



Value Added in motion.

The future geography of production, migration and energy.

EDITORIAL

Francesco Giorgianni



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Editorial

Francesco Giorgianni, Institutional Affairs, Enel

Ask yourself how the world's economy would be doing today without the financial crises that severely mauled the western economies in 2008. Would manufacturing remain in Europe or not? Would the nuclear renaissance be stopped without Fukushima? "What if" exercises prove to be useless over time. Financial crises merely accelerated some events that were already brewing. We all know that manufacturing in Europe was giving way to China and we all know that the energy system was changing because of the prompt development of renewable sources. But now it is high time to ride the wave of a possible growth. Crossing fingers, the Heads of the main European countries are now in favor of lax fiscal policies, leaving room for short-term economic adjustments, covered by European Central Bank "unconventional intervention" insurance. All the ingredients for the rebirth of industry are there. Welcome to the Master Chefs of Europe, if they can use the ingredients wisely.

In this newsletter, you will find interesting analyses on how to best address industrial policy-making, by observing "regional supply chain" dynamics (see article by G.I.P. Ottaviano). Can "US Manufacture" beat the "Asian Manufacture Invincible Armada"? Might the Transatlantic Technology Partnership Agreement receive un hoped-for help from "European Manufacture" to win among the BRIC-MINT G20 economies?

Emerging economies are becoming the world's industrial powerhouses, but the issue of workforce education and the quality of the business environment are key to conquering the high-tech stages of global value chains.

The human factor counts in this race, especially now that we are sandwiched between Taylorian schemes and future human-independent factories. I invite you to read why "Europe has been less effective than the US in mobilizing its pool of college-educated potential immigrants" (article by F. Docquier). It is clear that the next revolution can be won only if Europe wins the competition for talents.

Speaking about externalities, some analysts say that the risk of facing high CO₂ prices in Europe has scared low-class manufacturing to such an extent that it started moving to Asia. I would love to believe so. Reducing CO₂ is NOT against industrial development. Actually: "If the world is to reduce CO₂ emissions while continuing to grow, we are going to have to follow paths more like China's and Oregon's, and less like those of the Middle East and Alaska" (see the article by A. Levinson). Meet with Oregon and you will discover that you are closer to China than to Alaska, which shares more features with the Middle East than with Siberia. If you look for "value added", sure this is "in motion". Good luck and good reading.

Does it stay or does it go?

Industrial value added across mature and emerging economies



Gianmarco I.P. Ottaviano

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Has manufacturing a future in mature Western economies? Or will emerging economies become the world industrial powerhouses? The answer depends on the ability of big emerging economies (such as Brazil, India and, most of all, China) to improve, together with the education of the workforce, also the quality of the business environment so as to conquer the high-tech stages of global value chains.

Despite the rise of the “service economy”, in the aftermath of the global crisis, earlier reports on the death of manufacturing have proved exaggerated. Industry still matters because it continues to have an enduring effect on standards of living around the world: it is a growing contributor to global value added; it buys considerable and growing amounts of inputs from services; it is a major consumer of energy, the second largest after energy production itself. But is there a future for industry and manufacturing in mature economies such as Europe and the US?

Will they still be able to contribute to growing living standards as they did in the past? Will emerging economies become instead the world industrial powerhouses? These questions are addressed in the recent report “Does it stay or does it go? Industrial Value Added across Mature and Emerging Economies” by Centro Studi Luca d’Agliano, within the framework of the VAM (Value Added in Motion) project funded by Enel Foundation.

The report examines trends in the geography of industrial value added since the early 1960s and discusses potential future scenarios. The evidence points to a complex picture that changes with the industrial sectors and the macro regions considered.

What it shows is that there is no obvious and unidirectional trend whereby all industry gradually migrates towards emerging economies. At the same time, in the last few years, there has been no clear opposite process of reinshoring back to mature economies. The bottom line is the emergence of three continental production and market networks, with large and increasing exchanges among themselves: “Factory America”, “Factory Europe” and “Factory Asia”, the latter also being the fastest growing of these. Within each of these regions, trade and foreign investments have been developing complex webs of activities, in which mature economies continue to play a very important role.

Manufacturing still matters because it continues to have an enduring effect on standards of living all around the world

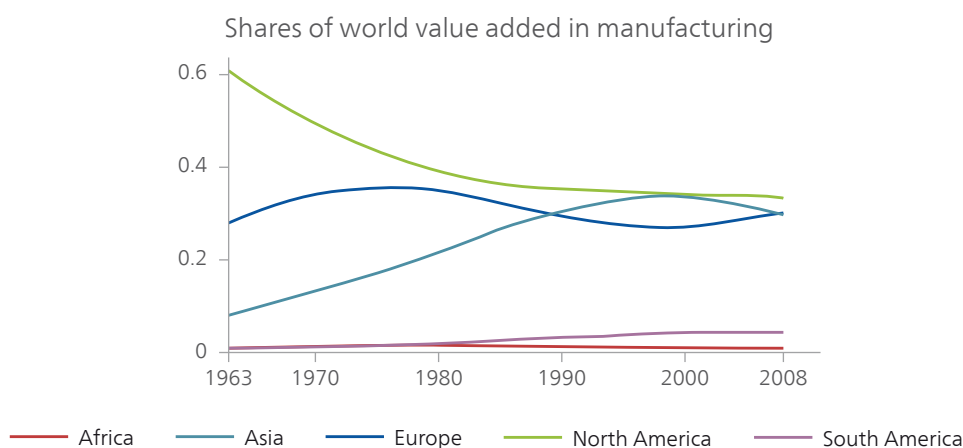
On the whole, the development of industry is not a zero-sum game. It has not been one even in the last two decades. This can be applied to reallocation of GDP shares from industries to services. Even if this reallocation is a secular trend that we can observe in the process of development of any economy, the real value added of industry is still rising almost everywhere, though at a slower pace than that of services. Furthermore, it can also be applied to the worldwide geographical reallocation of industrial value added. Even though Asia and several emerging economies have been able to increase their shares of industrial value added and employment, a large group of mature economies is continuing to increase the real value added of its

industrial activities.

Starting in the early 1960s, Asia has clearly become the largest manufacturing region of the world. This pattern is observable in Figure 1, which compares the long-term trends in world value added. The pattern has been driven by the sequential rise of two industrial giants, Japan initially and China subsequently. Equally, within each macro region, emerging countries (besides China in Asia, transition economies in Europe, and Mexico in NAFTA) have gained shares. These gains, however, have been driven more by increases in employment than by rising labour productivity. Figure 2 shows that, throughout the period analysed, the value added per worker has been constantly rising faster in the mature economies, especially in the US, but also in Western Europe and subsequently in Japan. Consequently, the real value added in levels has continued to rise in these areas, too. The productivity gains have offset the employment losses and preserved the value added in industry, hence the resilience of manufacturing in mature economies.

The aggregate trends also reflect differing sectoral patterns. Emerging economies have gradually increased their market share in relatively high-tech industries and have been able to allocate resources to fast-growing industries. However, given the technical possibility of fragmenting production

FIGURE 1 – Long-term trends in world value added



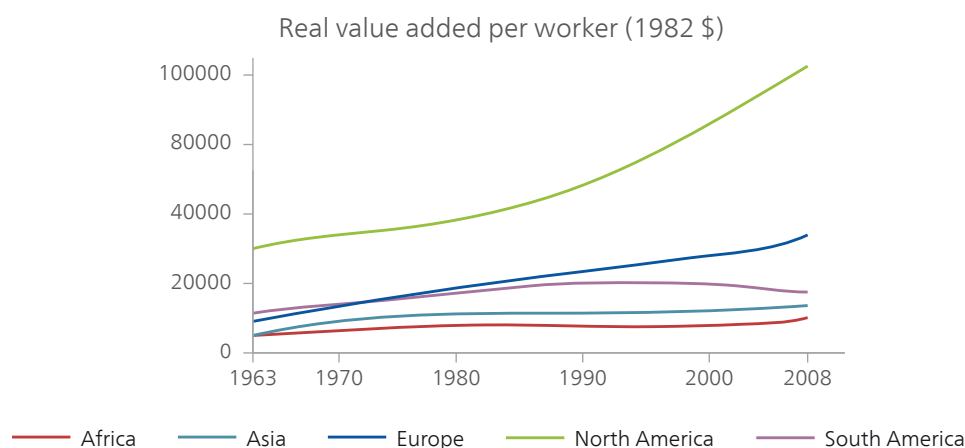
Source: UNIDO, IndStat 2

geographically in these industries (especially in electronics), this shift has been achieved by entering specific fragments of the value chain, initially assembly (China) and subsequently the production of specific components. Consistently, however, in those countries the value-added growth in high-tech sectors is below gross output growth, implying that they are still located in the low-tech stages of the regional supply chains. The report also examines the key drivers of this process. In particular, it singles out six key drivers of the geography of manufacturing value added: the geography of final demand; the geography of labour and human capital; the geography of energy; the geography of the business environment; the geography of innovation; and the geography of management practices. The first three work in favour of "Factory Asia" whereas the others cast a shadow on the ability of "Factory Asia" to catch up in terms of productivity in the near future. Two polar qualitative scenarios may emerge in the long run. In one scenario, big emerging economies like Brazil, India and, most of all, China, together with the education of their workforce, will improve the quality of their business environment and will manage to climb the ladder of the value chains towards the high-tech stages. In this scenario, manufacturing in mature economies will decline.

Manufacturing value added per worker has been constantly rising faster in the mature economies, especially in the US

In the alternative scenario, mature Western economies will maintain their supremacy in the ease of doing business, innovation, and sound management practices, confining emerging economies to the low-tech stages of the global and regional value chains. Taking a stance on which scenario will be the most likely to emerge in the long run requires a deeper understanding of the complex forces at work than that currently provided by existing analyses. To go beyond these analyses is the aim of the VAM project.

FIGURE 2 – Long-term trends in world value added per worker



Source: UNIDO, IndStat 2

Europe and the global competition to attract talents



Frédéric Docquier

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So far, Europe has been less effective than the US in mobilizing its pool of college-educated potential immigrants. On average, an increasing competition for talents would increase human capital and income per worker in Europe. However, less attractive countries such as Austria, Belgium, Germany, Greece, Luxembourg and the Netherlands would see their income gap with the US increasing.

Given skill-biased technical changes and the growing specialization in skill-intensive activities, many industrialized countries are lacking knowledge capital and entrepreneurial skills. The global competition to attract foreign talents has intensified over the last decades. So far, the US has been leading the race, attracting PhD candidates and college graduates not only from emerging countries but also from the 15 member states of the European Union (EU15) and other industrialized countries. The race to attract talents is likely to get tougher in the future. Europe has launched a selective blue card and the US has

increased the number of H1B visas. In addition, a growing number of countries (the UK, Germany, Switzerland, Netherlands, etc.) have recently adopted isolated policy measures aimed at attracting the brightest.

Combining databases on effective and desired migrations, I argue here that the EU15 has a large pool of potential foreign talents. On the one hand, this pool is relatively smaller than the US pool, reflecting the fact that Europe is economically less attractive. On the other hand, the EU15 has poorly benefited from the pool (probably because European immigration policies have been less selective) while the US has mobilized a large portion of it. Overall, letting potential talents in would increase human capital and income per worker in the EU15. In addition, a worldwide liberalization of high-skilled migration would slightly reduce the average income gap with the US. However the European gains would be unequally distributed: less attractive countries such as Austria, Belgium, Germany, Greece, Luxembourg and the Netherlands would benefit less than the US, Canada or Australia.

Europe's effectiveness in attracting talents

There exist several databases documenting the size and structure of effective migration stocks by education level, country of birth and country of destination¹. In the last decade, there were 111.6 million adult migrants in the world. This included

¹ Artuc, E. & F. Docquier, C. Ozden, C. Parsons (2013). A global assessment of human capital mobility: the role of non-OECD destinations. World Development, forthcoming.

26 million college graduates, a vast majority of whom were residing in rich countries. The table below documents net immigration (i.e. entries minus exits) of college graduates in EU15 countries, the US, Australia and Canada. Included are intra-EU movements, although the latter cancel out at the aggregate EU15 level. The first two columns show that migration increased the number of college graduates in the United States (+11.6%), Canada (+25.8%) and Australia (+51.9%). On the other hand, the EU15 has attracted fewer college-educated immigrants and has been unable to retain its own talents. The

EU15 exhibited a net deficit of 0.571 million workers, representing 1 percent of the college-educated labor force born in Europe. In relative terms, the greatest losses were observed in Ireland, Portugal and Greece. Net inflows of college graduates were instead observed in Luxembourg, Sweden and the Netherlands.

Europe's potential to attract talents

In parallel, the unique and largely understudied Gallup database identifies the proportion and the characteristics of people who had not yet migrated and who expressed a desire to leave their own country during the last decade².

TABLE 1 – Net immigration of college graduates aged 25+ in selected countries in the 2000s

Country	Actual immigration Count % college educ. natives		Desired immigration Count % college educ. natives		Potential immigration Count % college educ. natives	
Austria	-40,528	-3.1%	128,646	+9.8%	88,117	+6.7%
Belgium	50,720	+2.6%	48,112	+2.5%	98,831	+5.1%
Denmark	-31,649	-3.8%	111,272	+13.3%	79,623	+9.5%
Finland	-54,206	-5.5%	218,774	+22.0%	164,568	+16.6%
France	232,408	+2.5%	1,157,422	+12.2%	1,389,830	+14.7%
Germany	-32,884	-0.2%	856,931	+5.6%	824,047	+5.3%
Greece	-113,817	-8.9%	120,153	+9.4%	6,336	+0.5%
Ireland	-120,321	-20.8%	80,386	+13.9%	-39,935	-6.9%
Italy	-289,039	-3.6%	529,638	+6.6%	240,599	+3.0%
Luxembourg	13,746	+19.8%	-2,531	-3.7%	11,215	+16.2%
Netherlands	114,907	+4.9%	180,212	+7.8%	295,119	+12.7%
Portugal	-132,344	-12.7%	50,891	+4.9%	-81,453	-7.8%
Spain	101,970	+2.4%	1,118,610	+26.1%	1,220,581	+28.5%
Sweden	108,164	+6.8%	484,657	+30.3%	592,821	+37.0%
United Kingdom	-378,139	-4.5%	807,729	+9.7%	429,590	+5.1%
Total EU15	-571,011	-1.0%	5,890,901	+10.2%	5,319,890	+9.3%
Australia	1,440,055	+51.9%	3,415,750	+123.1%	4,855,805	+175.0%
Canada	2,182,516	+25.8%	4,870,447	+57.5%	7,052,963	+83.3%
United States	9,784,006	+11.6%	5,227,830	+6.2%	15,011,836	+17.8%
Total 18	12,264,555	+5.8%	25,295,828	+12.0%	37,560,383	+17.8%

Note: Count = net immigration of individuals with college education aged 25 and over; % college educ. natives: net immigration of college educated individuals aged 25 and over as a share of the native-born college-educated population aged 25 and over.

Source: Own calculations based on Artuc et al. (2013) and Gallup (2012).

² Gallup, 2014 – Gallup Country Data Set Details 2008-2013, available at <http://www.gallup.com/strategicconsulting/128171/Country-Data-Set-Details.aspx> 02/04/2004



Around 274.5 million adult workers wanted to leave their country permanently if given an opportunity, including 68.1 million college graduates. These numbers, taken at face value, give an upper-bound for the demographic shock that a complete liberalization of high-skilled migration might induce. Columns 3 and 4 show that letting these would-be migrants emigrate would have attenuated human capital disparities between the EU15 and the US, increasing the number of college graduates by 10.2 percent in Europe and by 6.2 percent in the US. The preferred EU15 destinations are Scandinavian countries, Spain, Ireland and France. Conversely, countries such as Germany, Italy, Belgium or Portugal have a low potential to attract talents. The concept of potential migration, the sum of effective and desired migrations, better captures the attractiveness of countries. Columns 5 and 6 show

that overall, the EU15 is less attractive than the United States. In the last decade, letting all potential high-skilled migrants move would have increased the college-educated workforce by 17.8% in the US and by 9.3% in the EU15. However the EU15 has not yet mobilized this pool of talents, as opposed to the US, Australia and Canada.

The race for talents and economic performance

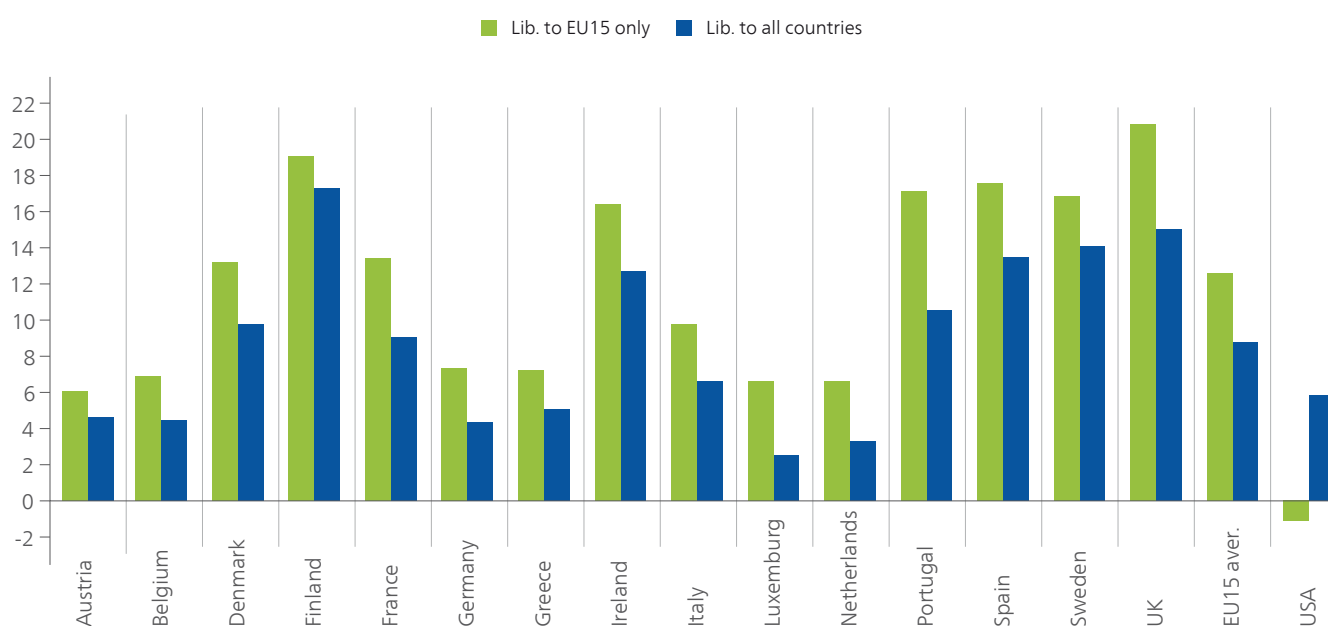
In the 2000s, the US level of income per worker was 65 percent greater than the average level in the EU15. To predict the effects on income disparities of an intensification of the competition for attracting talents, I used a dynamic model accounting for the behavioral and general equilibrium responses to this shock³. The model endogenizes (i) adults' migration and higher education decisions, (ii) adults' fertility rates and investment in children's basic education, (iii) workers' productivity and wages. The model is parametrized to match the

³ For more details, see Delogu, M. & F. Docquier & J. Machado (2013): The dynamic implications of liberalizing global migration, IRES Discussion Paper n. 2013-029: Université Catholique de Louvain.

current characteristics of the world economy. In particular, it perfectly fits contemporaneous data on migration, education and income, matches official demographic projections for the 21st century, and matches the empirically estimated levels of the elasticity of migration to income and the average elasticity of college-education investment to high-skilled emigration prospects. I simulated the effect of a complete removal of legal/visa migration restrictions for college graduates in the EU15 alone (Scenario “Lib. to EU15”), or in all countries of the world (Scenario “Lib. to All”). This policy is equivalent to implementing a point-based system, granting a permanent visa to each applicant with at least one year of college education. Figure 3 gives the long-run effects on income per worker for EU15 countries and the US under the two scenarios. If the EU15 liberalized high-skilled immigration alone (grey bars), the average income per worker would increase by 12.6 percent. This long-run effect accounts for the changes in migration, education and fertility in all countries of the world. The countries benefitting most (i.e. more than 10 percent) are the United Kingdom, Ireland, the Scandinavian countries, France, Spain and

Portugal. The smallest effects are observed in Austria, Belgium, Germany, Greece, Luxembourg and the Netherlands. It is worth noticing that in the US, income per worker would decrease by 1.1%. This is due to the fact that Europe would attract a number of college-educated Americans and other migrants who would have emigrated to the US otherwise. In retaliation, other industrialized countries would be likely to adopt or reinforce skill-selective policies. Hence, the second scenario envisages a worldwide liberalization of college-educated migration (black bars). On average, this shock benefits more the EU15 (+8.8 percent) than the United States (+5.9 percent) in the long-run. A fierce competition to attract talents would thus have a limited effect on the income gap with the US. However, gains among EU15 member states are unequally distributed. They are large in Scandinavian countries, the UK, Ireland, France, Portugal and Spain. They are instead smaller than the US gains in countries such as Austria, Belgium, Germany, Greece, Luxembourg and the Netherlands. Under a fierce competition for talents, the latter countries would see their income gap with the US increasing.

FIGURE 3 – Long-run effect of a skill-selective liberalization on income per worker (Percentage deviation from the baseline)



Economic consequences of carbon abatement: some lessons from the past



Arik Levinson

Professor, Georgetown University Economics Department

New US rules cap CO₂ emissions per MWh of electricity. Research based on historical experience in the US and EU suggests that the rules will not lead to a decline in manufacturing or a rise in imports. Worldwide, economic growth has outpaced declines in energy intensity, meaning that carbon abatement will require reducing the carbon content of energy, not just the energy intensity of the economy.

In a much anticipated announcement of June 2, the United States Environmental Protection Agency (EPA) released its proposal to cut CO₂ emissions at existing power plants. While the rule has some way to go before being finalized, including a public comment period and inevitable litigation, one remarkable feature of the plan is its flexibility.

It gives each US state a target ratio of CO₂ emissions per megawatt hour of electricity generated, ranging from 215 pounds in Washington to 1783 pounds in North Dakota⁴. States must achieve their goals by 2030, but the EPA only offers suggestions for how they might get there: improving power plant heat rates, replacing coal with natural gas and renewables, and encouraging end-user energy efficiency. Depending on the strategies that states pursue, the EPA forecasts that CO₂ emissions from electricity generation will decline by about 30 percent relative to 2005 levels. Already, some have begun arguing that the US proposal doesn't go far enough, while others are claiming the new rules will devastate American manufacturing, increase imports, and slow down economic growth⁵. Most of the forecasts are speculative, especially given how little we know about the ways states and utilities will eventually choose to comply with the EPA's targets, but we do have historical experience to draw on. The EU and the US have been regulating industrial pollution for decades – not carbon pollution but certainly for other similar air pollutants – and the economic consequences

⁴ For more information about the new U.S. rule, see here: <http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule>.

⁵ Landberg, Reed "EU Calls on Deeper U.S. Emissions Cuts to Protect Climate" [<http://www.bloomberg.com/news/2014-06-02/eu-calls-on-deeper-u-s-emissions-cuts-to-protect-climate.html>] Bloomberg News. June 2, 2014. U.S. Chamber of Commerce, "Assessing the Impact of Proposed New Carbon regulations in the U.S." [<http://www.energyxxi.org/epa-regs>] 2014.

should be comparable.

From 1995 to 2008 sulfur dioxide emissions from manufacturers fell 59 percent in the EU and 63 percent in the US. How was that cleanup achieved? Drastic declines in manufacturing output? An increase in imports of goods the manufacture of which creates pollution? New research by Claire Brunel at Georgetown shows that neither of those explanations holds⁶. The manufacturing sectors of the EU and the US didn't shrink at all during this period. They grew by 39 percent in the EU and 31 percent in the US. And imports into the regions did not shift towards more polluting products – if anything, imports shifted towards cleaner products, while in the EU the composition of domestic production shifted towards more polluting products, not less.

So how did the EU and the US reduce emissions from manufacturing without reducing manufacturing output and without importing proportionally more products made via pollution-intensive processes? According to Brunel, the biggest explanation must be technological changes to manufacturing production: cleaner fuels, more efficient use of those fuels, or end-of-pipe pollution abatement technologies. And she finds similar patterns for two other common air pollutants: nitrogen dioxides and volatile organic compounds.

Brunel's research, like my own work for an earlier period in the US, represents good news for the rest of the planet⁷. If the cleanup in the EU and the US had come from declines in manufacturing output, that might be a sacrifice too costly for lower-income countries to replicate. And if the cleanup had come from importing polluting goods previously manufactured domestically, that would not be a process that lower-income countries could replicate even if they wanted to, unless they could find ever-poorer countries with which to trade.

New research shows that air pollution from manufacturing has declined, while manufacturing output has increased

However, technological change can be mimicked worldwide, and in fact might be less expensive if other countries can adopt technologies already developed to meet regulations in the EU and US^{8–9}. Of course, CO₂ is different from the pollutants that Brunel studies. It's a global pollutant, making it critical that regulation in the EU and US does not result in shifting carbon emissions to less-regulated countries. Brunel's research suggests that won't necessarily happen. And CO₂ also differs in that there are no working, economical, large-scale, end-of-pipe, abatement technologies. That means that meeting ambitious CO₂ emissions targets will require either switching to less carbon-intensive fuels or reducing the economic importance of energy generation. On that issue, again we have historical experience on which to draw. World energy use per dollar of output has declined by 25 percent since 1980, but that decline masks considerable heterogeneity (Fig. 4). In the Middle East, energy consumption rose faster than economic

⁶ Brunel, Claire (2014), "Pollution Offshoring and Emission Reductions in EU and US Manufacturing" [<http://ssrn.com/abstract=2447679>].

⁷ Levinson, Arik (2009) "Technology, International Trade, and Pollution from US Manufacturing" [<http://pubs.aeaweb.org/doi/pdfplus/10.1257/aer.99.5.2177>] *American Economic Review* 99(5) pp. 2177-92.

⁸ Hilton, F. G. (2001), "Later Abatement, Faster Abatement: Evidence and Explanations from the Global Phase-Out of Leaded Gasoline" [<http://jed.sagepub.com/content/10/3/246.full.pdf+html>] *Journal of Environment and Development* 10(3) pp.246-265.

⁹ In fact, the export rate of greenhouse gas mitigation technologies is over 40 percent in the US and up to 90 percent in the Netherlands. Dechezlepretre, Antoine, Matthiew Glachant, Ivan Hascic, Nick Johnstone, and Yann Meniere. (2011). "Invention and Transfer of Climate Change-Mitigation Technologies: A Global Analysis" [<http://reep.oxfordjournals.org/content/5/1/109.abstract?sid=a1e4b085-d5d9-4391-9fcb-c15057543163>] *Review of Environmental Economics and Policy* 5 (1) 109-130.

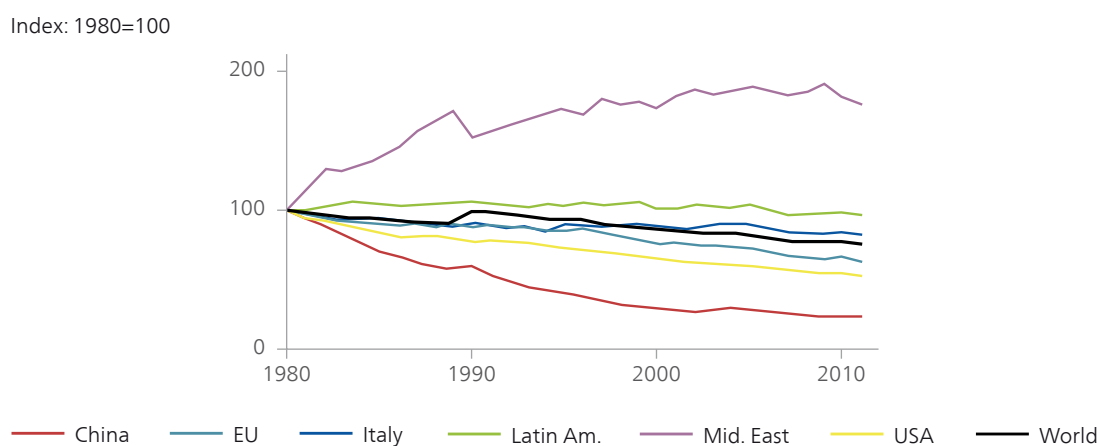
growth. In China, where rapid economic growth has been the lead story, energy intensity fell.

Looking across US States, we can see a similar pattern (Fig. 5). National energy use per dollar of output has declined by 45 percent since 1980, with similar heterogeneity. In states with abundant energy resources – Alaska, North Dakota, Wyoming – energy intensities rose, or fell less rapidly. Western states like Oregon and California have seen their energy intensities fall.

If the world is to reduce CO₂ emissions while continuing to grow, we are going to have to follow paths more like China's and Oregon's, and less like those of the Middle East and Alaska. My own research

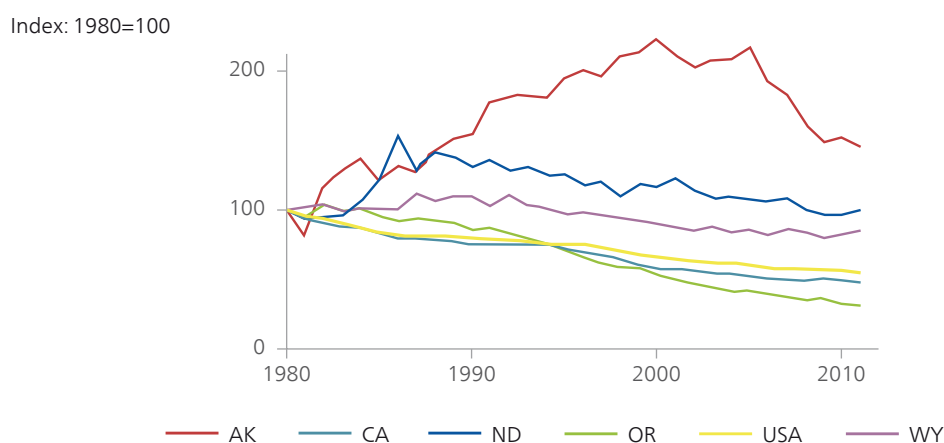
in progress examines the determinants of US State energy intensities to see if there are lessons that can be extrapolated to the rest of the world. But it won't be enough to merely ensure that energy intensities decline, because even though Oregon's energy intensity has declined by 69 percent in the last 30 years, its state economy has grown by 240 percent. Overall energy use by Oregonians therefore grew. And even though China's energy intensity fell by 76 percent, its economy grew by a factor of 37, so overall energy use in China grew by a factor of 9. Just reducing energy intensities won't be enough – the world needs to reduce the carbon intensity of that energy or reduce total energy consumption.

FIGURE 4 – World Energy Use per Dollar of GDP



Source: World Bank World Development Indicators, kg oil equivalent, constant 2005 PPP \$

FIGURE 5 – US State Energy Use per Dollar of Gross State Product



Source: US Energy Information Administrator, 1000 BTU per chained 2005 \$

Geography, migration and energy: the case of North Dakota



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Researcher, Enel Foundation

Geography, migration and energy are three deeply interlinked dimensions. This relationship is analyzed by the Enel Foundation research project “Value Added in Motion” and is disclosed by the US “shale gas/oil revolution”: in North Dakota, shale business generated an economic boom, a new job market and, therefore, an extraordinary migratory flow.

The Enel Foundation research project “Value Added in Motion” links three key dimensions – geography, migration and energy – which are deeply interrelated. As underscored by the authors themselves in the overarching study of the project, “the outcome in any of these areas simultaneously drives and is affected by the outcomes in the other areas, as in a production function”. Energy and migrant workers are “key inputs to industrial activity; not only their availability affects the size of industry, but also the mix, in terms of energy

sources and skill composition of migrants, influences the characteristics of the economy and especially its productivity”. On the other hand, industrial (and technology) outcome also influence energy choices and migration flows, as they constitute a key component of demand for both. The “shale gas/oil revolution” in the United States illustrates the marked relationship existing between geography, migration and energy very well. In fact, areas considered for many years “neglected geographies” – since suffering from marked economic recession and depopulation – have been revitalized economically thanks to the shale industry.

One concrete example of this kind is represented by the western American state of North Dakota, where the shale business has caused a considerable economic boom, creating many new jobs and, as a consequence, a new flow of migrants from all over the country (and also from abroad). Thanks to the fracking boom, North Dakota already produced about 3,000 barrels of oil per day in 2005. In 2014, crude oil output is projected to reach over one million barrels per day, making the state the second-largest oil producer in the US, immediately after Texas. The oil and gas rush has transformed the area into the fastest growing economy in the States, with

Development of energy industry is a real “job multiplier”, with a significantly positive employment impact on manufacturing and services industries

an unemployment rate of only 2.6 percent, the lowest recorded in the nation so far (Forbes, 2014). Migration is expected to continue in the years to come. As oil and gas companies keep on growing, expanding and hiring, flows of people are converging on the area from all over the US, looking for work and for a new start. While workers and truckers are the professionals in highest demand, jobs creation has not been limited to the fracking industry; people looking for employment in other sectors (services, urban infrastructures, electricity, transportation) are also needed. In fact, development of the energy industry is a real “job

multiplier”, with significantly positive employment impact on manufacturing and services industries (Galeotti et al. 2013). In addition, people who relocate require housing, food, health services, entertainment and transportation. This enables companies outside the energy sector also to invest and expand their business activities. So far, environmental and social concerns remain the two biggest challenges for the future of the shale industry in the US. While there is an ongoing and considerable debate over the environmental impact of hydraulic fracturing, water scarcity, water pollution and the impact on greenhouse gas emissions, the international community has probably paid less attention to the social dimension of the fracking boom. This is also very well exemplified by the American experience in North Dakota. What’s happening is that economic growth and jobs do not go hand in hand with access to housing and other basic services, such as health and education. North Dakota saw a 200 percent jump in homelessness last year, the biggest increase of any state, due to the limited housing stock and rents climb (Reuters, 2014). In fact, while the energy business is moving apace, it takes time to build proper urban infrastructure (housing, sewage, roads). Having a job without having shelter? Is this the other side of the coin?



News from Enel Foundation

Rewind

SIDE EVENT

World Urban Forum 7 (WUF7). Energy access, energy efficiency and resource distribution: improving the quality of life in slums of Latin America and Africa

April 10
2014
Medellin

At the 7th World Urban Forum, Enel Foundation organized a panel discussion on energy-related challenges in informal settlements, with reference to large cities in Latin America and Africa. The panel, composed by Politecnico di Milano, UN-Habitat, Codensa and University of Toronto, was an opportunity to present the EF research project "Analysis of energy consumption and energy efficiency in informal settlements of developing countries", conducted with Politecnico di Milano, UN-Habitat, Edelnor and Abita Peru NGO. The research aims to analyze inequalities in energy use and energy efficiency in informal settlements of Lima and Lagos, adopting a participatory approach and surveying local population. R. Mele (Head of Sustainable Development & Innovation Research at EF) opened the event talking about energy as driver of urban sustainable development.

INTERNATIONAL CONFERENCE

Sharing energy regulatory practices and perspectives. LatAm-Europe: national experiences, common languages and future trends

April 10
2014
Rio de Janeiro

Together with the Italian Embassy in Brazil and the Brazilian Association of Electricity Distributors (ABRADEE), the Enel Foundation organized the international conference "Sharing energy regulatory practices and perspectives: LatAm-Europe: national experiences, common languages and future trends". On April 10, in Rio de Janeiro, high-ranking regulatory experts, academicians, and representatives from the

energy industry, belonging to the two regions interweaved their visions on best practices, common issues and future perspectives. The event represented a strong opportunity to share knowledge and discuss about new approaches to tackle regulatory challenges such as markets integration, the deployment of renewable energy sources and the use of new technologies.

ANNUAL CONFERENCE

Waves and winds of strategic leadership for sustainable competitiveness

June 6
2014
Valencia

Within the program of the 14th EURAM Annual Conference, in Valencia (Spain), the Enel Foundation organized the workshop "New patterns of organization – New ways of doing business", together with EURAM Entrepreneurship and Business & Society Strategic Interest Groups. The event provided an opportunity for experts and academicians to discuss the impact of emerging trends in corporate responsibility and sustainability. The speakers also discussed the issue of value creation for companies and stakeholders. R. Mele (Head of Sustainable Development & Innovation Research Area at EF) referred about the results of EF studies on both CSR and on corporate organizational innovation. In particular, Mele highlighted those research key points on how companies integrate sustainability practices in their business models.

Next

TRAINING

New challenges
for energy system
in the Mediterranean
Region

November 2-6
2014
San Servolo Island,
Venice

Enel Foundation, in cooperation with the International Energy Agency (IEA), the Observatoire Méditerranéen de l'Energie (OME), the Renewable Energy Solutions for the Mediterranean Association (RES4MED) and the Venice International University (VIU), organizes the 2014 edition of the MENA training course focused on the evolution of the Mediterranean energy system. The course is dedicated to officers belonging to energy ministries, regulatory authorities and operators of non-EU Mediterranean countries.

GRANTS

Energies for Research
Program

"Energies for Research", the grant program launched in 2012 by Enel Foundation and the Association of Italian Universities (CRUI) for 20 young Italian researchers, is entering its final stage. With the support of EF, the essays composed by the researchers - each one on a different energy issues, e.g. smart grids, demand-side management, climate policies, workplace safety, energy-efficient buildings, PV technologies, etc. - have been transposed into scientific articles and will compose a book to be published soon by EF. Such a volume will be presented in a public event in Fall 2014.

REPORT

2013 Enel Foundation
Activity Report
is coming out in
Fall 2014

Enel Foundation will release its 2013 Activity Report, that summarizes the activities carried out by EF all along the last year and provides an overview of the broad spectrum of thematic areas in which EF has been involved.

The report will include information about EF research, capacity building and dissemination projects, detailing what objectives, collaborations, and outputs characterized the implementation of EF activities during its second year of existence.

Publications

Books

- Academic Visions 1 (first volume of EF Academic Visions series) "The Shared Value Debate: Academic Visions on Corporate Sustainability", edited by Maurizio Zollo (Bocconi University) and Renata Mele (Enel Foundation), Egea, Milan, 2013.

Reports

- R1/2013 "State and Perspectives of Energy Efficiency in Italy", developed by Energy & Strategy Group (ESG) of Politecnico di Milano in collaboration with Enel Foundation.
- R2/2013 "L'internazionalizzazione delle imprese italiane e le infrastrutture" developed by Enel Foundation in collaboration with LUISS Guido Carli University, and Aspen Institute Italia.

Working papers

2013

- WP1/2013 "Background, review and a frame of analysis. Case study: Stockholm", research project "Energy transitions in cities. Lifestyle, experimentation and change".
- WP2/2013 "Honey, I shrunk the organization: in search of organizational genetics", research project "GENOR" (on the "genetic traits" of corporate organizations).
- WP3/2013 "Second Case Study: Turin", research project "Energy transitions in cities. Lifestyle, experimentation and change".
- WP4/2013 "Elements for analysis of the evolution of the jobs and roles within Enel Group", research project "GENOR".
- WP5/2013 "Third Case Study: Shanghai", research project "Energy transitions in cities. Lifestyle, experimentation and change".

2014

- WP1/2014 "Organizational innovation in energy companies: a literature review", research project

"Organizational evolution in global corporations".

- WP2/2014 "An urban metabolism survey design for megacities", research project "Megacities. Comparative analysis of urban macrosystems".
- WP3/2014 "On the use of Text Mining tools for investigating a Company's organizational identity and aptitude to change", research project "GENOR".
- WP4/2014 "Fourth Case Study: Santiago de Chile", research project "Energy transitions in cities. Lifestyle, experimentation and change".
- WP5/2014 "Fifth Case Study: Rio de Janeiro", research project "Energy transitions in cities. Lifestyle, experimentation and change".
- WP6/2014 "Qualitative methods to investigate traits, values and aptitudes of Enel Group", research project "GENOR".
- WP7/2014 "Sixth Case Study: Berlin", research project "Energy transitions in cities. Lifestyle, experimentation and change".
- WP8/2014 "Plug in China. An overview of current energy perspectives", research project "The recent evolution of energy policies in the P.R.C.".
- WP9/2014 "Unraveling Chinese urban population. A discussion on the six largest settlements", research project "Megacities. Comparative analysis of urban macrosystems".

Newsletter

2013

- Issue n. 1 (July 2013) – "Scenarios. Where are we going?".
- Issue n. 2 (October 2013) – "Coupling growth with efficiency. Energy efficiency in the XXI century".
- Issue n. 3 (December 2013) – "A collective challenge: energy for all. Fostering energy access for human rights and productive usage".

2014

- Issue n. 1 (April 2014) – "Regulatory trends in the Energy sector. Between market and State intervention".

FORTHCOMING

Books

- Academic Visions 2: "Academic Visions for XXI century: Sustainable Urban Development". Editors: Oriol Nel-lo (Universitat Autònoma de Barcelona), and Renata Mele (Enel Foundation). Expected in early 2015.

Reports

- R1/2014 "Structure, main features and functioning of the EU ETS and on the other existing domestic and regional Emission Trading Schemes", developed by the University of Siena in collaboration with the Enel Foundation.
- R2/2014 "Linking the EU Emission Trading Scheme (EU ETS) with other existing Emission Trading Schemes and the New Market Mechanisms (NMMs)", developed by the University of Siena in collaboration with the Enel Foundation.
- R3/2014 "How do value added, migration and energy interact?", developed and coordinated by the University of Milan.

Working papers

- "Preliminary candidate list of appropriate technologies, business models and enabling environment for Universal Access to Electric", research project "Low-cost energy technologies for universal access".
- "Preliminary candidate list of appropriate technologies, business models and enabling environment for Universal Access to Modern Heat", research project "Low-cost energy technologies for universal access".
- "Energy efficiency in the building sector: skills, business models and public private partnerships", research project "Energy efficiency in the building sector: skills, business models and public private partnerships".
- "Spatial relationships between cities and infrastructure networks: a conceptual and historical point of view", research project "Analysis of relationships between urban form and domestic energy consumption patterns".



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