n. 84 above.

[95] This lack of data has been confirmed by a representative of the German chemical industry association. To compile such a dataset would be extremely challenging since commodity flows are so complex and globalized. In fact, one has to ask single firms on the scope of REACH within their portfolio. However, for an individual firm this is seen as confidential business information (response by Dow, n. 63 above).

[96] Frohwein & Hansjürgens, n. 21 above, at p. 26. This can also be seen in the fact that, while 96% of chemical firms in the EU are SMEs, large producers dominated the first registration period addressing high-volume chemicals: see Centre for Strategy & Evaluation Services, n. 22 above, at pp. 2 and 31.

[97] See Centre for Strategy & Evaluation Services, ibid., at pp. 42–3. The figures, based on an industry survey, include the costs for the preparation of dossiers, collection of data from available studies, conducting new tests, development of the Chemical Safety Reports, and registration fees.

[98] See Centre for Strategy & Evaluation Services, ibid., at pp. 53, 56, and Annex-9.

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standard: in contrast to a technology standard for cars, for example, where each car becomes more expensive by the installation of a new filter, data costs are incurred only once. And the larger a production volume, the lower are compliance costs per unit (despite higher registration fees and testing demands for large volumes).[99]

Industry's incentives and positions may change when compliance costs increase in the future. This could happen for several reasons. Firstly, only 2.5 per cent of registration dossiers included proposals for new tests; the ECHA may ask for more after reviewing the dossiers. Secondly, the registration process continues towards lower-volume chemicals, which are often less known, and this will affect SMEs in particular. Thirdly, while no authorization application has been submitted so far, the authorization regime (which requires proof of adequate risk control or the need to look for substitutes) will become increasingly relevant and will generate costs.[100] The effect of rising costs, however, might be ambiguous: a firm heavily exporting to the EU might see a greater incentive to level the regulatory playing field. But a firm with a substantial share of chemicals not yet affected by REACH might oppose this, since it fears more the additional cost disadvantage vis-à-vis competitors from low-standard countries.

Given that US exporters have not yet expressed an interest in REACH-like rules for the reasons predicted by the 'California effect' hypothesis, why then do some industry stakeholders support TSCA reform? Apart from scientific–technological advancements, they explain the need for reform with reference to 'unreasonable' public concerns and distrust in chemicals, and as a way to increase public confidence.[101] An even more important reason is the legislative activism at the state level leading to a trade-hampering 'regulatory patchwork'. It is well acknowledged in the literature that this motivates industry to seek federal rules.[102] International legal developments, including REACH, play a role in that US industry does not want to leave global standard-setting to others – the US should have the regime others want to emulate.[103] Thus, REACH motivates industry to demand reform, but not for the motive Vogel predicts. For industry, REACH is a stimulator to act, but not a model to lobby for.

4. CONCLUSION AND OUTLOOK

This article has analyzed whether the US exporting chemical industry is pushing for a domestic policy similar to the REACH Regulation in the EU. In line with the 'California effect' hypothesis and earlier speculation by several authors, it was predicted that exporting firms might have an incentive to lobby at least for similar data requirements, so that non-exporting competitors face a similar burden. The basic economic

[99] An example from the Joint Research Center, n. 42 above: average testing costs are assumed to increase from €12,000 for a substance produced in a quantity of 1–10 t/y to €208,000 for a substance produced in a quantity of more than 1,000 t/y. However, distributed over production tons over a period of 10 years, the cost burden is €404 for a substance produced in 3 t/y while it is €7 for a substance produced in 3,000 t/y.

[100] See Centre for Strategy & Evaluation Services, n. 22 above, at pp. 48–50.

[101] ACC, n. 77 above; Dow Chemicals, n. 63 above.

[102] Majone, n. 18 above, at p. 97.

[103] ACC, n. 77 above; DuPont, n. 79 above.

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preconditions for a 'California effect' are fulfilled: REACH applies to imports and the EU is an attractive market, so that firms will continue to export and comply with REACH. The US political arena was found to be partly favourable to ambitious legislative reform. However, an analysis of public statements showed that industry does not lobby for an American REACH. While supporting reform in general, even the biggest exporters do (currently) not want EU-like data standards and exposure consideration on most chemicals.

Ideological reluctance alone is hardly sufficient to explain industry's position. If market incentives for harmonization at REACH level existed, this reluctance should have been overcome. But the 'business case' for harmonization seems not to be strong enough. For producers with limited EU exports, benefits could be outweighed by the new burden on chemicals not yet affected by REACH. The reason why a multinational firm like Dow (which even intends to apply REACH standards to all its chemicals) does not lobby for similar standards is probably that it does not feel a decisive competitive disadvantage because it is not directly competing with small non-exporting firms, and/or because compliance costs have not yet been sufficiently high for such a disadvantage to materialize. Radaelli wrote that empirical evidence has shown the limits of simple theories about globalization and trade effects on national regulation.[104] The finding here does not go against Vogel's argument *per se*; but, until its conditions have been made more precise, scholars should be cautious in predicting a 'California effect'. It seems that a closer look is especially necessary on market characteristics and the (compliance-) cost-benefit calculus of major firms.

The absence of a 'California effect' does not mean that REACH has no influence in the US at all. Two motives for industry's call for reform are in fact REACH-influenced: the US should not let others set (excessively strict) global standards, and federal reform should stop the 'regulatory patchwork' of partly REACH-inspired state laws. Apart from industry, REACH has directly influenced policy-makers as well as NGOs and their demands, acting as a positive model. However, the reform bills drafted so far are not guided by REACH. If enacted, US legislation would be clearly different from EU law. Given the strong Republican opposition to the bills and their current majority in the House, observers quite agree that far-reaching TSCA reform is not realistic at the moment.[105] A bill with a chance to get passed has to be bipartisan and, therefore, it would probably feature a priority approach similar to the policies adopted in Canada and Japan.[106]

Even without legislative reform, there might be a levelling-up of US safety standards triggered by REACH – by more informal mechanisms. Sachs mentions five

104 Radaelli, n. 8 above, at p. 1. Bradford (n. 7 above, at p. 4) criticizes that while the 'California effect' is recognized as a phenomenon, research 'has failed to explain its actual scope beyond anecdotes and individual examples'.

105 J.P. Jacobs, 'Lautenberg Still Vowing to Hold TSCA Reform Markup, but the Calendar is No Ally', *E&E Daily*, 14 Dec. 2011, available at: http://www.eenews.net/public/EEDaily/2011/12/14/3. See also Verdant Law, 'TSCA Reform Likely to be a Lower Priority in 2011', blog entry 29 Jan. 2011, available at: http://blog.verdantlaw.com/2011/01/29/tsca-reform-likely-to-be-a-lower-priority-in-2011.

106 See Part 2.3, including n. 52 above, and Denison, n. 25 above.

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'spillover effects',[107] the first three via business practice. Firstly, a firm may voluntarily incorporate REACH standards into internal practices, as Dow has done. Secondly, US exporters or EU importers may 'push down' REACH standards onto their US suppliers (that is, require equivalent data disclosure as a condition of their purchase). Thirdly, major brand-sensitive manufacturers of consumer products, or retailers, may require their suppliers to provide REACH-like data or to ban chemicals classified as SVHC in Europe for reputational reasons (the 'black list effect'). Two transnational spillover effects result from REACH's information gathering: the EPA can 'free-ride' on EU data and use it for testing demands or restrictions in the US.[108] Finally, the data can fuel lawsuits in the tort system. However, procedures and decision criteria for regulatory and legal action remain the same.

Although these channels have not yet been empirically investigated in detail – partly because it is too early – and legislative reform at the federal level has not yet happened, Sachs already calls REACH 'a powerful engine of regulatory turbulence' in the US.[109] More appropriate seems to be Levi-Faur and Jordana's notion of a 'policy irritant' (rather than a 'transplant').[110] Using the wide range of policy diffusion and policy irritant concepts (including constructivist perspectives) could be helpful in explaining the scope, channels and reasons for the influence of REACH on regulation in the US (and elsewhere). This article focused on testing the 'California effect' and investigated whether speculation about its existence in the field of chemicals regulation is borne out in practice. Given the position of US industry, the article shows that, so far, it is not.

107 Sachs, n. 3 above.

108 TSCA already imposes a reporting duty if a firm obtains information on a 'substantial risk'. Moreover, much REACH data will be publicly available and even more by government data sharing. This disclosure effect is widely recognized by scholarship (Wirth, n. 6 above), politics (Government Accountability Office, n. 28 above) and industry (ACC, n. 78 above).

109 Sachs, n. 3 above, at p. 1846.

110 D. Levi-Faur & J. Jordana, 'Regulatory Capitalism: Policy Irritants and Convergent Divergence' (2005) 598 *Annals of the American Academy of Political and Social Science*, pp. 191–7.

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