

# **The “EU Effect” and the Export of Environmental Standards to the U.S.**

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## **Abstract**

JAN AHLEN: The “EU Effect” and the Export of Environmental Standards to the U.S.

(Under the direction of Dr. Gary Marks)

In the past twenty years, decisions on global environmental regulations have increasingly originated in Brussels instead of Washington. Many European Union (EU) environmental laws are having effects well beyond the borders of the EU. This thesis examines three EU environmental policies to determine the extent to which they are having an “EU Effect” in the United States (U.S.). The impact is measured at the market, state, and federal levels. The thesis also explores the role that economic context, regulatory learning, and political context have had on the diffusion of these three policies. The three policies examined include two directives, RoHS (Restriction of Hazardous Substances) and WEEE (Waste Electrical and Electronic Equipment), and one regulation, REACH (Registration, Evaluation, and Authorization of Chemicals). Each of these environmental policies is impacting the U.S. at the market, state, and federal levels, albeit to varying degrees.

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# 1 Introduction

## 1.1 Background

At the academic level, there is a substantial amount of literature on the phenomenon of the “California Effect”. This refers to “the critical role of powerful and wealthy ‘green’ political jurisdictions in promoting a regulatory ‘race to the top’ among their trading partners”.<sup>1</sup> The name comes from the phenomenon of California, which traditionally imposes stronger environmental standards than the federal government and the rest of the states. To be able to sell its products to the vast California market, companies have had to comply with its regulations, leading other states and the federal government to pass regulations in line with California’s in order for companies to remain competitive.

In the past twenty years, decisions on global regulation are been increasingly being made in Brussels as opposed to Washington. Many European Union (EU) environmental laws are having effects beyond the borders of the EU. Recently, the EU has enacted three pieces of legislation with a potential to lead to a California Effect outside the EU. These include two directives, RoHS (Restriction of Hazardous Substances)<sup>2</sup> and WEEE (Waste Electrical and Electronic Equipment)<sup>3</sup>, and one

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<sup>1</sup> Vogel, David. *Trading Up: Consumer and Environmental Regulation in a Global Economy*. Harvard University Press. Cambridge, Massachusetts, 1995. P. 6.

<sup>2</sup> EU Directive on Restriction of Hazardous Substances in Electrical & Electronic Equipment/RoHS. <http://www.icer.org.uk/RoHS20030127.pdf>

regulation, REACH (Registration, Evaluation, and Authorization of Chemicals). All three pieces of legislation regulate product standards, requiring producers to comply in order to be able to sell the product in the EU market. Product standards, such as a labeling requirement on baby food, regulate the way in which products are treated. This is opposed to process standards, such as CO2 emissions from an industrial plant. Research shows that product standards are more exportable to other jurisdictions than process standards.<sup>4</sup> Limiting this research to regulations governing product standards controls for the effect of type of standard.

The RoHS directive was passed in 2003 and was implemented in EU member states beginning in 2006.<sup>5</sup> It restricts the use of six hazardous substances in the production of electronic devices. They include lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBE) and polybrominated biphenyl ether (PBDE). The directive applies to the following categories of electronics: IT and telecommunications equipment; electronic and electrical tools; monitoring and control instruments; toys, leisure and sports equipment<sup>6</sup>. These categories are broad and affect a large portion of U.S. electronic industry.

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<sup>3</sup> EU Directive on Waste Electrical & Electronic Equipment/WEEE.  
<http://www.icer.org.uk/WEEE20030127.pdf>

<sup>4</sup> Sachs, Noah M. "Jumping the Pond: Transnational Law and the Future of Chemical Regulation". Forthcoming, Vanderbilt Law Review. P. 38-39.

<sup>5</sup> Schneiderman, Ron. "Regulatory Compliance Means Going the Extra Green Mile. Electronic Design. 29 Jan 2009.

<sup>6</sup> "Understanding the Requirements of the European RoHS Directive and its Impact on Your Business". MEC Innovation. [http://www.meccompanies.com/leadfree/understanding\\_ROHS.pdf](http://www.meccompanies.com/leadfree/understanding_ROHS.pdf)

The WEEE directive “provides for the creation of collection schemes where consumers return their used E-Waste free of charge. The objective of these schemes is to increase the recycling and/or re-use of such products”<sup>7</sup>. In addition to the categories of electronic and electrical equipment that RoHS covers, WEEE covers medical devices and monitors as well as control instruments.<sup>8</sup> WEEE therefore affects a broader range of producers than RoHS. Producers of these types of electric and electronic equipment are obligated to recycle their E-Waste.<sup>9</sup>

REACH is an EU regulation that does exactly what its acronym stands for: it registers, evaluates and authorizes chemicals that may be harmful or dangerous. REACH places the burden of proof of the safety of chemicals on the producers, in line with the “no data, no market” approach.<sup>10</sup> REACH is intrusive because it covers about 40,000 chemicals and affects many downstream users because of the large number of substances covered.

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<sup>7</sup> Waste Electric and Electronic Equipment. European Commission.  
[http://europa.eu/legislation\\_summaries/environment/waste\\_management/121210\\_en.htm](http://europa.eu/legislation_summaries/environment/waste_management/121210_en.htm)

<sup>8</sup> Interview with Chris Sherwood at the US Foreign Commercial Service to the EU.

<sup>9</sup> Waste Electric and Electronic Equipment. European Commission.  
[http://europa.eu/legislation\\_summaries/environment/waste\\_management/121210\\_en.htm](http://europa.eu/legislation_summaries/environment/waste_management/121210_en.htm)

<sup>10</sup> Regulatory framework for the management of chemicals (REACH), European Chemicals Agency. European Commission.  
[http://europa.eu/legislation\\_summaries/internal\\_market/single\\_market\\_for\\_goods/chemical\\_products/121282\\_en.htm](http://europa.eu/legislation_summaries/internal_market/single_market_for_goods/chemical_products/121282_en.htm)

## **1.2 Research Question**

In this thesis I compare and contrast RoHS, WEEE and REACH and the extent to which there has been a California Effect. Scholars such as David Volk have identified the different conditions which make the California Effect more likely. However, there has not been a treatment of these three EU laws from a comparative perspective.

This thesis examines the findings of prior research on the California Effect and extends them to the EU-US trade relationship. I explore the impact that RoHS, WEEE and REACH are having in the U.S., at both the legislative and market level.

This research addresses three research questions. To what extent have these laws had a tangible impact at the market, state, and federal level in the U.S.? What factors have contributed to this impact? Given the fact that each of these pieces of legislation is relatively new, to what extent can we expect each of these laws to be adopted in the U.S.?

## **1.3 Structure of the Thesis**

In the next section, I outline the theory of the California Effect and present my working hypotheses about the likelihood that EU environmental policies will be exported to the U.S. and the factors that affect this diffusion. This is followed in Section 3 by a description of the methods used and how the variables are operationalized. In Section 4, I present the cases of RoHS, WEEE and REACH and their effects on the U.S. federal, state, and market level policies. In Section 5, I reflect back on the theories and expectations in relation to the findings from the case studies. Finally, in Section 6 I conclude by summarizing the paper and suggesting areas of further study.

## 2 Theory

Previous research suggests three factors can influence the success of exporting environmental policies: economic context, regulatory learning, and political context. The evidence for their role in the diffusion of environmental policies is explained in this section.

### 2.1 *Economic Context*

Two different variables constitute economic context: the dependence on the EU market and the burdens on industry of complying with the policy.

The first variable that I consider is dependence on the EU market. If an environmental policy pertains to a product standard, any company that wishes to export to the EU market must abide by the same policy. The EU is an enormous market with a substantial customer base (495 million inhabitants/ 12276.2 euro Gross Domestic Product (GDP)) bigger than the U.S.<sup>1</sup> Within the EU market itself, there is evidence of the California Effect which is based on the power of Germany. Because of the size of the German GDP and population, German environmental policies have been diffused to the rest of the EU.<sup>2</sup> Based on this previous research, my hypothesis is that a U.S. jurisdiction with a high dependence on the EU market is more likely to adopt these three policies. These jurisdictions include the market, state government, and federal government.

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<sup>1</sup> “Key Facts and Figures about Europe and the Europeans”. *Europa*.  
[http://europa.eu/abc/keyfigures/index\\_en.htm](http://europa.eu/abc/keyfigures/index_en.htm)

<sup>2</sup> Vogel, p. 264

The financial burden a policy imposes on industry means how much it would cost a specific industry to comply with the EU policy. The effect of the cost to comply may be dampened if the industry is highly globalized like industries covered by RoHS, WEEE and REACH. Even if compliance is burdensome to an industry, firms are likely to adopt the highest regulatory standard if the industry is highly globalized. Because parts are made in different areas of the world with varying regulatory systems, it will be more efficient for a company to make one product for all markets rather than producing separate products for different markets. Because EU standards are more stringent than others, if a company adopts the EU standard then it will use that standard for all of its markets. Furthermore, companies are likely to choose the highest standard so that they can continue operating in that jurisdiction. This is especially the case for industries that are well established in both the U.S. and EU such as the chemical and electronics industries.<sup>3</sup>

Based on these two variables, my hypothesis is that U.S. jurisdictions will adopt an EU-like policy if the cost of implementing that single new policy does not outweigh the benefit of exporting to the EU market. Also, the greater the share of EU exports, the lower the relative cost of extending EU regulations to the US.

## **2.2 Regulatory Learning**

Regulatory learning is when members of a jurisdiction learn from the experience of another jurisdiction, leading to policy diffusion. Two different variables can lead to the

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<sup>3</sup> Selin, Henrik and Stacy D. VanDeveer. "Raising Global Standards: Hazardous Substances and E-Waste Management in the European Union". *Environment*. Vol. 48, N 10, p. 6-17. Dec 2006.  
[www.heldref.org/env.php](http://www.heldref.org/env.php)

process of regulatory learning: the availability of data and channels of communication.<sup>4</sup>

According to Biedenkopf (2009), “the availability and accessibility of information about a pioneer policy and the interaction between political entities are key prerequisites for learning.”<sup>5</sup>

### **2.2.1 Availability of Data**

David Lazer points out that countries provide signals to each other constantly by providing scientific background research about why they adopted a certain policy and by providing information about the impacts of the policy.<sup>6</sup> Sachs points out the importance of raw data which can have direct effects on the regulatory decision of other jurisdictions. Availability of data can include databases or impact assessment reports that national and state regulators can learn from. My hypothesis is that if a policy involving tougher standards is accompanied by a substantial amount of data that is accessible to U.S. jurisdictions, it is more likely that tougher standards will be adopted by those U.S. jurisdictions as a result of regulatory learning.

### **2.2.2 Channels of Communication**

In order to gain access to and be influenced by these data, law-makers, regulators, and industry leaders must have an arena where learning can occur. In recent years, the

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<sup>4</sup> Biedenkopf, Katja. “Policy Diffusion and Environmental Pioneership: Insights for Transatlantic Cooperation Fostering Biodiversity and Biosafety?”. *Handling Global Challenges: Managing Biodiversity/Biosafety in a Global World. EE, US, California And Comparative Perspectives*. Leuven Centre for Global Governance Studies. 2009

<sup>5</sup> Biedenkopf, Katja.

<sup>6</sup> Lazer, David. Global and Domestic Governance: Modes of Interdependence in Regulatory Policymaking, 12 *European Law Journal* 455 (2006).

U.S. and EU have taken steps to institutionalize their economic relationship and work towards regulatory cooperation. The transgovernmental dialogue has produced a series of joint agreements including the Transatlantic Declaration of 1990, the New Transatlantic Agenda, and the Transatlantic Economic Partnership. Transnational dialogues have been set up including the Transatlantic Business Dialogue (TABD), Transatlantic Consumer Dialogue (TACD), and the Transatlantic Policy Network (TAPN). The Organization of Economic Cooperation and Development (OECD), United Nations (UN) and issue specific non-governmental organizations (NGOs) also play a big role in disseminating information and impacting regulatory decisions.

Vogel (1997) asserts that “trade and trade agreements represent transmission belts by which producers, and environmental and consumer groups, can influence the regulatory policies of their trading partners, and in turn be influenced by them”<sup>7</sup> Further, Holzinger, Joergens and Knill argue that “transnational communication, interaction and exchange of information can lead to learning, symbolic emulation, norm-based activities”<sup>8</sup>.

Not all regulatory cooperation is between the U.S. federal government and the EU. Helge Joergens shows how California and the EU engage regulatory cooperation as evidenced by Governor Arnold Schwarzenegger’s meetings with European leaders. For example, on July 31, 2006, Governor Schwarzenegger signed a climate change and clean energy agreement with British Prime Minister Tony Blair.<sup>9</sup>

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<sup>7</sup> Vogel, p. 3

<sup>8</sup> Biedenkopf, Katja.

## **2.3 Political Context**

Political context includes the strength and involvement of interest groups, the political party in power, regulatory culture and, for the federal government, how many states have already passed similar laws.<sup>10</sup>

### **2.3.1 Regulatory Culture**

I refer to regulatory culture as how a jurisdiction perceives risk. While the EU adheres to a regulatory culture of precaution, the U.S. adheres to a more scientific-proof based risk approach. The Precautionary Principle (PP) is a contentious issue in transatlantic regulatory policy. As the name suggests, it is based on precaution and it states that policies should take action against possible risks, even without definite scientific proof that it poses risks. The EU first incorporated the PP into EU law with the 1993 Maastricht Treaty and uses it as the basis for its environmental laws. The U.S. government, in contrast, does not officially endorse the principle; it relies instead on direct scientific evidence. Differences in guiding principles have in the past led to transatlantic regulatory battles such as the one over Genetically Modified Organisms. This suggests that it will be more difficult for jurisdictions that do not adhere to the PP to adopt EU-inspired environmental policies.

### **2.3.2 Political Party in Power**

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<sup>9</sup> Joergens, Helge. 2004. Governance by diffusion: implementing global norms through cross-national imitation and learning. In Lafferty, William M. (ed.). *Governance for Sustainable Development. The Challenge of Adapting Form to Function*: 246-83.

<sup>10</sup> Joergens, Helge

Another variable to consider is the policy of the governing political party. Generally in the U.S., the Democratic Party is more environmentally friendly than the Republican Party. The U.S. has not passed a major piece of environmental legislation since 1990 and this has coincided with Republican dominance in Congress. However, the situation is now different at the federal level. The newly elected Democratic President has promised environmentally friendly legislation and the Democratic Party controls the House and Senate. Thus, the California Effect is more likely when the Democratic Party is in power.

### **2.3.3 Interest Groups**

A third variable is the presence of strong interest groups advocating for adoption of the policy. Interest groups can include environmental NGOs as well as industry groups. In the past, the California Effect has occurred when alliances between producers and environmental and consumer organizations have advocated stricter environmental policies in their own interest. Producers already have to comply with the rules of the export market. Thus, these producers have an incentive to raise standards because of their dependency on the export market and because it is cheaper for exporters to produce one version for both markets they sell to. Also, multinational firms that export to the EU will lobby for EU-like policies because otherwise they are at a competitive disadvantage to smaller firms who only produce for the U.S. market.<sup>11</sup>

NGOs have used the EU example in their role as transmitters of information. Henrik Selin points out, for example, that NGO advocates “might ask why, if certain

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<sup>11</sup> Edith Brown Weiss, “Environmentally Sustainable Competitiveness: A Comment,” *Yale Law Journal*, 102 (1993): 2135.

substances are deemed too risky for use in Europe, are they still being used in the United States?”<sup>12</sup>

### **2.3.4 Existing Legislation at the State Level**

Ironically, the California Effect itself determines whether EU environmental policies will be adopted at the federal level. California is a pioneer state in terms of its environmental policies. California environmental standards are then frequently adopted at the national level so that businesses do not have to comply with more than one standard. Because California often gets inspiration from the EU, it follows that if California adopts an EU policy, it will be more likely that the same policy will be adopted at the federal level.<sup>13</sup> Finally, if there are more states that adopt an EU policy, there is a higher chance that the policy will be adopted at the national level.<sup>14</sup>

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<sup>12</sup> Selin, Henrik and Stacy D. VanDeveer. "Raising Global Standards: Hazardous Substances and E-Waste Management in the European Union. *Environment*. Volume 48. No. 10. Dec. 2006.

<sup>13</sup> David Vogel

<sup>14</sup> Ditz, Daryl W. "The States and the World: Twin Levers for Reform of U.S. Federal Law on Toxic Chemicals". *Sustainable Development Law & Policy*. 2007.

### **3 Methodology**

This section describes the approach I took explaining each of the factors described above. The dependent variable for this research is the level of adoption of EU policy at the market, state, and federal level. I consider the change as a result of RoHS, WEEE, and REACH. Change at the market level is measured by whether the industry affected by the specific EU environmental policy has complied with the policy. Change at the state and federal level is measured by the existence of reform in the policy area governed by the specific EU environmental policy. The data come from peer-reviewed academic literature, government websites, and websites of trade associations.

Three broad factors serve as explanatory factors for this thesis. The economic context includes: 1) the percentage of a jurisdiction's exports to the EU that are affected by EU environmental policies, and 2) the financial burden for companies of complying with EU rules. The bulk of the data on these two issues comes from secondary sources such as peer-reviewed academic literature. In some cases, this information is supplemented by data posted on the websites of state governments and trade associations.

The second factor, regulatory learning, is defined as the transfer of knowledge and experience through channels of communication from the EU to the U.S. Regulatory learning is reflected by 1) the availability of data produced by an EU law and 2) the quality of transatlantic communication about this policy (e.g. through such structures as the TABD and the OECD). Information on these issues comes from secondary sources.

The third factor is the political context in which decisions for proposed policies take place. This includes 1) the level of interest group involvement in the regulatory issue, 2) the policy position of the political party in power, 3) the regulatory traditions of the government, and 4), in the case of the U.S. federal government, the number of states that have already adopted the law. Information comes from secondary sources, including peer-reviewed academic literature and, when available, policy statements and other information interest groups post on their websites.

## **4 Results**

In this section I present case studies of the three EU environmental policies. In each case study I describe the degree of diffusion to U.S. jurisdictions and consider the impacts of economic context, regulatory learning and political context on this policy diffusion.

### **4.1 The EU's Restriction of Hazardous Substances (RoHS) Directive**

RoHS is an example of an EU policy that has impacted the U.S. electronic industry in a major way. In this section I first discuss the impact on the US marketplace, then describe its impact on one state's policy (California) and on U.S. federal policy. I demonstrate that RoHS has had a substantial impact on the marketplace and on the environmental policy of the state of California. California is the only state that has adopted RoHS-type legislation and at the federal level, RoHS legislation is far from certain. However, there is a movement in other states as well as at the federal level for adopting RoHS-type legislation.

#### **4.1.1 RoHS' Impact on the Marketplace**

RoHS is invasive in the U.S. marketplace because it governs how a product is produced. If a substance is restricted under RoHS, then the company must find a substitute in order to produce their product. The electronics industry is highly globalized and different stages of production are performed in different countries with different regulations. Within the marketplace, "the RoHS Directive is leading to major changes in

electronics manufacturing in the United States...as manufacturers seek substitutes for the substances banned under the Directive”<sup>1</sup> Because of the globalized supply chain, INFORM, an environmental NGO, argues that in reality, the major electronics manufacturers are creating one standard product applicable in all markets in order to maximize efficiency.<sup>2</sup> Panasonic, for example, converted all of their products to exclude lead by 2003.

INFORM argues that the size of the EU market has driven the electronics industry to essentially adopt the RoHS directive. With the addition of Romania and Bulgaria, the EU now has a larger population and larger GDP than the U.S., making it essential for the electronics industry to comply with RoHS in order to maintain market share.<sup>3</sup>

In sum, RoHS has caused major changes in the U.S. electric and electronic industries. These changes in the marketplace appear to be the result of the economic context. Not surprisingly, there appears to be no evidence that political context or regulatory learning have played a role in the diffusion to the marketplace.

#### **4.1.2 RoHS’ Impact on U.S. State Policy**

California is the only state to have enacted reforms close to that of the EU RoHS Directive. In 2003, California passed SB 20/SB 50, the Electronic Waste Recycling Act of 2003 (EWRA). This law has been dubbed “Cal RoHS”. It is important to note that

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<sup>1</sup> Sachs, Noah. “Planning the Funeral at the Birth: Extended Producer Responsibility in the European Union and the United States”. P. 85.

<sup>2</sup> INFORM, p. 2

<sup>3</sup> Inform p. 2

there is a provision in the law that stipulates that if the EU adds a new substance to RoHS, EWRA will automatically be updated to include this substance.<sup>4</sup> This is a testament to the amount of influence the EU has in promoting its environmental policies in California.

### *Economic Context*

California's electronics sector is highly dependent on the EU market. According to the California Chamber of Commerce, California is the number one exporter in the nation of computers and electronic products. Computers and electronic products are California's top export, accounting for 42 percent of all the state's exports". Further, the electronics industry is California's leading exporter to the EU.<sup>5</sup> This dependence on the EU market has been a major reason for the adoption of new legislation aligned with EU policies.<sup>6</sup>

### *Regulatory Learning*

California and the EU engage in regulatory cooperation which can lead to learning. For example, EU Ambassador to the U.S., John Bruton signed a Memorandum of Understanding with the Chancellor of the University of California, Berkeley, which promised cooperation in regulatory affairs regarding green chemistry and waste management. The "Green Chemistry Report", commissioned in 2004 by the California Senate Environmental Quality Committee and the California Assembly Committee on

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<sup>4</sup> JCOTS

<sup>5</sup> "Trade Statistics". California Chamber of Commerce. [www.calchamber.com](http://www.calchamber.com)

<sup>6</sup> Selin, p. 15, See also: Scoll, Jonathan P and Julie M. Duckstad. "Cal RoHS: California Brings European Hazardous Content Regulation 'Home' to U.S. Manufactures". Lindquist&Vennum PLLP. May. 2008.

Environmental Safety and Toxic Materials, specifically references EU RoHS as a good model for California. Furthermore, there is evidence that California had direct contact with the EU Commission before implementing “Cal RoHS”. This ultimately helped lead to California’s ambitious EWRA legislation.<sup>7</sup>

### *Political Context*

California accepts a more precautionary approach closer to the EU, which made it possible to adopt Cal RoHS. California is considered to be a unique case and Cal RoHS-type legislation is not expected to be replicated in the rest of the U.S. Chris Sherwood of the U.S. Foreign Commercial Service in Brussels believes that other U.S. states have not emulated California because of the regulatory culture in the U.S. In contrast to the precautionary measures taken in the EU and California, the rest of the U.S. has preferred to pass legislation based on direct evidence of harm to health and the environment.

### **4.1.3 RoHS’ Impact on U.S. Federal Policy**

At the U.S. federal level, a RoHS-like policy has been introduced in Congress. The Environmental Design of Electrical Equipment (EDEE) Act, or HR 2420, was proposed by U.S. Congressman Burgess and aims to harmonize the current U.S. hazardous substances rules into one policy. EDEE was introduced on May 14, 2009. It has so far only been referred to Committee and no vote has taken place.

### *Economic Context*

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<sup>7</sup> Interview with Chris Sherwood at the US Foreign Commercial Service to the EU.

The U.S. computer and electronics industry is highly dependent on the EU market and is crucial to the U.S. economy. According to the TABD, it is the U.S.'s third biggest export sector to the EU.<sup>8</sup> This export sector is also becoming more important: between 2003 and 2007, exports to the EU in computers and electronics went from \$32 billion to almost \$40 billion.<sup>9</sup> The U.S. is therefore dependent on the EU market for exports of electronics, making adoption of RoHS standards at the federal level more likely.

### *Regulatory Learning*

Since RoHS is relatively new, there have yet to be any impact assessments of its effectiveness in the EU. It is therefore difficult for U.S. regulators to learn from the EU RoHS experience. However, it is likely that U.S. government officials have learned about RoHS through other channels. In the World Trade Organization (WTO), for example, the EU was required to submit a draft measure of RoHS to the Technical Barriers to Trade (TBT) process. The Office of the United States Trade Representative (USTR) attends WTO meetings and comments on these types of proposals.

Dolf van Wijk, sector group leader at the European Chemical Industry Council (Cefic) argues that RoHS will change the way electronics manufacturers recycle but that policy change will come from regulatory learning.<sup>10</sup>

### *Political Context*

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<sup>8</sup> "Trade Facts". Transatlantic Business Dialogue.  
[http://www.tabd.com/index.php?option=com\\_content&task=view&id=19&Itemid=48](http://www.tabd.com/index.php?option=com_content&task=view&id=19&Itemid=48)

<sup>9</sup> Transatlantic Business Dialogue

<sup>10</sup> Interview with Dolf van Wijk, 1 September 2009.

In regards to the EDEE, industry is in agreement that there needs to be new federal rules. However, there is still debate over the details.<sup>11</sup> The National Electrical Manufacturers Association (NEMA), for example, has voiced support for EDEE according to a white paper they released shortly after the bill was introduced.<sup>12</sup> They argue that a “national standard would provide a level, competitive playing field for both domestically manufactured and imported products and prevent a patchwork of regulatory requirements”.<sup>13</sup> As a major industry group, NEMA’s support for EDEE makes its adoption more likely.

The fact that California has already passed its own RoHS law also makes it more likely that the U.S. federal government will enact a similar standard. According to Sachs, “this state provision is likely to affect manufacturing nationwide for these products, given the size of the California market, and may elevate RoHS into a kind of global electronics standard”.<sup>14</sup> Furthermore, California itself is likely to lobby for a national law because it will be inefficient, given the importance of the California electronics industry, to operate with a patch-work of state laws instead of one U.S. law.

At the moment, the U.S. has domestic capacity to change given the political landscape. With the election of Barack Obama and a Democratic controlled House and

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<sup>11</sup> Mayhew-Smith, Alex. “Comment: US Inches Towards RoHS-style Rules”. ElectronicsWeekly.com. Tuesday 21 July 2009.

<sup>12</sup> White Paper: Environmental Design of Electrical Equipment Act of 2009 (“EDEE Act”) H.R. 2420. National Electrical Manufacturers Association (NEMA)

<sup>13</sup> NEMA  
[http://www.nema.org/gov/env\\_conscious\\_design/upload/White%20Paper%20-%20EDEE%20Act%20%28H.R.%202420%29.pdf](http://www.nema.org/gov/env_conscious_design/upload/White%20Paper%20-%20EDEE%20Act%20%28H.R.%202420%29.pdf)

<sup>14</sup> Sachs, EPR in the European Union and the United States, p. 94.

Senate, passage of RoHS-like legislation is more likely than previously under a Republican-controlled U.S. government.<sup>15</sup> On the other hand, the U.S. government still does not recognize the Precautionary Principle as the basis of U.S. law.

## **4.2 The EU's Waste Electrical and Electronic Equipment (WEEE) Directive**

In this section, I describe the impact of WEEE at the market, state, and federal level. I demonstrate that at the market and state level, WEEE has already had a big impact. WEEE has been diffused more thoroughly at the state level than RoHS, even though both policies are concerned with E-Waste and were introduced together by the European Commission. At the federal level, there is WEEE-like legislation pending and the prospects for enactment seem about as good as for RoHS.

### **4.2.1 WEEE's Impact on the U.S. Marketplace**

As with RoHS, WEEE standards have been widely adopted at the market level. The primary factor for adoption is economic context. Companies like Microsoft and Apple adopted WEEE even before it went into force in the EU. Compliance with WEEE is compulsory under some circumstances for companies doing business with the EU. If a U.S. company that is established in the EU, such as Apple, wants to sell its product in the EU it must be WEEE compliant. The one exception to this requirement pertains to smaller U.S. companies that are not established in the EU and that simply sell their product to an EU company. They do not have to comply with WEEE. This is in contrast RoHS, where all products exported from the US must be RoHS-compliant.

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<sup>15</sup> [www.barackobama.com/issues/newenergy/index.php](http://www.barackobama.com/issues/newenergy/index.php)

An even more significant factor explaining WEEE's adoption by U.S. companies is that WEEE is easy to comply with as you only need to pay a fee. In contrast to RoHS, companies only need to pay a fee. Thus, WEEE is not nearly as invasive in business operations as is the case with RoHS. Also, WEEE governs a larger sector of the economy than RoHS, making it more likely to affect more businesses. WEEE covers two more categories of products than RoHS. Thus, the economic context has driven the widespread diffusion of WEEE standards in the U.S. marketplace. I found no evidence in the literature suggesting that political context or regulatory learning played a role in this diffusion.

#### **4.2.2 WEEE's Impact on State Policy**

Currently, there are 19 states in the U.S. with E-Waste laws that are similar to the WEEE directive. They include California, Connecticut, Hawaii, Illinois, Indiana, Maryland, Maine, Minnesota, North Carolina, New Jersey, Oklahoma, Oregon, Rhode Island, Texas, Virginia, Washington, and West Virginia. It is important to note that these U.S. states began passing E-Waste laws after the WEEE directive was introduced, beginning with the California E-Waste law in 2003.

##### *Economic Context*

For California, Oregon and Virginia, computers and electronic equipment was the major export sector to the EU. For Maryland, Minnesota, Oklahoma, Rhode Island, Texas and Washington, electronics are the second biggest export sector to the EU. For Connecticut, Hawaii and Maine electronics are the third biggest export sector to the EU. For Illinois, North Carolina, New Jersey and New York, electronics are the fourth biggest

export sector to the EU. Electronics exports to the EU from Indiana and West Virginia are the fifth and ninth biggest export sectors to the EU.<sup>16</sup> It is clear that, with the exception of West Virginia, the EU is an important export market for each state's electronics industry. Thus, with the exception of West Virginia, each state that adopted WEEE-like rules were dependent on the EU as an export market for products covered by the WEEE directive.

### *Regulatory Learning*

A Congressional Research Service (CRS) report for Congress highlights the sheer amount of E-Waste in the U.S., the hazardous substances in E-Waste, the cost of recycling electronics, and the lack of a national E-Waste recycling law as factors that led to states adopting E-Waste laws<sup>17</sup>. Within the California and the Minnesota laws, there is a specific reference to the EU, suggesting that these states learned from the EU experience. However, there is no evidence to suggest that regulatory learning from the EU prompted states to enact reform.

### *Political Context*

Adoption of E-Waste laws at the state level has occurred mainly because the federal government has yet to pass any national legislation. Consumer Electronics

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<sup>16</sup> Hamilton, Daniel S. and Joseph P. Quinlan. "The Transatlantic Economy 2009: Annual Survey of Jobs, Trade and Investment between the United States and Europe". Washington, DC. Center for Transatlantic Relations, 2009.

<sup>17</sup> Luther, Linda. CRS Report for Congress. "Managing Electronic Waste: An Analysis of State E-Waste Legislation". 29 Aug. 2007.

Association (CEA) Director Parker Brugge said that "a lot of states have waited, hoping Congress would take it up. ... They're tired of waiting,"<sup>18</sup>

Interest groups have also played a role in pushing for E-Waste legislation at the state level. The Silicon Valley Toxics Coalition, for instance, advocated for reform in California.<sup>19</sup> While drafting the legislations, states also held advisory committees of stakeholders including NGOs and industry representatives when drafting the proposal.<sup>20</sup>

### **4.2.3 WEEE's Impact on Federal Policy**

The U.S. E-Waste policy is currently governed by the 1965 Solid Waste Disposal Act (SWDA) which is increasingly receiving calls for reform. There are currently three pieces of legislation pending in Congress. H.R. 1580, the Electronic Waste Research and Development Act, was introduced by Representative Gordon, Democrat from Tennessee. The bill passed the House on April 22, 2009 and has been referred to the Senate. A related bill introduced in the Senate, S. 1397, the Electronic Device Recycling Research and Development Act, was introduced by Senator Klobuchar, Democrat from Minnesota. These bills encourage E-Waste recycling by providing grants for E-Waste recycling research.

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<sup>18</sup> Eric Kelderman . "Minn. takes the lead in e-cycling". *Stateline.org*.  
<http://www.stateline.org/live/details/story?contentId=233311>

<sup>19</sup> Silicon Valley Toxics Coalition. [http://www.svtc.org/site/PageServer?pagename=svtc\\_about\\_us](http://www.svtc.org/site/PageServer?pagename=svtc_about_us)

<sup>20</sup> "Connecticut's Consumer Electronic Legislation".  
[http://www.ct.gov/dep/lib/dep/waste\\_management\\_and\\_disposal/solid\\_waste\\_management\\_plan/feb08/connecticuts\\_consumer\\_electronics\\_legislation.pdf](http://www.ct.gov/dep/lib/dep/waste_management_and_disposal/solid_waste_management_plan/feb08/connecticuts_consumer_electronics_legislation.pdf). See also: "Solid Waste Management Stakeholder Process". <http://www.mn-ei.org/projects/images/SolidWaste/2002BlueRibbonPanelProcessReport.pdf>

Another WEEE-like piece of legislation is H.R. 2595 which “aims to restrict certain exports of E-Waste and proposes an amendment to the Solid Waste Disposal Act (SWDA)”.<sup>21</sup> However, it is unlike the EU WEEE in that “there is no producer registration, labeling, or financing requirement.” This means that the scope is much narrower than the EU WEEE directive.

### *Economic Context*

A major aspect of the economic context that influences the likelihood of WEEE’s adoption appears to be the low cost of compliance. WEEE is not as costly as RoHS for companies to comply with. WEEE does not intrude in the production of electronic equipment, but instead requires that each company exporting to the EU pay a certain fee for it to be recycled. The cost of paying the fee appears not to outweigh the benefit of continuing to sell the products in the EU market. Thus, it may have been relatively easy for companies to adopt WEEE in order to do business with the EU.

As already mentioned, the U.S. is dependent on the EU for exports of electronics, being the third most important export sector to the EU. However, WEEE covers more categories of electronics than RoHS so the U.S. is more dependent on the EU for products covered under WEEE than for RoHS.

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<sup>21</sup> Nevison, Gary. Could Proposed Amendment be a US RoHS?” Electronics Design, Strategy, News. [www.edn.com](http://www.edn.com). June 19, 2009.

### *Regulatory Learning*

There have been two sources of information from which the U.S. could learn about WEEE. First, like RoHS, WEEE rules have been reviewed by the WTO TBT process, which gives the U.S. regulators and opportunity to scrutinize them.

A second source of regulatory learning comes from U.S. government reports which have used WEEE as a benchmark for assessing U.S. E-Waste laws. The U.S. Government Accountability Office (GAO) report “Strengthening the Role of the Federal Government in Encouraging Recycling and Reuse”<sup>22</sup> played a major role in creating interest in E-Waste management at the state and federal level, according to President of Newark InOne, an electronic components distributor. A flurry of interest regarding E-Waste has occurred after the passing of the WEEE directive. Regulatory learning has been a major driving factor behind the diffusion of WEEE-like policies at the federal level.

### *Political Context*

As more states adopt WEEE-like laws, electronics manufacturers and NGOs are pressuring on the government to adopt a U.S. version of WEEE. Among industry groups supporting a national law are the CEA<sup>23</sup>, the Electronic Industries Alliance (EIA)<sup>24</sup> and the American Electronics Association (AEA0).<sup>25</sup> It is difficult for industry to comply

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<sup>22</sup> Strengthening the Role of the Federal Government in Encouraging Recycling and Reuse. U.S. Government Accountability Office. <http://www.gao.gov/products/GAO-06-47>

<sup>23</sup> Consumer Electronics Association <http://www.ce.org>

<sup>24</sup> Electronic Industries Alliance. <http://www.eia.org/news/pressreleases/2007-06-13.351.phtml>

with the current patchwork of E-Waste legislation. This is because it is more costly to comply with different state policies as opposed to a uniform U.S.-wide policy.

Beginning in 2001, the Environmental Protection Agency (EPA) sponsored talks under the National Electronics Product Stewardship Initiative (NEPSA) between the electronics industry, regulators, and environmental groups. The goal was to establish a national system for E-Waste recycling but the talks fell apart because of disagreement over financing the system.<sup>26</sup>

Environmental organizations are also campaigning to create federal laws governing E-Waste. The Product Stewardship Institute, for instance, urged Congress to pass H.R. 1580.<sup>27</sup>

Many U.S. states have already passed WEEE-like laws, putting added pressure on the government to pass legislation to get rid of a patchwork of laws. Further, the present Democratic controlled legislative and executive branch makes reform even more likely.

In sum, given the fact that there is evidence of regulatory learning as well as pressure from interest groups, the likelihood seems high that there will be national legislation similar to the EU's RoHS directive in the near future. Since WEEE covers a broader range of the electronics sector than RoHS and, as such, this will have a bigger impact on U.S. industry and government by extension.

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<sup>25</sup> AeA State Environment Overview. [http://www.aeanet.org/GovernmentAffairs/gajl\\_stateenvironment0206.asp](http://www.aeanet.org/GovernmentAffairs/gajl_stateenvironment0206.asp)

<sup>26</sup> National Electronic Product Stewardship Initiative. <http://eerc.ra.utk.edu/clean/nepsi/>

<sup>27</sup> "Support for Electronic Waste Research and Development Act, H.R. 1580". Product Stewardship Institute. <http://www.productstewardship.us/>

### **4.3 The EU’s Registration, Evaluation, and Authorization of Chemicals (REACH) Regulation**

Following is a description of the effects of REACH at the U.S. market, state, and federal levels. Economic context, regulatory learning, and political context are considered for spurring chemical regulatory reform at the state and federal level and compliance with REACH at the market level. The study finds that changes at the market level have been much greater than for either RoHS or WEEE. At the state level the diffusion of REACH falls about halfway between RoHS and WEEE. At the federal level, prospects look good for an overhaul of the Toxic Substances Control Act (TSCA), while a chemical regulatory structure with the same scope as REACH is unlikely.

#### **4.3.1 REACH’s Impact on the U.S. Marketplace**

The U.S. marketplace has been greatly impacted by REACH. In contrast to RoHS and WEEE, REACH not only impacts the chemical industry, but many other industries that produce products containing chemicals. According to René van Slotan, Executive Director for Industrial Policy and Cefic, “REACH will affect the U.S. marketplace more than RoHS” because REACH affects more sectors and NGOs have used various types of blacklists drawn from REACH to pressure companies to change.<sup>28</sup>

#### *Economic Context*

The European chemical industry is the largest in the world and the supply chain is highly globalized.<sup>29</sup> There has already been a big effect on global supply-chains of

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<sup>28</sup> Interview with René van Slotan, Executive Director for Industrial Policy and Cefic. 21 Sep. 2009

<sup>29</sup> René van Slotan 2009.

chemical products.<sup>30</sup> The global chemical supply chain goes through different countries with varying degrees of chemicals regulation strictness and companies are prone to adopt the highest standard in order to standardize the supply chain. Furthermore, companies such as Dow and BASF have large operations in both the EU and U.S. In fact, one third of transatlantic chemical trade is intercompany trade.<sup>31</sup> These factors make REACH much more likely to be exported to the U.S. marketplace because the major chemical companies have large operations on both sides of the Atlantic.

### *Regulatory Learning*

REACH requires that information be passed down the supply chain in regards to certain risks and hazards associated with chemicals being used. In the marketplace, information disclosure will affect chemical producers because they “may incorporate EU toxicity testing and information disclosure norms into their own internal practices” leading to an “informational California Effect”<sup>32</sup>. There seems to be no direct evidence of this but the existence of data does encourage reform.

### *Political Context*

Interest groups have worked hard to get the U.S. marketplace to comply with REACH. Inspired by REACH, the group Moms Rising, for instance, has successfully created change within the Wal-Mart Company. In October 2006, Wal-Mart announced its Preferred Chemicals Policy “to establish a clear set of preferred chemical characteristics

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<sup>30</sup> René van Slotan 2009.

<sup>31</sup> René van Slotan 2009.

<sup>32</sup> Sachs p. 68

for product ingredients” which would “drive the development of more sustainable products for mother, child, and the environment”.<sup>33</sup> Moms Rising specifically pushed for this change.<sup>34</sup>

### **4.3.2 REACH’s Impact on U.S. State Policy**

There have been a few states so far that have adopted REACH-like legislation although they all have a narrower scope than REACH. These include California, Maine and Massachusetts. On September 4, 2008, California passed S.B. 509, creating the Toxics Information Clearinghouse in California which is similar to REACH’s database requirement. On September 29, 2008, California passed Chemicals of Concern Bill, which is REACH-like but narrower in scope.<sup>35</sup> In comparison with “Cal RoHS”, California’s chemical legislation is not identical to its EU counterpart REACH. Rather, it is tailored more to the specific health and economic needs of California. Massachusetts is trying to pass a REACH-like bill called “A Healthy Massachusetts: Safer Alternatives to Toxic Chemicals.”<sup>36</sup> Maine has passed the “Act to Protect Children’s Health and the Environment from Toxic Chemicals in Toys and Children’s Products”.<sup>37</sup> Adoption of

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<sup>33</sup> Scott, p. 59

<sup>34</sup> Scott, p.59

<sup>35</sup> Scott p. 33

<sup>36</sup> A Healthy Massachusetts: Safer Alternatives to Toxic Chemicals *Environment Massachusetts*.  
<http://www.environmentmassachusetts.org/issues/our-health-our-environment/safer-alternatives-to-toxic-chemicals>

<sup>37</sup> An Act To Protect Children's Health and the Environment from Toxic Chemicals in Toys and Children's Products. Chemicals Policy and Science Initiative..  
[http://www.chemicalspolicy.org/legislationdocs/Maine/ME\\_1691.pdf](http://www.chemicalspolicy.org/legislationdocs/Maine/ME_1691.pdf)

REACH-like legislation has mixed causes. Some states' adoption of chemical legislation has resulted from economic concerns and others from regulatory learning.

### *Economic Context*

The state of California provides a good example of how economic context led to reform. A report on "Green Chemistry" was created by the California Senate Environmental Quality Committee and the California Assembly Committee on Environmental Safety and Toxic Materials in 2004. The report reflects the power of REACH because it outlines the four ways that REACH could hurt the California chemical industry. They include putting California at a disadvantage because REACH promotes green chemistry and the burdens for small firms who would find complying with REACH prohibitive for exporting the EU market. It also argues that there would be a significant danger to consumer and worker protection if production of dangerous chemicals is shifted to California. This report led to the Green Chemistry Initiative which "presents 38 options to advance green chemistry in California, and in so doing makes ample reference to REACH."<sup>38</sup>

The chemical industry is important but is not nearly as dependent on the EU export market as the electronics sector. Only 0.044% of the California workforce is employed directly or indirectly by REACH exports and REACH exports only account for 0.063% of Gross State Product (GSP).<sup>39</sup> However, chemicals are the second biggest export sector to the EU after electronics and exports have grown 15% each year since

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<sup>38</sup> The Green Chemistry Report.  
<http://www.dtsc.ca.gov/PollutionPrevention/GreenChemistryInitiative/Index.cfm>

<sup>39</sup> "California and Europe: Employment, Investment, and Trade Linkages". European American Business Council. <http://www.eabc.org/pdf/states/California.pdf>

2000.<sup>40</sup> This makes a strong case that chemical reform in California is affected by the economic context but not to the extent where it needs to copy REACH.

Economic concerns were the driving force for chemical regulatory change in Massachusetts. When arguing for the bill, it was noted that the REACH regime is much stricter than its U.S. counterpart (TSCA) and that 37% of Massachusetts trade is with the EU. The goal for the reform was that chemicals produced in Massachusetts would not need prior clearance before being exported to the EU. This would diminish the financial burden on companies.

Of all states, Massachusetts is the most dependent on the EU market in terms of REACH exports. REACH exports account for not only the highest percentage of direct and indirect jobs as a percentage of employment (0.29%) but even the most direct and indirect jobs (9, 110).<sup>41</sup> Also, it has the highest value of shipments as a percentage of GSP at 0.5%.<sup>42</sup> It is by far the biggest export sector to the EU, accounting for 37% of all exports from Maine to the EU.<sup>43</sup> Thus, dependence on the EU market played a major role in adopting REACH-like laws.

Maine, another state that has adopted REACH-like laws, is not overly dependent on the EU market, making it likely that economic factors were not the only factor. Only

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<sup>40</sup> “California and Europe: Employment, Investment, and Trade Linkages”.

<sup>41</sup> Ackerman, Frank, Elizabeth Stanton and Rachel Massey. “European Chemical Policy and the United States: The Impacts of REACH”. Global Development and Environment Institute. Working Paper No. 06-06. Sep. 2006.

<sup>42</sup> Ackerman, Frank, Elizabeth Stanton and Rachel Massey.

<sup>43</sup> European American Business Council.

40 people are directly or indirectly employed by industry affected by REACH exports and only accounts for 0.12% of Gross State Product (GSP). This is in contrast to 0.44% of employment and 0.063% of GSP in CA and 0.286% and employment and 0.5% of exports in Massachusetts. Chemicals, however, are the second biggest export to the EU.<sup>44</sup>

### *Regulatory Learning*

According to Scott (2009), the U.S. is susceptible to policy change because of its federal nature and “the disaggregated nature of power within the United States” where “individual states can serve as policy entrepreneurs”<sup>45</sup>. One example of this entrepreneurship is California. California and EU countries meet to discuss environmental and regulatory matters independently of the U.S. federal government.<sup>46</sup>

Following the Green Chemistry Initiative in California, a report was released in December 2008 that makes ample reference to data sharing agreements. According to Scott, it includes a recommendation which “would go further than REACH in ensuring the availability of information of this kind for consumers”<sup>47</sup>. Another recommendation establishes an Online Toxics Clearinghouse which would enter California into data sharing agreements with other countries and organizations such as the EU. The final recommendation urges more comprehensive chemical reform.<sup>48</sup> This led to S.B. 509,

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<sup>44</sup> European American Business Council.

<sup>45</sup> Scott, p. 4

<sup>46</sup> Biefenkopf, Katja.

<sup>47</sup> Scott, p. 35.

<sup>48</sup> Scott, p. 34-36

creating the Toxics Information Clearinghouse in California. This is evidence that California learned from the data generated by REACH because S.B. 509 sets out to develop data sharing agreements with other countries.<sup>49</sup>

Maine has also learned from REACH. According to Scott, Maine has looked to the EU REACH regulation for inspiration by using the list compiled for CVHC.<sup>50</sup> It came in the form of the April 2008 Act to Protect Children’s Health and the Environment from Toxic Chemicals in Toys and Children’s Products. Although it only pertains to children’s products, it is REACH-like in that it “seeks to train a process for identifying, listing and prioritizing chemicals of high concern”<sup>51</sup>

### *Political Context*

NGOs have capitalized on the federal nature of the U.S. in promoting their reform agenda<sup>52</sup>. The Lowell Center, for example, used the database created by REACH in order to encourage reform. It was able to interpret and disseminate the data in the database for the American public and regulators to understand.<sup>53</sup> Also, ChemSec, a Gothenburg-based NGO, created the so-called SIN List. SIN stands for “Substitute it Now” and is “the first public attempt to identify specific chemicals that qualify as [Substances of Very High

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<sup>49</sup> S.B. 509, 2007-08 Cal. Leg., Reg. Sess., (Cal. 2008) (to be codified at Cal. Health & Safety Code 25251, 25256, 25256.1, 25256.2, 25256.3, 25257.1.

<sup>50</sup> Scott, p. 40.

<sup>51</sup> Scott, p. 40.

<sup>52</sup> Scott, p. 4

<sup>53</sup> Scott, p. 74

Concern] SVHCs under REACH”<sup>54</sup>. The information in the database is not always clear to consumers so it is here that NGOs have played a key role in disseminating information.

### **4.3.3 REACH’s Impact on U.S. Federal Policy**

At the federal level, the most recent chemical reform proposal is the Kid-Safe Chemicals Act, introduced in the House and Senate on May 20<sup>th</sup>, 2008. It was sponsored by Senator Lautenberg in the Senate and Representatives Solis, Lee, Miller and Waxman in the House.

#### *Economic Context*

Sachs (2009) argues that the U.S. will undergo chemical reform because of economic dependence on the EU market. He lists three economic concerns to the U.S. chemical industry: compliance burdens, the size of the EU market (537 billion Euros) which is the largest in the world, and the fact that firms will want to comply with the EU’s higher standards to stay competitive.<sup>55</sup>

The U.S. government and the U.S. chemical industry have major concerns that the U.S. will be hurt by the REACH regulation. The chemical industry is a major pillar of the U.S. economy. It is a \$689 billion industry accounting for 2% of GDP.<sup>56</sup> Chemicals subject to REACH that are exported to the EU “amount to \$13.7 billion per year, and are

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<sup>54</sup> Environmental Defense Fund, “Across the Pond: Assessing REACH’s First Big Impact on U.S. Companies and Chemicals”. New York. January 2009. p. 4.

<sup>55</sup> Sachs

<sup>56</sup> American Chemical Council. [www.americanchemistry.com](http://www.americanchemistry.com)

directly and indirectly responsible for 54,000 jobs”.<sup>57</sup> It is also estimated that chemical exports to the EU will become more important to the U.S. economy in the future.<sup>58</sup>

Professors Ackerman, Stanton and Massey estimate that it will cost U.S. chemical producers \$14 million annually. However, they argue that the cost of compliance with REACH is minimal and it far outweighs the costs of not exporting to the vast EU market.

In sum, for policy-makers, there are concerns of the domestic chemical industry becoming uncompetitive in the world market. Because the burdens placed on industry do not outweigh the costs of not exporting to the EU, the economic context is a major factor which will likely drive U.S. chemical reform closer to that of the EU.

### *Regulatory Learning*

Reform of TSCA is likely to be heavily influenced from learning from the REACH experience. Criticism of TSCA has picked up in recent years thanks to a variety of factors, but REACH seems to be the basis from which TSCA is criticized. One of the main criticisms of TSCA is the lack of chemical data on dangerous chemicals. Scott argues that the data created by REACH “is crucial in explaining the impact of REACH.”<sup>59</sup> For many in the U.S. that wish for a regulatory change has forced the U.S. Congress to work on national legislation on issues drawn from the European experience”.

<sup>60</sup> Also, according to Sachs, “Information on chemical risks, disclosed in Europe, will

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<sup>57</sup> Ackerman p. 2.

<sup>58</sup> Ackerman p. 6.

<sup>59</sup> Scott, p. 79

<sup>60</sup> Zaki, Laidi. “Norms Over Force”. p. 66.

help to close longstanding data gaps in the United States and may help to build support for reform of U.S. law.<sup>61</sup>

The Kid-Safe Chemical Act was introduced, according to Scott, due to a “heightened awareness of the limitations of TSCA, and of reform initiatives in the EU and elsewhere”. Senators Boxer and Lautenberg have asked for an assessment of TSCA from the GAO. The GAO prepared a pair of reports criticizing TSCA and repeatedly emphasizing the advantages of REACH.<sup>62</sup> Senator Lautenberg’s legislative assistant, Cindy Bethell, said that “Europe gave us the inspiration to look hard at our own chemical law and ways to improve it”.<sup>63</sup>

Along with the data created by REACH, there have been numerous economic impact assessments of REACH. Studies within the EU estimate that there will be savings “into the billions of Euros, often tens of billions of Euros, over the ten to 30 years” after REACH is adopted.<sup>64</sup> U.S. regulators are sure to take note of such high savings from an environmental policy.

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<sup>61</sup> Sachs p. 2.

<sup>62</sup> Chemical Regulation: Comparison of U.S. and Recently Enacted European Union Approaches to Protect against the Risks of Toxic Chemicals Aug. 17 2007. <http://www.gao.gov/new.items/d07825.pdf>. See also: Chemical Regulation: Approaches in the United States, Canada, and the European Union. Nov. 4 2005 <http://www.gao.gov/products/GAO-06-217R> .

<sup>63</sup> Phibbs, Pat. “Report Lists Actions Congress Could Take to Improve EPA Assessments under TSCA,” 29 CHEM. REG. REP. July 18, 2005.

<sup>64</sup> Ackerman, p. 8.

## Channels of Communication

Various organizations serve as channels of communications where learning can occur. Specifically, various transatlantic economic governance structures, the TABD, the OECD, and UN Strategic Approach to International Chemicals Management (SAICM) have each played a role or will play a role in disseminating information to U.S. regulators.

The Transatlantic Economic Council (TEC) and Transatlantic Economic Partnership (TEP) are two institutional transgovernmental structures which promote cooperation between EU and U.S. regulators. Within this framework, the TABD was been active in promoting EU-U.S. chemical regulatory cooperation. The chemical industry on both sides of the Atlantic support reducing barriers to trade, including harmonizing chemical regulations. Despite the efforts of the chemical industry, “regulatory policy is a tricky sector because it deals with two politically sensitive subjects: the autonomy of regulatory authorities and the sovereignty of states to control domestic standards”.<sup>65</sup> U.S. regulators argue that transatlantic cooperation and harmonization of regulation impinges on their domestic regulatory mandates. Institutional realities make it difficult to harmonize regulations because domestic regulators have to cooperate with the EU at the same time as they are accountable to the domestic demands. U.S. governmental agencies have a culture of regulatory autonomy and are averse to

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<sup>65</sup> Steffenson, Rebecca. “Competing trade and regulatory strategies”. *Creating a transatlantic marketplace: Government Policies and Business Strategies*. Manchester University Press. Manchester and New York, 2005.

working with other agencies. They also have narrower mandates than EU agencies because they do not focus on trade issues.

SAICM is a UN program adopted in 2006 that works to harmonize global chemical management.<sup>66</sup> It focuses on the sound management of chemicals and has as a goal that by 2030, chemicals will be managed so that there is less harm to human health and the environment.<sup>67</sup> According to the International Labor Organization (ILO) “in the long run, REACH is likely to become a key element of the UN’s Strategic Approach on Chemicals”.<sup>68</sup> Furthermore, Euractiv.com argues that SAICM “gives a boost to the EU’s own draft REACH regulation”.<sup>69</sup> The Competitive Enterprise Institute argues that “another reason to believe that SAICM will have a substantial regulatory role is that many proponents see it as the perfect vehicle for the European Union (EU) to globalize its REACH proposal”.<sup>70</sup> Currently, it is difficult to anticipate the ultimate effects of SAICM on the U.S. as it is relatively new. However, even though SAICM is likely to achieve some international harmonization in chemicals policy, it is not likely to prompt the U.S. will align its policy with REACH.<sup>71</sup>

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<sup>66</sup> Secretariat of SAICM [www.saicm.org/index.php?menuid=2&pageid=256](http://www.saicm.org/index.php?menuid=2&pageid=256)

<sup>67</sup> <sup>67</sup> Secretariat of SAICM

<sup>68</sup> “Management of chemicals : SAICM and REACH”. CIS News. April 2006. <http://www.ilo.org/public/english/protection/safework/cis/oshworld/news/chem-dubai.htm>

<sup>69</sup> “UN agrees global strategy for safer chemicals”. Euractiv.com. 8 Feb. 2006. <http://www.euractiv.com/en/environment/un-agrees-global-strategy-safer-chemicals/article-152348>

<sup>70</sup> Logomasini, Angela. “The U.N.’s Strategic Approach to International Chemicals Management Program”. *Competitive Enterprise Institute*. March 28 2006. <http://cei.org/gencon/004,05233.cfm>

<sup>71</sup> Interview with René van Slotan. Executive Director for Industrial Policy and Cefic. 21 Sep. 2009

The OECD operates a chemical program within its environment department which has guidelines under the Good Laboratory Practices. According to Eileen Ciesla of the Competitive Enterprise Institute, the OECD has also been used by the EU as a vehicle to export the REACH regime. She argues that the OECD is biased in favor of EU countries and that the EU member states are taking advantage of this in order to export REACH to the world.<sup>72</sup> On the other hand, Vogel (1997) argues that the OECD has helped reduce compliance burdens on companies and governments and has thus helped in the harmonization of policies. There is little evidence of the OECD impacting the U.S. regulatory framework. It has, however, helped coordination within the marketplace.<sup>73</sup> The potential impact of policy positions of international organizations such as the UN and OECD can play a role in disseminating REACH.

The OECD has facilitated a California Effect on chemical policy from the U.S. to Europe in the past. In 1977 the OECD countries began negotiations to harmonize chemical test procedures<sup>74</sup>. The EU was more or less forced to align its regulatory framework to that of the U.S. in order to conform to the concept of mutual recognition under the OECD. It is possible that the OECD may play a similar role today in harmonizing U.S. and EU chemical regulations.

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<sup>72</sup> Ciesla, Eileen. "Will The United States Let The European Union Regulate Our Chemicals Industry Through The OECD?". *Competitive Enterprise Institute*. April 15, 2002.

<sup>73</sup> Interview with Dr. Dolf van Wijk, Manager Environmental Sciences, EuroChlor. 2 Sep. 2009.

<sup>74</sup> Vogel, p. 80

### *Political Context*

There have been major moves towards reforming TSCA. Recently, the EPA administrator admitted that TSCA needed to be reformed, noting that there are “troubling gaps in the available data on many widely used chemicals in commerce”.<sup>75</sup> In a recent speech, she highlighted the key parts of the “Obama Administration’s Essential Principles for Reform of Chemicals Management Legislation”.<sup>76</sup> Notably, one of the principles includes reversing the burden of proof so that chemical manufacturers will be required to prove that the chemicals are safe. This is the key part of the REACH “no data, no market” concept.

Industry is likely to play a key role in regulatory reform. The Obama Administration’s proposal was supported by the American Chemistry Council (ACC). In a recent op-ed piece in *The Hill*, Cal Dooley, President and CEO of the American Chemistry Council (ACC) states that “a review and revision of existing law, the Toxic Substances Control Act, should be made a priority this year.”<sup>77</sup> This is a big step forward for an industry that until recently has been ardently opposed to reform. However, the Society of Chemical Manufacturers and Affiliates (SOCMA) is skeptical of the proposal. Bill Allmond, Vice President of Government Relations and ChemStewards at SOCMA stated that “we recognize that implementing a ‘safety standard’ is a noble concept, but are skeptical about how it will be accomplished considering that other federal agencies have

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<sup>75</sup> “Obama Administration backs need for overhaul of TSCA”. Chemical Watch. 30 Sep. 2009.

<sup>76</sup> “Obama Administration backs need for overhaul of TSCA”. Chemical Watch. 30 Sep. 2009.

<sup>77</sup> Dooley, Cal. “The Chemical-law formula” *The Hill*. 6 July 2009. <http://thehill.com/opinion/op-ed/49497-the-chemical-law-formula>

jurisdiction over determining safety”<sup>78</sup>. Sachs (2009) argues that in predicting whether the United States will adopt REACH-like reforms, the stance of the U.S. chemical industry is the major wildcard”.<sup>79</sup>

With the information and data created by REACH, industry will look increasingly vulnerable as it continues to defend TSCA. Further, as major U.S. firms become accustomed to REACH’s requirements, industry objections to reform of TSCA become weaker. Companies such as Exxon, Dow and BASF, for instance, will not oppose reform since they have a strong foothold in the EU market and therefore want to reduce costs by following one single regulation (REACH). As of now, however, the chemical industry has remained quiet on regulatory reform.

The Environmental Defense Fund (EDF) is a strong supporter of Obama’s proposal. Other environmental groups such as ChemSec have been involved in TSCA regulatory reform using the SIN-List. ChemSec has even created a pamphlet for U.S. environmental NGOs to use to fight for TSCA reform entitled “Campaigning against Toxics: Using REACH outside Europe”.<sup>80</sup> The pamphlet includes a list of chemicals which they urge U.S. companies to stop using. The EDF used this list to “determine which chemicals and companies in the U.S. are likely to be affected by the development of the REACH candidate list and ultimately by authorization”.<sup>81</sup> This same report urged

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<sup>78</sup>“SOCMA Welcomes EPA’ Principles on Chemicals Management”. Society of Chemical Manufacturers & Associates. <http://www.socma.com/PressRoom/index.cfm?subSec=3&sub=71&articleID=1917> .

<sup>79</sup> Sachs, p. 59.

<sup>80</sup> “Campaigning against Toxics: Using REACH outside Europe”. ChemSec. [www.chemsec.org](http://www.chemsec.org).

chemical reform in the U.S. According to Scott, “NGOs continuously exploit information available under REACH to raise awareness of the potential impacts of chemicals in consumer products”.<sup>82</sup> Other significant NGOs urging chemical reform include the Center for International Environmental Law.<sup>83</sup>

Interest groups helped create a California Effect of chemical reform in the 1970s. When the U.S. introduced TSCA, it prompted European interest groups to lobby for reform in order to export to the U.S.<sup>84</sup> The opposite is occurring today with TSCA reform in response to REACH.

Given the new political climate, it seems that TSCA reform is likely. Also, as more states adopt REACH-like legislation, there will be increased pressure on the federal government to enact chemical reform so that there is not a patchwork of chemical regulations which would create burdens for the chemical industry.<sup>85</sup> However, it is unlikely that TSCA will be aligned with REACH.

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<sup>81</sup> Environmental Defense Fund. p. 4

<sup>82</sup> Scott, p. 6

<sup>83</sup> “Chemicals Program”. *Center for International Environmental Law*.  
[http://ciel.org/Chemicals/chem\\_program.html](http://ciel.org/Chemicals/chem_program.html)

<sup>84</sup> Vogel p. 262

<sup>85</sup> Ditz, Daryl. “Cloudy Skies, Chance of Sun: A Forecast for U.S. Reform of Chemicals Policy. *Center for International Environmental Law*. See also: Ditz, Daryl. “The States and the World: Twin Levers for Reform of U.S. Federal Law on Toxic Chemicals”. *Sustainable Development Law and Policy*. 2007.

## **5 Discussion**

Based on this research, it is evident that RoHS, WEEE, and REACH have greatly impacted the U.S. However, what can this tell us about the prospect of the impact of future EU environmental regulations on the U.S.? Given global regulatory standards are increasingly being made in Brussels, it is likely that the EU's environmental policies will continue to impact the U.S. This will especially continue to be the case with environmental policies governing product standards.

Previous studies on this topic have only considered one of these cases or focused on one of the factors. This research has built on this previous literature and come to similar conclusions. However, it may be useful for future research on this topic to take into consideration other factors which may have led to regulatory change. Other factors to consider could include U.S. public opinion and regulatory influence for other countries such as Canada. Also, given the 40 page limit of this paper, the scope of this research was somewhat limited. This topic is broad and deserves to be elaborated on. In particular, it would be helpful to find more economic data comparing the dependency of the electronics industry on the EU for products covered by RoHS and WEEE. It would also be helpful to interview people who were involved in the adoption of WEEE-like laws in the different states in order to determine which factor was the most important in leading to reform. This would strengthen the argument and shed light on the importance

of each factor. This research is not perfect but I hope that I have provided a stepping stone for others to elaborate further on the subject.

## **6 Conclusions**

We return now to the original questions: To what extent have these laws had a tangible impact at the market, state, and federal level in the U.S.? What factors have contributed to this impact? Given the fact that each of these pieces of legislation is relatively new, to what extent can we expect each of these laws to be adopted in the U.S.?

With regard to the first question, there is evidence that RoHS has impacted the U.S. at the market, state, and federal levels to varying degrees. The U.S. electronic industry has essentially adopted the RoHS directive. At the state level, California is the only state to pass a RoHS-like law. It includes the same list of hazardous substances as RoHS and has a provision which automatically adds hazardous substances when the EU adds a substance to its RoHS list. At the federal level, the U.S. has not passed RoHS-like legislation but has been influenced by RoHS as is evidenced by the flurry of RoHS-like bills in Congress.

Like RoHS, the U.S. marketplace has virtually adopted the WEEE directive. At the state level, almost half of all U.S. states have adopted E-Waste recycling laws but it is unclear to what extent WEEE has influenced these decisions. At the federal level, there is no WEEE-like legislation but similar legislation has been proposed in Congress.

REACH has had the most concrete impact on the U.S. of the three policies examined here. At the market level, the U.S. chemical industry has adopted REACH. At the state level, only three states (California, Massachusetts, and Maine) have enacted chemical reform but there is evidence that REACH led to this reform. At the federal level, TSCA has yet to be

reformed but REACH has led to proposals by the White House, EPA and trade groups for reforming TSCA.

With regard to the second question, all three factors appear to have contributed to the impact that the EU policies have had but to varying degrees. The economic context surrounding the impact of RoHS, WEEE and REACH has impacted the market, state, and federal levels. There is more evidence that the economic context has shaped the market and state level than the federal level. At the market level, for instance, the industries affected by these EU policies have experienced a California Effect. For each of the three cases, the respective industry is sufficiently dependent on the EU market that it outweighs the financial cost of adopting the policy. At the state level, there is evidence that the states which are most dependent on the EU market in each industry in question are the ones which have passed EU-like policies. At the federal level, although there is no direct evidence of legislative change, the economic context has played a role in bringing the debate to the floor for these three policies. At both the state and federal levels, policy makers have accepted that the cost of adopting these EU policies does not outweigh the benefit of exporting to the EU.

There is evidence of regulatory learning at the state and federal levels but not at the market level. At the market level, however, because REACH is supported by a database, it is possible that individual companies will take advantage of this information when producing their products. At the state level, there is evidence that California has learned from the RoHS directive and that California and Maine have both learned from the REACH regulation. There is also substantial evidence that learning has occurred at the U.S. federal level. There have been GAO reports arguing for a REACH-like chemical legislation, for example, as well

as members of Congress who were inspired by REACH when introducing chemical reform bills.

The political context played a role in the diffusion of the EU policies at each level to varying degrees. At the market level, the political context did not play a role in the diffusion of WEEE and RoHS but did play a role in the diffusion of REACH. Environmental NGOs have been very active in getting the U.S. marketplace to follow the EU chemical policy. At the state level, the political context has played a crucial role. California, for instance, already has environmental policies and a regulatory culture close to that of the EU, making adoption of RoHS, WEEE, and REACH easier than for the rest of the US. At the federal level, interest groups lobbying for RoHS, WEEE, and REACH-like reforms have had a big impact.

With regard to the third question, there is a good chance that each of these policies will lead to U.S. state and federal government reform. All three policies have the necessary prerequisites for reform: a favorable economic and political context as well as the learning component. However, there are different degrees of probability. WEEE, for instance, has a higher probability of leading to a federal WEEE legislation than RoHS because of the number of U.S. states who have adopted WEEE-type laws. Interest groups are more keen to push for a national E-Waste recycling law than a RoHS-type law. Also, REACH is a much bigger regulatory regime than WEEE or RoHS. It is all encompassing by targeting the entire chemical industry. Because of REACH's impact on U.S. business, there is bound to be some type of chemical reform of TSCA in the near future. However, it is unlikely that the U.S. will ever adopt chemical legislation at the same scope and scale as REACH.<sup>1</sup>

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<sup>1</sup> Interview with René van Slotan. Executive Director for Industrial Policy and Cefic. 21 Sep. 2009

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