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GREENWASHING AND GREEN HUSHING. AN INTERNET OF THINGS APPROACH TO SUCH STRATEGIES

Denisa-Roxana Botea-Muntean, Raluca Constantinescu¹

Abstract

The global discourse on the concept of green rapidly increased during last years because of growing concerns about climate change and the environmental impact, with the trend of becoming green or being green turning into a must-have rather than wishful thinking. As the trend of green became popular worldwide, so did greenwashing, a practice of deceptive and exaggerated claims on companies' environmental level of responsibility linked to the economic, social, and environmental pillars or green hushing, where the companies chose not to make public their efforts towards sustainability. In the meantime, consumers are well aware of the environmental issues and try to play their part in combatting pollution, but do they have the right information or even support to become a part of the overall solution? The present paper highlights the real cost behind the greenwashing strategy by using a qualitative approach based on an analytical exploration about the way companies could become green without being accused of green washing or hushing, by using various methods including digital technologies. Real cases have been analysed and conclusions have been drawn providing insights of what the costs are to become green or apply greenwashing methods. The paper focuses also on the nowadays solutions to combat greenwashing, but what if there are others and maybe governments that could play a part in combating green washing and hushing?

Keywords: *marketing, greenwashing, green hushing, IoT, strategy, sustainability*

JEL code: M31, Q56, L10, Q01 M37

1. Introduction

A simple search on google.com on how to become green returns over 10 billion results in less than a second. Various ideas, practical or not, applicable to common people or companies, easy or costly, it seems that everybody has an idea on how to become green, sustainable and contribute to the fight against climate change and depletion of resources. It is an effort humankind needs to adopt by changing its behaviour and routine quite quickly. From turning off the lights when unnecessary, using less heat and water, recycle and/or reuse various products and materials, moving green through carpooling or using bikes, these are the easy small steps that everyone could take quite quickly without any additional costs, preparations or investments (*What Does Going Green Mean, 2023*).

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For companies, the process needs more planning that should be captured into their business plans. Employees should adopt the same behaviour as in their own homes and this would give an impetus to the management towards a more responsible way of running the company. In case of companies, there is also a misunderstanding of terms as *becoming green* is not the same as ***environmentally or eco-friendly***. Safdie (2022) in the Greenly institute blog explains the confusions with *being environmentally or eco-friendly and becoming green*. While environmentally friendly refers to the products or services of the company as not being harmful for the environment, becoming green refers to the company's efforts to help environment or to reduce whatever harmful impact they previously had on the planet (Safdie, 2022).

In this round the clock race of becoming green, eco-friendly, and sustainable, there are some who considered easier paths, and nowadays we could hear quite often the term of greenwashing. What is greenwashing? In 1986, Jay Westerveld, an American ecologist, made up the term of greenwashing linked to the practices of various hotels around the world that were asking their clients to reuse the towels in order to save water and energy. He considered that through this practice, hotels were not doing enough for the environment, but only hiding from other practices that could have had a real impact (Kerner, 2023). Kerner (2023) also pinned down a definition for greenwashing, a term to explain the actions and claims taken by organisations towards saving the environment, but that actually misled the public opinion.

As people and businesses strive to adopt a circular lifestyle and a culture based on protecting the environment, they faced numerous green initiatives and strategies (Yang et al., 2014). While many of these efforts are genuine and effective, some may be based on greenwashing, raising concerns about the credibility of green claims. To ensure transparency and accountability, many countries insist on stricter regulations being urgently needed. Basically, greenwashing not only misleads consumers, but also undermines the collective effort to combat climate change and protect the planet's resources. Collaboration between governments, industry bodies and advocacy groups are therefore crucial in establishing clear standards and guidelines, enabling consumers and businesses to discern genuine environmentally responsible practices.

Sustainable development demands achieving a harmonious balance between global consumption and production, driven by transparent, ethical, and efficient practices that address the three fundamental pillars: social, economic, and environmental. In this context, greenwashing serves as a theoretical concept, acting as a precautionary measure to safeguard these sustainable practices and bring to light the genuine intentions of companies and organizations. The integration of Corporate Social Responsibility (CSR) or green marketing into various marketing strategies adds complexity (Sen et al.,

2001), as these concepts can easily be mistaken for or associated with greenwashing. By diligently adhering to legislative norms, monitoring key indicators, and examining comprehensive reports, the potential implications of greenwashing could be identified, helping during the quest of establishing a credible and authentic green brand. Building trust among stakeholders and consumers is essential, ensuring that the commitment to sustainability is both robust and verifiable, promoting a meaningful and lasting impact on the journey towards a greener and more sustainable future.

Thus, since Earth Day's inception in the 1970s, corporate environmental performance has increased, but so has greenwashing (Torelli et al., 2020). As we said, this term refers to misleading communications that aim to create a positive image of a company's environmental practices. Due to the abundance of claims regarding social, economic, and environmental responsibility, it has become a challenge to distinguish genuine campaigns from apparent ones. In this sense, ecological washing and environmental communication play a crucial role in shaping the perception and implementation of sustainability practices. Today, sustainability has become a growing concern for consumers, businesses, and society as a whole, motivating companies to showcase their environmental efforts and commitment to green practices. However, this increased focus on sustainability has also amplified the deceptive practice of eco-washing (Yates and Evans, 2014).

2. Green vs greenwashing

According to specialists in the field, there are some steps that companies should follow in order to become sustainably green. First thing first, the company should go through a *carbon assessment* process of its actual carbon emissions, preferably produced by a specialized company, providing them with a necessary starting point for future actions in the company's endeavours to become green (Safdie, 2022). Safdie (2022) proposes to continue the plan with 3 more steps:

- defining the goals of the company and create a personalized plan to do so, something that should not be beneficial only for the environment, but also for the business itself (impact investing, carbon credits, net-zero emissions, reforestation);
- teaching employees the value of going green, as they are the pillars of the companies, the most important piece of the overall green gearing, not only for reaching goals, but also for upkeeping them;
- let people know about the company's evolution towards green in order to influence other towards such an attitude and behaviour and build awareness through various events and social media.

According to various sources, there are many companies considered a model of becoming green, using various strategies to achieve their pre-defined goals.

Nike, the multinational corporation, involved in sports equipment, built its strategy, and implemented it at all levels of activity (Gemeš, 2023). It created a special line of products that uses environmentally friendly resources, like recycled polyester. As energy sources, renewable is the main one including in manufacturing. the company also put together a Net to zero strategy that includes elimination of single-use plastics in their facilities and started a dialogue inside the worldwide design community for adoption of a circular design concept (Gemeš, 2023).

As coffee and tea are in top 3 the most consumed beverages in the world, water being on first place (Maxine, 2022), plastic cups have been the first targeted products to be considered as not eco-friendly (Carney et al., 2023). Starbucks, a worldwide known chain of coffee shops, put some efforts in its plans to become green. The company worked on its cups to make them not only recyclable, but also reusable. In the same time, the company focused on ethically sourced coffee, turning coffee into the first worldwide sustainable agri-product and helping farmers hit by plant diseases and climate change by providing 100 million strong coffee trees (Gemeš, 2023).

Ikea, a multinational company which main activity is production and sales of furniture planned its trip to green throughout its entire operations. For the supply chain, over 50% of wood comes from sustainable foresters and all cotton from productions awarded the Better Cotton standard (less water, chemicals, and energy). Even if their goal was set to be fully renewable powered by 2020, in 2016 they became a net exporter of energy (*10 Global Companies That Are Environmentally Friendly* | Virgin, 2016).

Car manufactures are one of the biggest polluters, but some of them have already implemented strategies to combat this. It is the case for one of the big players in the industry, Ford Motor Company, which through their ten-part environmental policy made two of their models 80% recyclable. Fuel efficiency has been also one of their focuses, but they invested on the production facilities and their techniques of building the cars. Paint fumes are captured now and turned into fuel, while the factories are equipped with cooling systems that use geothermal power (Lawson, 2016).

The success stories stay with those companies which realised that actually greenwashing was not a long-term solution and turned themselves into green models. Indeed, budgets and power of influence have been the main ingredients, but even these should have been the ones that could have prevented those companies not to become truly green. Such an example is a tech giant, Apple. By publishing a Paper and Packaging strategy they communicated to the world how they would transform their packaging solutions into sustainable

ones. But Apple's issues were not in packaging, but in their products, which were not repairable and/or upgradable, with the consumers being forced to get rid of their products and buy new, better and functional ones (Veksler, 2017). The greenwashing was quite easily and rapidly detected, the company being constrained to take the appropriate measures for such a huge enterprise. Apple did not give up their strategy for the consumer not being able to intervene into the product, but they designed longer lasting products and put together a worldwide programme of buy-back or refurbishment of products, further investing also into renewable resources and more-efficient production facilities (Gemeš, 2023).

2.1. Greenwashing

In January 2021, European Commission along with member states' national consumer authorities published the results of a vast sweep of companies' websites, a yearly exercise that tries to determine breaches that could harm the consumer's rights (European Commission, 2021). In 2021, for the first time, the exercise was focused on greenwashing, especially on FMCG (fast moving consumer goods) and on those companies claiming a green approach and selling green products. The results have been surprising but enforcing European Commission's suspicions. Even more, this sweep has been performed in coordination with the International Consumer Protection and Enforcement Network (ICPEN) covering the entire globe, their results proving same trends as the EU ones (European Commission, 2021). Overall, in 42% of the cases, authorities have reason to believe that claims are false, inflated, and unreliable. 344 claims have attentively been studied and in more than half of them, the platform did not offer sufficient information for consumer to be able to decide on claim's precision. In 37% of cases only vague statements were used like *conscious*, *eco-friendly*, and *sustainable*, without further substantiated information, all these misleading the consumer. In almost 60% of cases, the trader had no easily accessible info to back-up its claims (European Commission, 2021).

A Harvard Business Review study from June 2022 on business consequences of greenwashing had interesting results also on consumer behaviour (Ioannou et al., 2022). The study focused on 202 American companies, publicly traded, their green goals and actions taken between 2008 and 2016, also using data from the American Customer Satisfaction Index (ACSI), Worldscope for financial data and Thomson Reuters' ASSET4 ESG for social responsibility. Findings have been that consumers were well aware of the gap between reported objectives and the actual performance, which have influenced their perception towards those companies and their products. But at the same time, even if the consumers were prompt in penalizing the "greenwashers", absolved those that were highly regarded by them. Those

companies which were known for their qualitative products or highly innovative, but failing their green goals, did not experience any decrease in the customer satisfaction (Ioannou et al., 2022).

A study by Pellegrino (2023) points out a number of cases of greenwashing that were disclosed by the press, affecting millions of customers, but also businesses which got high fines. Volkswagen, an automotive company, which worked on the emissions test of their diesel engine through a software detecting when a pollution test was conducted and being able to lower the emission levels. Coca-Cola, a beverage company, which publicly announced that would not drop plastic bottles, because of its consumers who considered them popular. The same company promoted a sort of beverage that should have been green by using a natural sweetener Stevia. Experts proved that the product still contained large quantities of sugar, misleading its customers through the low sugar label. Fast fashion is another sector under the magnifier of specialists. Even if H&M, Zara or Uniqlo claim that they recycle, re-use and use renewable energy in their facilities, all these actions compared with insufficient data and information provided on the green claims, over-production and over-buying, it is not enough to consider the fast-fashion companies to be green (Pellegrino, 2023).

Even if greenwashing was wrongly considered as beneficial for various companies, the impact of such practices like lower market shares, lower consumer confidence and the huge fines, developed a new trend: *green hushing*. In this case companies chose not to divulge their environmental plans and achievements (Byrne, 2022). Coined in 2008 by Jerry Stiffelman, a brand strategist, and Sami Glover, writer, the practice became a subject of study in late 2022 through a report performed by South Pole, a transnational consultancy (Dhanani, 2023). The reports looked into large organisations with CSR and sustainability leads and found out that 67% of them have targets on net-zero and emission reduction based on science, but 23% decided not to make public their milestones (South Pole, 2022). What would be the reasons for a company to adopt a green hushing strategy? One of them would be the fear of not being criticised because they did not do enough or did not any of what they have promised, avoiding any accusations of greenwashing. Another one would be not to make their customers feel guilty, that they, as citizens, have not done enough. Others considered as a reason that usually sustainable and natural products are considered low quality. Costs could be another reason, especially for smaller companies that believe sustainable certification is quite expensive. Timing of communication is also an issue. What to communicate and in which stage of implementation are challenging questions which not all companies are capable to answer (Dhanani, 2023; South Pole, 2022).

2.2. Legislative regulations on greenwashing

Greenwashing, therefore, is a marketing practice through which a company or organization promotes its products, services, or image as *ecological, green, or environmentally friendly*, despite the fact that they may have a negative impact on the environment or may be insufficiently sustainable (Furlow, 2010). To combat greenwashing and to protect both consumers and the environment, various countries and organizations have implemented a series of legislative regulations or guidelines to keep greenwashing under control and to regulate this practice.

Here are some examples of legislative regulations on greenwashing at international and European level:

- European Commission: Within the EU, Ecolabelling Guidelines (*EUEcolabel_LogoGuidelines_2022.Pdf*, 2023) have been developed, which set clear criteria for various products and services, so that it is easier for consumers to identify truly environmentally friendly products and services. This year, the European Commission has proposed a directive to regulate 'Green Claims,' setting detailed rules for environmental claims and labels used by traders selling products to EU consumers. This new directive complements 2022 proposals to amend EU consumer protection laws, addressing unfair practices that could mislead consumers from sustainable choices and may enable enforcement action and collective redress under the EU's 'New Deal for Consumers (Forwood et al., 2023);
- United Nations Environment Program (UNEP): UNEP has developed the " Sustainable Fashion Communication Playbook " to help companies avoid greenwashing and adopt more sustainable approaches in promoting their products and services (Abdulla, 2023);
- The Global Reporting Initiative (GRI): these standards are a comprehensive set of guidelines for sustainability reporting. They provide a globally recognized framework for organizations to report their economic, environmental, and social impacts transparently and consistently. The GRI standards are designed to help companies and organizations measure, understand, and communicate their sustainability performance to stakeholders;
- Federal Trade Commission (FTC) - USA: The FTC provides guidelines on eco-friendly advertising that require companies to be accurate and have sufficient evidence to support their environmental claims (*Green Guides*, 2018). Additionally, clarity is necessary, and ambiguities should be avoided to prevent misleading consumers (Chen and Chang, 2013);
- ISO Standards - International Organization for Standardization (ISO): ISO 14021 specifies principles and requirements for self-declared

environmental labelling of products, enabling companies to make transparent and credible environmental claims.

Greenwashing regulations have become increasingly important and necessary in the context of the growing concerns of companies and organizations for the environment and sustainability (Sun and Zhang, 2019). In fact, these regulations were introduced to protect consumers and the environment by ensuring that the claims, manner and message of promotion and eco-labels are accurate, verifiable, and transparent. Many countries, regions, and organisations, such as the US Federal Trade Commission (FTC) and the European Commission, have developed guidelines and standards that encourage companies to promote their products and services in an environmentally responsible manner. However, it is essential that these regulations remain up-to-date and relevant to address ongoing greenwashing challenges and support sustainable development in our society. By complying with and enforcing these regulations, it would help to create a more transparent and informed setting, thus encouraging companies to adopt more environmentally responsible practices and providing to consumers the right information to make sustainable and responsible, informed choices.

2.3. How to avoid greenwashing

Academia, businesses, and consultancies try to find the best solutions for companies to avoid greenwashing. And everyone agreed that data and information to back-up green claims should be at the forefront of any strategy, goal, and achievement. A clear and through communication should be also supported by data collected through various techniques, especially Internet of Things (LaFleur, 2023). When parts of the green strategy is based on company's consumptions, various analysis on data collected about energy and water usage, waste and emissions are invaluable not only for communications, but also for further improvements in different areas of activity (Akila, 2023). Either it is about fleet management, IoT assisting the companies to save petrol, or waste management, where IoT has already been proven to help immensely, or even choosing an e-reader over a printed book in their operations, this kind of solutions would bring the company a step closer to sustainability, offering in the same the needed data to firmly support their green claims (Brenneis et al., 2022).

According to the UN environment programme, only 9% of the 300 million tons of plastics used and produced yearly are recycled (United Nations Environment Assembly, 2022). With all the efforts put in, it seems that a linear approach of business models it is not enough and even more it is quite a barrier towards change (Mazur, 2023). Mazur (2023) in his article offers a solution towards the adoption of a circular business model through IoT, considering that only such a model would bring plastic into a full circle. From his point of view,

consumer is the starting point in order to create this circular model helped by an IoT ecosystem. The use of certain apps to scan barcodes that could provide information linked to recyclability of a product, chemical content, or carbon emission, are one of the solutions for consumers to be informed and acknowledge their impact. The same apps could be a helping hand also for recycling, guiding the consumer and awarding them points that could be exchanged into vouchers or money (Mazur, 2023). In all these, IoT is the one managing the interrelatedness between all the entities, part of the circular model, using sensors to sort the waste and offer better solution for the future.

Illegal waste dumping is another cause of concern, but with the help of digital technologies, placing camera and sensors around those existent or possible sites, it would help authorities to catch the offenders and prevent further such activities (Mazur, 2023).

Using IoT and its sensors, data collected, and analysis could help companies to turn their facilities into smart buildings and optimize their costs, creating at the same time a user-friendly and orientated space for work. Companies working in agriculture and livestock could use IoT to moderate their emissions and evaluate weather influencing crop production (Fulton, 2021).

Another solution to avoid greenwashing consists in the implementation of the environmental communication (Nemes et al., 2022). These two concepts are closely related in the context of sustainability and corporate responsibility. As the explanations already mentioned, greenwashing refers to the deceptive practice of promoting a company, product, or service as green and sustainable, when in fact it has no commitment to sustainability, misleading consumers through false advertising and claims, or exaggerations about an organization's environmental efforts. On the other hand, environmental communication is the transparent and effective dissemination of accurate information about an organization's sustainability initiatives and their impact on the environment (Hansen, 2011). This involves an open and honest dialogue with stakeholders, including customers, investors, employees, and communities, about the company's environmental practices, achievements, and challenges. A key aspect of environmental communication is building and fostering trust and credibility by providing evidence-based data and measurable results, enabling consumers and stakeholders to make informed decisions and support companies that are truly committed to sustainability. By combating greenwashing and promoting honest environmental communication, businesses can foster a culture of authenticity, accountability, and positive change, contributing to a more sustainable and responsible business landscape. In other words, environmental communication is the opposite of greenwashing and the solution to combating deceptive environmental practices.

3. Methodology

In this desk-based research work focused on qualitative topics, specifically addressing the challenges and solutions related to greenwashing and green hushing, a number of 39 articles, papers and internet sources were consulted to highlight the premises emphasized in the specialized literature in association with the characteristics of the greenwashing and green hushing concepts according to the implementation of a circular economy and lifestyle through IoT.

This paper could be viewed also as an example on how not to greenwash and green hush, by presenting some perspectives and solutions which could contribute to a greener image for a company or organization, centring on transparency, circular economy practices, integration of Internet of Things (IoT) technologies, legislative compliance, effective environmental communication, successful case studies, consumer awareness, corporate social responsibility, and a commitment to continuous improvement and adaptability.

Also, this research is based on the explanation of the concepts of green vs greenwashing and green hushing in both scientific and practical ways and presents some worldwide legislative regulations put in place to combat the unfair green practices (Mihajlović, 2020). Concepts as circular economy and IoT have been followed during the research by trying to find various solutions that could be applied by the companies while highlighting the green concept from a marketing and sustainable point of view.

The design of the qualitative desk research has been conducted through the method explained by Bassot (2022) by reviewing the specialized literature and interpreting it in an analytical manner, which highlights the premises and results of the research in a qualitative way.

4. Results

This paper puts together the latest information on greenwashing and green hushing, also analysing cases of companies that were alleged of such practices to give a better understanding of what the two terms means in practical terms.

Climate change and depletion of resources are certain, and it needs a common effort to combat them. The entire society should play its part and make all the efforts to achieve the sustainability goals. But all these efforts should be for real and not just a publicity stunt.

Consumers could be considered the main polluters (Cho, 2020), but only because they are offered the chance to buy products and to consume beyond their basic needs. That is why companies should be the main educator towards sustainability and it is important for them to behave in a proper way and stand as an example.

Greenwashing and green hushing exists and have been proven either by the civil society or, quite recently, by governments and international organisations, realising how much harm they could cause.

Only following a well-thought plan linked to the company's needs and garnished with measurable goals, backed-up by real communication supported by data, companies cannot be accused of greenwashing. There have been such cases of companies accused of greenwashing, but after revisiting their plans they became an example and well-regarded by the consumers.

Green hushing is even more complicated and here governments should play a bigger role through better and simpler regulations that would help smaller companies to be able to get into the green camp. Costs to put in place green solutions and those involved in the certification process are unbearable for most of the small companies. Every effort should be encouraged, but it should be part of a well-thought plan with concrete, measurable and transparent results, supported by data and valuable information.

5. Conclusions

To conclude the analysis of this paper in a scientific way, we can thus ask ourselves if it is better for companies to adopt a behaviour of green hushing to the greenwashing. Starting from the highlighted premises and theoretical concepts debated in the specialized literature, we can observe that the subject of this work considers the following question: is green hushing the new greenwashing?

Thus, in the first part of the work, the trends of the concept of greenwashing, derived from the notion of green, were noticed and associations were made from the point of view of sustainability. Both the implications of the circular economy, as well as IoT represent topics that contribute to the avoidance of greenwashing and more recently, green hushing. The difference between the two concepts consists in the fact that, while greenwashing represents a practice of misleading consumers about the sustainable image of an organisation or company, green hushing represents a practice through which the businesses choose to proceed in silence, out of fear not to be accused of greenwashing. Practically, there is a fine line between the two notions, which is mostly based on organizational ethical aspects. In order to prevent these challenges, international organisations have introduced various legislations, so that for false statements that do not prove the sustainable character or the green image of a company, penalties are paid. We can say that greenwashing is based on a different marketing strategy than the one promoting green actions.

The examples of industries that have already adapted to circular economy display solutions approached on how to avoid deceptive or silent promotion practices. Thus, industries such as tech, sports equipment, beverages, production and sale of furniture, and car manufactures were analysed from the

point of view of adopting green models in their specific activities. The behaviour of a company was also treated, which, although it had sustainable packaging, its products were not part of this category. Such examples of greenwashing can be noticed by consumers and harshly sanctioned, adversely affecting the image of a company. Adapting to the market in a circular economy, with solutions that protect the environment, respect customers, and involve IoT to maximize profit, represents a marketing strategy with future perspectives.

Therefore, avoiding both greenwashing and green hushing, is an objective that should be found in the promotion and sustainability strategy of any company that wants to become and be mentioned in a world marked by innovation, digitization and green. To support this approach, the authorities could offer the possibility of less expensive certifications, such as sustainability reports, standards and other relevant categories, and the legislation should focus more on favourable aspects derived from the reduction of resource consumption, recycling, and reuse, encouraging the organisational character based on global sustainability through environmental, economic, and social implications. By encouraging an environment of genuine commitment to sustainability, we can foster a more significant and lasting impact on the preservation of our planet for future generations.

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DIGITAL TOOLS ADOPTION IN PEDAGOGY APPROACHES IN LANGUAGE LEARNING FOR ECONOMICS STUDENTS

Gyongyver Măduța*

Abstract

The integration of digital tools in pedagogy for language learning among economics students can be a game-changer. Blending the intricacies of economic theories with the dynamic capabilities of digital tools. Interactive platforms, language learning apps, and simulations can create an engaging and effective learning environment. The present study proposes solutions on how this integration can be expanded upon. Incorporating these digital tools into the pedagogical approach not only enriches language learning but also equips economics students with the digital skills essential in today's interconnected world.

Keywords: *economics curricula, digital tools, economics students, language learning*

JEL Classification: D83, P36, P46, Z11

1. Introduction

Tailoring language learning materials to individual students' needs through adaptive platforms ensures that each student progresses at their own pace. This personalized approach can be particularly beneficial for mastering economic language nuances. Incorporating these digital tools into the pedagogical approach not only enriches language learning but also equips economics students with the digital skills essential in today's interconnected world.

By leveraging the features of online collaborative platforms, economics students can enhance their language skills while actively participating in a community that shares their academic interests. This collaborative approach not only fosters language proficiency but also cultivates a supportive and engaging learning environment.

Digital simulations and case studies allow students to apply language skills in practical economic scenarios. It bridges the gap between theory and real-world applications, fostering a deeper understanding of economic concepts. Language simulations and case studies in the context of economics can provide students with immersive and practical experiences, allowing them to apply their language skills to real-world economic scenarios.

Virtual Reality (VR) and Augmented Reality (AR) can revolutionize language learning for economics students by immersing them in realistic,

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dynamic, and interactive environments. This hands-on approach enhances language skills by placing students in realistic situations.

Economics-themed language learning games can make the process enjoyable while reinforcing economic terminology and language usage. Language learning games can transform the often challenging process of acquiring a new language into an enjoyable and interactive experience for economics students.

2. Language Learning Apps

Leveraging language learning apps tailored for economics students can enhance vocabulary specific to their field. These apps often offer gamified experiences, making the learning process more enjoyable. Language learning apps designed for economics students cater to the specific linguistic needs of individuals studying in this field.

These apps focus on building a specialized vocabulary relevant to economics. Users can learn terms such as GDP, inflation, fiscal policy, and more, ensuring they are well-versed in the language commonly used in economic discourse. Language learning apps for economics often provide contextual examples and scenarios. This helps students understand how economic terms are used in real-world situations, making the learning experience more practical and applicable.

Gamified elements, such as interactive quizzes, can reinforce economic language skills. These quizzes may include questions related to economic theories, policy discussions, and case studies, creating an engaging learning environment. Incorporating audiovisual content into these apps allows students to hear and see economic concepts in action. This multimedia approach reinforces both auditory and visual learning, enhancing overall language comprehension.

Many language learning apps come with progress tracking features. For economics students, this can include tracking their proficiency in using economic terms, understanding complex economic texts, and even participating in simulated economic discussions. Simulating real-world economic scenarios within the app provides students with opportunities to use their language skills in practical situations. This could involve negotiating, presenting economic analyses, or discussing policy implications.

In addition to vocabulary, these apps often include grammar and writing exercises tailored to the nuances of economic language. This ensures that students not only understand the terms but can also use them correctly in written communication. Understanding economic language goes beyond just words; it involves understanding the cultural context of economic discussions.

Language learning apps can incorporate cultural elements, helping students navigate the cultural nuances associated with economic language.

Some apps enable collaborative learning experiences, allowing students to interact with peers. This fosters a sense of community and provides opportunities for discussion and language exchange within the context of economics. Constructive feedback is crucial for language development. These apps may offer feedback on pronunciation, grammar, and usage of economic terms, helping students refine their language skills over time.

By combining these features, language learning apps for economics students create a comprehensive and tailored approach to mastering the language specific to their field of study.

Simulations and case studies can replicate authentic economic situations. This could involve scenarios related to market trends, policy decisions, international trade negotiations, or economic crises. Students are then required to analyze and communicate their findings using specialized economic language. These simulations immerse students in a language-rich environment where effective communication is essential. They must use economic terminology and concepts to navigate the challenges presented in the simulation, enhancing their language proficiency in the process.

Simulations often involve collaborative efforts, mirroring the teamwork required in the professional world. Students work together to analyze data, make decisions, and communicate their findings, fostering teamwork and effective communication skills in the context of economics. Case studies can present students with decision-making exercises where they must use economic language to justify their choices. This not only reinforces their understanding of economic principles but also hones their ability to articulate and defend their decisions. Incorporating multimedia elements, such as video clips, charts, and graphs, into simulations and case studies enhances the learning experience. Students learn to interpret visual information and communicate their insights effectively, bridging the gap between written and visual communication in economics.

Simulations can focus on policy analysis, requiring students to evaluate the language used in economic policies. This can include understanding the implications of fiscal and monetary policies, trade agreements, and regulatory frameworks, and articulating these analyses in written and verbal form. Simulating economic crises allows students to experience the language challenges associated with crisis management. They must communicate effectively in high-pressure situations, using precise economic language to convey strategies and solutions.

Integrating feedback mechanisms into simulations enables students to receive constructive feedback on their language use. Reflection exercises encourage students to analyze their communication skills, identify areas for

improvement, and apply lessons learned to future scenarios. Case studies can be designed to integrate multiple disciplines, encouraging students to communicate effectively with professionals from other fields. This cross-disciplinary interaction prepares students for the diverse communication demands they may encounter in their future careers.

Simulations and case studies should be crafted to align with current economic trends and industry developments. This ensures that students are exposed to the latest language used in the field, preparing them for the dynamic nature of the economics profession.

By incorporating these elements, language simulations and case studies offer a dynamic and engaging approach to language learning for economics students. They not only enhance linguistic skills but also develop critical thinking, problem-solving, and communication abilities in the context of real-world economic challenges.

3. Online collaborative platforms

Utilizing collaborative platforms enables students to engage in group discussions, share ideas, and collectively solve language-related challenges. This not only improves language proficiency but also promotes teamwork. online collaborative platforms can be a powerful asset for economics students learning a language. These platforms foster a sense of community, provide opportunities for interaction, and facilitate language exchange. Here's how online collaborative platforms can be tailored to meet the needs of economics students:

Dedicated discussion forums on collaborative platforms allow students to engage in conversations related to economic topics. These forums can be organized based on specific economic themes, providing a space for students to discuss and exchange ideas in the target language.

Pairing economics students with language exchange partners fluent in the target language creates a mutually beneficial learning experience. Students can practice conversational skills and receive feedback on economic language usage from native speakers.

Collaborative platforms support the organization of group projects. Economics students can work together on projects that require them to communicate, present, and discuss economic concepts in the target language, promoting teamwork and language proficiency.

Hosting live webinars and virtual events on economic topics encourages active participation and engagement. Students can attend presentations, participate in discussions, and ask questions in the target language, enhancing both their listening and speaking skills. Integrating features for peer review and feedback on written assignments promotes constructive communication skills. Economics students can provide feedback on each other's work, focusing not

only on language accuracy but also on the clarity and effectiveness of economic communication.

Collaborative Document Editing Platforms that allow real-time collaborative document editing enable students to work together on written assignments. This collaborative writing process enhances their ability to express economic ideas cohesively in the target language. Introducing language challenges and games related to economics makes the learning process enjoyable. Students can compete or collaborate on language-related challenges [Ojetunde & Ramnarain (2023)], such as translating economic texts, solving language puzzles, or participating in economic-themed quizzes.

Inviting guest speakers or industry experts for Q&A sessions provides students with exposure to authentic economic language. This interaction allows students to practice language skills in a professional context and learn from experts in the field.

Creating language learning circles within the platform enables small groups of students to meet regularly for language practice. These circles can focus on specific economic themes, encouraging deeper exploration and discussion of economic language.

Collaborative platforms can serve as a hub for sharing multilingual resources related to economics. Students can contribute articles, videos, and other materials, creating a diverse collection that supports language learning in the context of economics.

4. Interactive E-books

Incorporating multimedia elements into e-books can make learning more interactive. Video explanations, audio clips, and interactive quizzes embedded within e-books create a dynamic learning experience [Alakrash & Razak (2021)]. Interactive e-books tailored for economics students offer a dynamic and engaging way to enhance language learning. These e-books go beyond traditional textbooks by incorporating multimedia elements and interactive features.

Interactive e-books can include multimedia elements such as videos, audio clips, and animations. For economics students, this means the integration of real-world economic scenarios, interviews with industry experts, and dynamic visual representations of economic concepts. These multimedia elements provide a more immersive and comprehensive learning experience.

Embedding interactive quizzes and assessments within the e-book allows students to test their understanding of economic language and concepts. Immediate feedback on quiz results helps reinforce learning and identify areas that may need further attention.

Interactive e-books can present real-world case studies that require students to apply economic language in practical situations. These case studies

may involve analyzing market trends, evaluating policy decisions, or interpreting economic data, providing a bridge between theory and real-world application.

Tailoring the e-book to accommodate different learning styles and proficiency levels is crucial. Customizable learning paths allow students to navigate the content at their own pace, ensuring that the material aligns with their individual language learning needs.

Interactive e-books can include language practice exercises specifically designed for economics students. These exercises may focus on using economic vocabulary in written and spoken forms, reinforcing language skills in various contexts.

Incorporating interactive simulations and virtual scenarios into the e-book provides students with a hands-on experience. They can navigate through economic situations, make decisions, and communicate their choices using the language they are learning.

Enabling collaborative annotation features allows students to highlight and discuss specific passages or concepts within the e-book. This fosters collaborative learning and provides a platform for students to engage in discussions about economic language usage.

Interactive e-books can offer immediate feedback on language usage, pronunciation, and comprehension. This instant feedback helps students identify and rectify language errors, contributing to continuous improvement.

Incorporating gamification elements, such as badges or rewards for completing language challenges or mastering specific economic language skills, adds an element of fun to the learning process. This gamified approach motivates students to actively participate and excel in their language studies.

Interactive e-books can be seamlessly integrated with language learning apps to create a cohesive learning experience. This integration allows students to practice language skills within the context of the e-book and reinforce their learning through additional interactive exercises.

By combining these features, interactive e-books for economics students provide a versatile and comprehensive platform for language learning. They not only cater to the unique linguistic needs of economics students but also offer a rich and interactive learning experience that aligns with the dynamic nature of the field.

5. Virtual Reality (VR) and Augmented Reality (AR)

Immersive technologies like VR and AR can transport students into economic scenarios where language plays a crucial role. This hands-on approach enhances language skills by placing students in realistic situations. Here's how VR and AR can be harnessed to enhance language learning in the context of economics:

VR can transport economics students to virtual economic environments, such as stock exchanges, boardrooms, or global markets. This immersive experience allows students to interact with economic concepts in a three-dimensional space, reinforcing language skills through practical application.

VR can simulate business meetings where economic discussions take place. Students can participate in virtual meetings, negotiate deals, and communicate economic ideas—all while practicing and refining their language skills in a professional setting.

AR overlays relevant economic information onto the physical world, creating a blended learning experience. For example, AR apps can provide real-time translations of economic texts, enhancing vocabulary comprehension and contextual understanding.

VR and AR can be used to create interactive economic models that students can manipulate and explore. This hands-on approach allows students to visualize and interact with economic principles, reinforcing their understanding and language usage.

VR can facilitate virtual field trips to economic hubs, financial institutions, or international trade fairs. This exposure enables students to witness economic activities firsthand, expanding their economic vocabulary and language proficiency in a contextualized manner.

AR applications can offer real-time language translation, helping students decode economic texts in the target language. This feature is particularly useful when dealing with complex economic documents or articles, ensuring accurate comprehension.

VR can incorporate cultural elements into economic scenarios [Nicolaidou et al. (2023)], allowing students to understand the cultural nuances associated with economic discussions. This cultural context is essential for effective communication in the globalized world of economics.

VR simulations can immerse students in scenarios related to economic crises. They can navigate through these crises, make decisions, and communicate their strategies using economic language, preparing them for real-world challenges.

AR-based language learning games can turn economic language practice into an engaging and interactive experience. Students can solve puzzles, participate in quizzes, and complete challenges—all designed to reinforce economic language skills.

VR can facilitate 360-degree virtual lectures where economics professors deliver content in the target language. This immersive lecture format allows students to feel present in the classroom, enhancing their listening and comprehension skills.

VR platforms can host virtual networking events where students interact with professionals, peers, and experts in the economics field. This provides an opportunity for language practice in a networking context, a crucial skill for future economic professionals [Coovadia, & Ackermann (2021)].

VR and AR applications can adapt to individual learning needs, offering personalized language exercises based on a student's proficiency level [Lloyd et al. (2017)] and learning preferences. This ensures that each student receives targeted language practice in the context of economics.

By leveraging the immersive capabilities of VR and AR, economics students can engage in a more dynamic and contextual language learning experience. These technologies not only enhance language skills but also prepare students for the complex and dynamic language demands of the economics profession.

6. Language Learning Games

Gamification is a powerful tool. Here's how language learning games can be designed to specifically cater to the linguistic needs of students studying economics. Players can match economic terms with their definitions, identify concepts in a word search, or engage in crossword puzzles related to economic theories and principles.

Creating simulation games that immerse students in economic scenarios [Gaballo (2021)]. This could involve managing a virtual business, making financial decisions, and engaging in economic negotiations—all while using the target language. These simulations provide practical language practice within an economic context.

Role-Playing Games (RPGs) can simulate real-world economic roles, such as economists, policymakers, or business leaders [Oliverira & deSouza (2022)]. Students take on these roles, engaging in dialogues and decision-making processes that require the use of economic language. This approach encourages language application in a dynamic and immersive way.

Another development is that of trivia games with questions related to economic history, theories, and current events. This not only reinforces economic language but also encourages students to stay updated on economic trends and developments in the target language.

Converting traditional board games into economic language learning experiences, players navigate economic challenges, make strategic decisions, and communicate their choices using the target language. This combines the tactile engagement of board games with language immersion.

Classic word games like crosswords and word scrambles can be adapted to focus on economic terms. These games challenge students to unscramble words, match terms with their definitions, and reinforce spelling and recognition of economic vocabulary.

Another possible activity is the creation of bingo cards with economic terms instead of numbers, where as students play, they must identify and understand the meaning of the called terms. This game adds an element of competition while reinforcing the association of terms with their meanings. Another popular option is to adapt the format of the popular game show Jeopardy to focus on economic language. Students can compete in teams, answering questions related to economic concepts, historical events, and terminology. This competitive setting adds excitement to the language learning process.

In interactive storytelling games, the tutor develops interactive storytelling games where students make decisions that impact the storyline based on their understanding of economic language. This narrative-driven approach engages students in a plot while requiring them to use economic vocabulary to navigate the story.

Another option is the exploration of multiplayer online games where students collaborate with or compete against each other in economic challenges. This fosters a sense of community and allows students to practice economic language in a social and interactive environment.

There is also the possibility to integrate economic themes into real-time strategy games [Hung (2015)]. Players manage resources, make economic decisions, and communicate strategies using the target language. This genre offers a dynamic and engaging way to apply economic language skills [Liu et al. (2017)]. AR or VR elements integrated into language learning games stand for an immersive experience. Students can engage with economic scenarios in a virtual environment, solving challenges and communicating in the target language.

By infusing language learning with the excitement of games, economics students can not only improve their language skills but also develop a deeper understanding of economic concepts. These games make the language learning journey more engaging, motivating, and memorable.

Connecting with native speakers or other language learners through online platforms provides a real-world context for language use. This exposure to authentic language is invaluable for economics students aiming to communicate effectively in their field.

7. Conclusion

Platforms for collaboration can act as a central location for exchanging bilingual economics resources. By adding articles, videos, and other resources, students can build a varied collection that enhances language instruction in the context of economics.

To create a seamless learning experience, interactive e-books and language learning apps can be combined seamlessly. Through this integration,

students can reinforce their learning with additional interactive exercises while honing their language skills within the context of the e-book. For students studying economics, interactive e-books offer a flexible and all-inclusive platform for language acquisition. They provide a rich and dynamic learning environment that is in line with the dynamic nature of the field of economics, in addition to attending to the particular language needs of these students.

Applications for virtual reality and augmented reality can adjust to each student's unique learning needs, providing tailored language exercises according to their learning preferences and proficiency level.

Students studying economics can benefit from a more dynamic and contextual language learning experience by utilizing the immersive qualities of VR and AR. In addition to improving language proficiency, these technologies help students get ready for the intricate and dynamic linguistic requirements of the economics field.

By adding gaming excitement to language learning, economics students can enhance their language proficiency and gain a more profound comprehension of economic principles. The process of learning a language is made more interesting, inspiring, and memorable by these games.

Using online platforms to connect with native speakers or other language learners gives language use a real-world context. For economics students hoping to communicate effectively in their field, this exposure to real language is invaluable.

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ENTREPRENEURSHIP, EXTERNALITIES AND DEVELOPMENT: AN AUSTRIAN CRITIQUE OF THE HAUSMANN-RODRIK NEW ARGUMENT FOR INDUSTRIAL POLICY

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Abstract

The information externality in entrepreneurship theory argues that the social benefits arising from entrepreneurial actions are greater than the private gains. Entrepreneurs who discover profit opportunities signalize to other entrepreneurs the efficient path of investments, and the latter can imitate the former acting upon this information. Market failure to internalize this information externality creates an useful role for state, which can provide adequate incentives by subsidizing investment in new projects. We criticize this theory by pointing out that it is both irrelevant and inconsistent. An inadequate view of entrepreneurship is responsible for most of these weaknesses.

Key words: *information externality, entrepreneurship, development, industrial policy.*

JEL Classification: D21, L51, O31.

1. Introduction

A number of development economists have advanced the idea that the key obstacle to economic growth in less developed regions is the insufficient level of entrepreneurship. This problem arises because markets do not generate adequate incentives to reward entrepreneurship. Thus, entrepreneurship is seen as having some public good characteristics. In particular, Hausmann and Rodrik (2003; 2005), Iyigun and Rodrik (2004) and Rodrik (2004) have focused on a new type of entrepreneurship-related externality that prevents the market from working efficiently – the “information externality”.

As the information externality argument goes, exploiting new business opportunities has considerable positive externalities for other entrepreneurs, who can learn about the profitability of certain ventures and can act accordingly. This means that entrepreneurship will be under-supplied and that government should correct market failure, providing proper incentives in order to reach the optimal level of entrepreneurship.

This paper attempts to provide a refutation of this argument and implicitly outline an alternative view of the relation between entrepreneurship and development. It uses Hausmann and Rodrik’s thesis as an example of this

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approach and criticize the claim that entrepreneurship presents positive externalities, which prevent the optimal allocation of resources. Its goal is to demonstrate that despite the supposed discovery of new market failures, the case for government intervention is no better at the present than it was decades ago. In particular, the objective is to show that Austrian economists have addressed issues regarding the relation between entrepreneurship and development, and successfully answered the argument that government policy can improve market outcomes.

The paper is organized as follows. The next section presents the case for government intervention advanced by Hausmann and Rodrik. Section two explains the role of entrepreneurs in the economy. In section three, Hausmann and Rodrik's model of market failure is shown to be irrelevant because of the nonrealistic treatment of uncertainty in social life. Section four demonstrates that the information externality theory of entrepreneurship is inconsistent on its own terms. Section four concludes the paper.

2. The information externality in entrepreneurship

Rodrik and Hausmann are credited as some of the best economists in the field of development economics at the present. Their recent contribution lies in rebuilding the case for development policy, after this seemed to be definitively compromised during the last decades of successive failure of different "models of development". More precisely, Rodrick and Hausmann have discovered a new problem in the functioning of the market economy, which the government is able to alleviate, in order to generate an optimal rate of growth.

From the very beginning, Hausmann and Rodrick prefer to assume, as the early development economists, that the free market is inherently flawed.¹ Then they attempt to build a strategy for government intervention to correct market weaknesses and foster development.

For Rodrick, at the root of economic growth is innovation that enables productivity to grow (Rodrick 2004, p. 4). Innovation, in turn, is the product of entrepreneurial activity, the task of which is to 'discover' the set of goods that need to be produced. This undertaking is, obviously, a tricky job. For entrepreneurs, economic theory, management abilities and technological knowledge are of no help. The main problem is the uncertainty about the outcome of entrepreneurial actions.² If making the right investment decision is so difficult, one could expect the reward for successfully undertakings to be

¹ "I start also from generic market failures, but then I take it as a given that the location and magnitude of these market failures is highly uncertain", Rodrik (2004, p. 3).

² "Most fundamentally, market prices cannot reveal the profitability of resource allocations that do not yet exist. (In general equilibrium theory, this is finessed by assuming that markets are "complete" and there is a price for everything.) The returns from investing in non-traditional activities are therefore hazy at best" Rodrik (2004, p. 7).

accordingly high. Yet this is not so. As Hausmann and Rodrik (2003, p. 4) argue, “the initial entrepreneur who makes the ‘discovery’ can capture only a small part of the social value that this knowledge generates”.

The situation is, in Hausmann and Rodrik’s opinion, similar to the problem of genuine innovation (in developed countries). As the argument goes, private economic agents allocate less than the optimal amount of resources in R&D activities, because they cannot capture all the benefits resulting from innovation; a part of them simply accrue to society.³ Therefore, here it is a typical externality problem. In developed countries the government can solve this particular market failure by subsidizing research and innovation or by granting patents to the producers of brand new goods. The issue is slightly different in developing countries. Here, the task of entrepreneurs is not to come up with an original product, but to “‘discover’ that a certain good, already established in world markets, can be produced at home at lower cost” (Rodrik 2004, p. 9). Like genuine innovation, discovering what good deserves to be produced is an activity that has social positive effects. If the entrepreneur succeeds in his undertaking, he will be soon challenged by other individuals who will imitate him and start identical production processes. However, the entrepreneur who fails to identify the right product bears the whole cost of his venture. Thus, each entrepreneur has strong incentives not to go first in discovering the profitability of a new venture, but instead wait for others to undertake the project, and then imitate them. The outcome is that there will be a too low level of investment in new projects. Unfortunately, there is no policy to address the market failure arising from the imitating nature of human beings. The logical consequence, in the authors’ opinion, is that “free entry makes the non-appropriability problem worse, and undercuts the incentive to invest in discovering what a country is good at producing. Laissez-faire cannot be the optimal solution under these circumstances, just as it is not in the case of R&D in new products” (Hausmann and Rodrik 2003, p. 6).

In order to alleviate the problem, the authors argue for an upgraded industrial policy, which should include trade protection, temporary monopolies, fiscal incentives and subsidized credit for the entrepreneurs engaging in new production processes. The state should manage carefully the provision of rents, to avoid being captured by the various interest groups: “we recommend generically a carrot-and-stick strategy. Since self-discovery requires rents to be provided to entrepreneurs, one side of the policy has to take the form of a carrot. This can be a subsidy of some kind, trade protection, or the provision of venture capital. Note that the logic of the problem requires that the rents be provided only to the initial investor, not to copycats. To ensure that mistakes

³ A succinct presentation and critique of public subsidization of research can be found in Wallsten (2000).

are not perpetuated and bad projects are phased out, these rents must in turn be subject either to performance requirements (for example, a requirement to export), or to close monitoring of the uses to which they are put. In other words, there has to be a stick to discipline opportunistic action by the recipient of the subsidy” (Rodrik 2004, p. 11).⁴

3. Entrepreneurship and institutional framework

A number of considerations prompt us to claim that Hausmann and Rodrik’s model of market failure in development does not enrich the understanding of how entrepreneurship contributes to development, is unrealistic and internally inconsistent. In what follows, we will analyze some of its weaknesses closely.

Although Hausmann and Rodrik do not provide a definition of what they understand by entrepreneurship, after reading their argument one cannot avoid a simple conclusion. In the authors’ perspective, entrepreneurs represent a class of individuals (businessmen) who are inhibited from pursuing their actions because of the inadequate rewards provided by the market mechanism.

This account of entrepreneurship is unrealistic. Rather, entrepreneurship can be defined as an immanent function of human behavior (Mises 1949, pp. 252-253; Kirzner 1973; 1992). All human decisions concerning the allocation of resources are taken in uncertainty. Individuals intend to improve their future wellbeing and they are consequently constrained to anticipate the development of economic conditions.

Since entrepreneurship is an inherent aspect of human action, it is pointless to analyze the market process in terms of density of the entrepreneurial activity. We cannot properly speak of an inadequate level of entrepreneurship, because all existing economic activity is entrepreneurial, in the sense that it is always speculative, coping with uncertainty and attempting to discover new and more profitable investment opportunities. Consequently, we cannot conclude that market fails because it does not reach a higher density of entrepreneurship, and that this prevents the optimal allocation of resources and economic development.

Human actions enhance overall welfare to a higher or lesser degree, depending upon the institutional environment within which they are exercised. Institutions frame human behavior and result in a pattern of incentives and constraints that shape individuals’ activity. The existence of certain institutions

⁴ In Rodrik’s opinion, there is nothing wrong in principle with such a policy. The failure of industrial policy in Latin America and other parts of the world lies not to be explained by the intrinsic contradictions of government policy, but by the inability of certain governments to put in place a correct policy. See Rodrik (2004, p. 11). Curiously, Rodrik’s favorite example of “smart” interventionism is South Korea, and this despite the fact that the “Asian model” of development has been compromised in most people’s eyes by the economic crisis of 1997.

(essentially, private property and economic freedom) stimulates individuals to undertake productive activities, while a different institutional framework (a heavy government regulation of the market, taxation and corruption) creates incentives for unproductive entrepreneurship.

Contrary to Iyigun and Rodrik (2004, p. 32), the level of entrepreneurship does not depend on magnitude of rents created by the government's policy. Entrepreneurial spirit is inherent in any human action. People do not undertake more or less activities depending upon the institutional framework established by policymakers. Different policy strategies influence only the payoff of different activities and thus, the type of entrepreneurship exercised at a given moment. The presence of heavy regulations, industrial policy and unclear definition of property rights encourages the development of unproductive entrepreneurship. Adequate policy reform cannot result in increasing the number of entrepreneurs but, by granting more economic freedom, should provide incentives for the development of productive behavior.⁵

Besides adopting an inadequate perspective on entrepreneurship, Hausmann and Rodrik's argument is unfeasible on its own grounds. In the next sections we explore in more detail some of its shortcomings. We prefer to let aside the general weaknesses of the theory of externalities and public goods – which have been comprehensively analyzed by Block (1983), Hoppe (1989), Hummel (1990) and Holcombe (1997) – and focus instead on the particular case of externalities in entrepreneurship.

4. Uncertainty and entrepreneurship

In Hausmann and Rodrik's model (2003, p. 6), there are two main production possibilities: entrepreneurs may choose between production of "traditional" goods, "where there is no uncertainty", and production of new goods, which has "uncertain productivity". This is a hardly realistic description of reality. For the economists who accept the distinction between uncertain investments and safe production, the implications of Hausmann and Rodrik's model are more comprehensible. By definition, the impossibility to capture all the benefits from investments in modern (uncertain) activities forces entrepreneurs to take refuge in traditional (safe) production activities. For Hausmann and Rodrik, the main task the government and businessmen have to accomplish is to find the set of new activities, with significant spillover effects, which can accelerate growth.⁶ Then, through the fine tuning of subsidies and

⁵ See Coyne and Leeson (2004, p. 4, table 1) for a short description of the institutional framework conducive to productive entrepreneurship.

⁶ Empirically, the authors illustrate their argument with the establishment of software research in India, the cut flower industry in Colombia, the salmon industry in Chile – where the state played an important role – and several notorious transfers of technology realized by private entrepreneurs.

penalties, entrepreneurs can be induced to develop these activities, and the market failure is corrected.

The artificial assumption of the model obscures the truth that any activity is inherently uncertain. As Mises (1998, p. 805) noticed, the “owner of capital does not choose between more risky, less risky, and safe investments. He is forced by the very operation of the market economy, to invest his funds in such a way as to supply the most urgent needs of the consumers to the best possible extent”. Therefore, entrepreneurs have no possibility to avoid the market pressure to change production according to consumers’ wishes. They cannot refuse to adjust production because the uncertainty is too high. When entrepreneurs do not undertake an investment project, it is always because of the higher profit they expect to obtain elsewhere.

In fact, one could argue that government policy is a constant source of uncertainty. Through its permanently changing regulations and provision of rents – trade protection, legal monopolies, fiscal privileges etc. – the government enhances or dilutes the uncertainty associated with the operation of specific industries. Very often, what is considered to be a lack of “entrepreneurial spirit” is caused by an institutional framework adverse to productive activity and economic growth (Coyne and Leeson 2004, p. 236). Entrepreneurial behavior is dependent on the political institutions that govern the market process.

Any entrepreneurial initiative is new, in the sense that it has not been tried before. Rodrik’s “imitators” who undertake additional investments in a certain line of production do not simply copy previous successful ventures. They are still entrepreneurs, and they have to discover whether it pays or not to invest additional resources and enlarge a certain production process. Because of the ever-changing economic conditions, entrepreneurs must continuously judge the opportunity of continuing investment in an established process of production. As Boettke and Coyne (2005, p. 202) explain: “Given the presence of uncertainty, entrepreneurs (and all economic agents) must always speculate to some degree on what the future will bring. As time passes and new data become available via entrepreneurial discovery, past uncertainty is removed and new uncertainty is introduced.” Therefore, past empirical knowledge is a poor guide for future action.

Besides these considerations, why is new necessarily better? The degree of novelty of additional investments can be discovered only by entrepreneurial experimentation, and one cannot postulate a priori that new (that is, original, never attempted before) investments are more profitable than old (traditional) investments. Our authors fail to offer a satisfactory answer to this question, as to many others.

5. Entrepreneurship, discovery and imitation

The externality in entrepreneurship argument is built around the idea that entrepreneurs who discover new business opportunities signal to others the opportunity to extend their own businesses. Boettke and Coyne (2003, p. 78, footnote 7) have noticed the same idea: “The entrepreneurial aspect of human action is, in a sense, self-sustaining since it creates an environment of further discovery”.⁷

This process of knowledge spillover represents the basis for Hausmann and Rodrik assertion that the state should mitigate the problem of informational externalities by supporting entrepreneurial initiative. The leakage of knowledge resulting from the entrepreneurial des-conspiration of profit opportunities is considered a variant of the externality problem associated with innovation. As the authors argue, “the problem faced by potential entrepreneurs in developing countries is identical to the problem faced by innovators in the advanced industrial countries. However, the policy environments facing the ‘innovators’ in the two settings are quite different. Typically, the intellectual property regime protects discoverers of *new* goods through the issuance of temporary monopolies, i.e., patents. But the investor in the developing country who figures out that an *existing* good can be produced profitably at home does not normally get such protection, no matter how high the social return. Indeed, ease of entry by competitors (i.e., imitators or copycats) is normally judged to be an important indicator of how well markets function—the lower the barriers to entry, the better. Free entry makes the nonappropriability problem worse, and undercuts the incentive to invest in discovering what a country is good at producing. Laissez-faire cannot be the optimal solution under these circumstances, just as it is not in the case of R&D in new products.” (Hausmann and Rodrik 2003, pp. 5-6)

However, both the assumption that the patent system is essential for protecting technological discovery and the implication that developing countries need an analogous system to protect entrepreneurial discovery are unwarranted. First, the merits of the actual patent system have been contested by an important number of writers.⁸ It is highly arguable that this system is consistent with the institution of private property rights or that it fosters innovation. Secondly, economic discovery of profit opportunities is different by nature from technological advance or scientific breakthrough, because it is intrinsically linked to any human action.

The fact that “knowledge acquired in the process of discovering one’s costs spills over to other potential entrepreneurs” (Hausmann and Rodrik 2003,

⁷ For a critique of the view that entrepreneurship will be under-supplied because of this externality problem, see Boettke and Coyne (2005).

⁸ For a review of the literature and a critique of intellectual property rights, see Kinsella (2001).

p. 5, footnote 5) has no economic meaning. Relevant knowledge is specific knowledge, depending on circumstances of time and space. In fact, nobody is interested in acquiring knowledge as such, but only information specific to his own actions. For example, what matters is not whether other individuals possess my knowledge of using a certain subway train to arrive to a specified destination, but if they consider it useful or not for their own purposes. As Hülsmann (1999, p. 63-64) says, “Entrepreneurial decisions are not taken in a time-and space-less vacuum, but under specific conditions, which permit the successful performance of some actions and preclude the success of other actions... Entrepreneurial judgments are “historical” judgments, that is, they have to grasp the unique combination of circumstances that actually prevails and to anticipate, in the light of ongoing events, the unique conditions that will prevail in the future”. Entrepreneurs have to discern always between relevant and irrelevant information, and their choice of accumulating additional information results not from passively incorporating signals spread by other entrepreneurs, but from their judgment of market conditions.

Rodrik’s claim that, if let to the market, innovation will be insufficient because the innovator “has to share the value of his discovery with other producers who *can follow* (my emphasis) his example and flock into the new activity (Rodrik 2004, p. 9) is wrong. The basic issue concerning the attitude of other individuals is not whether they *can* expand their business following their fellows, but if they *should* adopt such a course of action. Imitation is a very simple action, or rather, reaction. It represents an option available not only for human (mental healthy) adults, but also for other human beings and non-human beings. Entrepreneurs, however, must judge the opportunity of any activity, including imitative behavior, and act accordingly.⁹

Moreover, we should not overlook the fact that to imitate somebody’s action supposes that the imitator has to incur some costs, just like any other acting person. Competitors appear only if they estimate costs are lower than the discounted marginal income to resulting from production (which means the existing supply is not right). One should not assume, as Rodrik does, that this situation is the only possible case.

Still another problem with the imitation argument is that it proves too much. If imitation is such an effective course of action, we shall expect people

⁹ As Mises (1998, p. 582) explains: “What distinguishes the successful entrepreneur and promoter from other people is precisely the fact that he does not let himself be guided by what was and is, but arranges his affairs on the ground of his opinion about the future. He sees the past and present as other people do, but he judges the future in a different way [...] If the present structure of prices renders very profitable the business of those who are today selling the articles concerned, their production will expand only to the extent that entrepreneurs believe that the favorable market constellation will last long enough to make new investments pay. If entrepreneurs do not expect this, even very high profits of the enterprises already operating will not bring about an expansion.”

to behave like a herd. Moreover, one could wonder why one would act at all, given that imitation pays for itself and private returns to new actions are so low. Yet herd behavior is a too easy refuge for those lacking a reasonable explanation of human action.

Further, there is another problem with the argument that the danger of imitation prevents entrepreneurs from discovering profit opportunities. Easy of entry is another name for high exclusion costs. The idea that easy of entry undermines entrepreneurial actions boils down to the thesis that exclusion costs make more difficult economic initiatives. But this is misleading. There is no such thing as cost-free action. Exclusion costs, like transportation costs or labor costs are economic costs which must be taken into account before deciding upon the allocation of resources. The fact that the height of exclusion costs discourages some action is no more relevant than the fact that high transportation costs prevents a doctor from selling his services to a distant customer. If we pursue the argument to its logical conclusion, we should maintain that this is a good reason for state subsidization of the doctor's distant activity. But this is hardly acceptable. Therefore, it is obvious that one cannot derive any sound conclusion by comparing real world situations with the (perfect competition-based) model of Hausmann and Rodrik, where free entry is costless.

Last, but not in the least, the imitation argument does not lead to where its advocates intend to arrive. Suppose individual X engages in discovering the cost of producing good Y. His action can have only two possible outcomes: either ends with a profit, or with a loss. Rodrik maintains that discovering a profitable opportunity has great social benefits, because it fosters the efficient allocation of resources. But what if X fails in his venture? Does not society owe something to him because he discovered (unintentionally) what business is not efficient to undertake and, therefore, has reduced the range of opportunities that have to be explored by entrepreneurs?¹⁰ As it can be easily observed, this will imply absurdly that government should provide subsidies to all entrepreneurs, because each of them helps – one way or the other – society to improve the allocation of resources and accelerate development.

¹⁰ A simple example will clarify the issue further. Imagine there are two roads leading to a certain destination, and a group of individuals undecided which way they should take. Each individual may choose not to be the first starter, but wait for others to go check which way is shorter and then follow the people who made the right choice. One could say this is a case for subsidizing the individual who discovers the shorter road, since his action benefits the entire group. But why not subsidize the individual who takes his chance and (unfortunately) discovers the longer road? Does not his action equally help the group in making the right decision?

6. Correcting market failure in entrepreneurship: a final critique

Leaving aside the criticism outlined above, how could Rodrik's argument that entrepreneurship will be under-produced because of inadequate incentives be proven? What criterion should be used to find whether or not a certain type of entrepreneurship is under-supplied? Obviously, the question how many entrepreneurial opportunities exists and how many initiatives capture these opportunities is an empirical question (Hülsmann 1999, p. 64). Only that one cannot discover the number of entrepreneurial opportunities, and compare it with the number of exploited opportunities, because all one can notice is the number of entrepreneurial initiatives undertaken at a certain moment.

Hausmann and Rodrik acknowledge implicitly the difficulty of finding an empirical proof for their argument when they maintain that: "Looking for systematic evidence that successful investments are rapidly copied is a self-defeating strategy because there shouldn't be much evidence of this sort to the extent that our model does capture an important part of reality. Entrepreneurial initiatives of this kind should tend to remain episodic, almost random events – not systematic ones... Similarly, if we were to learn that many successful new firms from developing countries operate with technologies that are hard to copy or have devised successful strategies of product differentiation (with protection against imitative entry), this apparently contradictory finding may in fact be quite consistent with our model. After all, a direct implication of our argument is that only investments that provide such protection will be undertaken in equilibrium" (Hausmann and Rodrik 2003, p. 18). In other words, the impossibility of an empirical validation of their assertions does not discourage the authors to maintain their thesis. On the contrary, by a switch of argument, they assume that this observation supposedly defends their argument.

It is quite easier, rather, to use the overwhelming empirical evidence to criticize the information externality theory of entrepreneurship. As Boettke and Coyne (2005, p. 209) point out, "in fact, our historical experience with markets defies what narrow economic theory might dictate. Entrepreneurs capture profits by exercising the knowledge they have of 'time and place' and revealing the information they are in possession of through their actions in the marketplace".

Even if we overlook the difficulty of proving empirically the hypothesis that entrepreneurs fail to exploit all profit opportunities, the conclusion that government should support entrepreneurial search of profitable investments is equally difficult to implement. In particular, Rodrik's provision that government should offer subsidies only to new activities is questionable. In author's view, "the main purpose of industrial policy is to diversify the economy and generate new areas of comparative advantage... 'New' refers to both products that are new to the local economy and to new technologies for

producing an existing product” (Rodrik 2004, p. 21). But this has no practical relevance at all, and it opens the Pandora’s box of government abuses, rent seeking and waste. Building inter-continental missiles or intelligence satellites is new enough? Growing bananas in Russia or cocoa trees in the United States is not a new activity? Well, one cannot be sure if all such new activities are profitable, but at least governments are encouraged to pump in money and help businessmen find the answer. Moreover, state bureaucrats need not let the fear of wasting resources to refrain them from channeling funds toward their preferred projects, because making mistakes is inevitable. “If governments make no mistakes, it only means that they are not trying hard enough” (Rodrik 2004, p. 25)! It results logically that Rodrik sets no limit for government subsidization programs.

The case for subsidization can be helped if we confine it only to successful ventures and not to “new” activities in general. That is, government should rather distribute prizes to those who have demonstrated their superior ability in forecasting consumers’ needs. In this case, Hausmann and Rodrik have to acknowledge that the government need to stop operating an industrial policy or (market failure-correcting policy) and start a simple redistributive policy.¹¹ But then, the importance of these writers’ contribution to development economics and industrial policy evaporates, because there is no solid economic or ethic ground for redistribution.

An additional question, to which Hausmann and Rodrik offer no satisfactory answer, is how are the new investments to be financed? According to the information externality theory of entrepreneurship, the financial market does not provide a proper solution, given that the market is too blind to finance the “longer term and riskier” investments in development of new products.¹² As a consequence, the state should support investment through funding development banks and venture funds, and provide public guarantees for long-term investment projects that cannot fulfill the requirements of private bankers. There are several problems with this opinion.

First, in order to see if it is economically efficient to support entrepreneurship in new investments one has to compare the benefits derived from subsidization (a higher level of entrepreneurship and a more complete exploitation of profit opportunities) with the costs associated with government interventionism (a larger bureaucracy, a higher level of taxation and rent-seeking, and eventually a weaker incentive to work and produce goods demanded by the public). But there is no infallible method for this type of calculation.

¹¹ In fact, any government policy implies redistribution.

¹² This is a strange consideration, given that many critics of the free market share an opposite idea, and blame the market for gambling too many of society’s resources in high-risk investments.

First, public investment funding distorts the functioning of the capital market and falsifies the time preference of individuals. Because the state interferes with the market allocation of saving, a process of crowding out will put private (unprivileged) entrepreneurs in the position of being unable to undertake investments necessary to provide consumers with the goods they desire.¹³

Secondly, subsidization represents an alternative method of financing business plans. Even if entrepreneurs use public funds to start a new investment, they could alternatively fund this project naturally, from private savings. If the government wants to “correct” a market failure (and not to displace the market altogether), then it should choose to finance those projects that are rejected by banks or any other private savings institution. But this consideration raises immediately an insurmountable problem. There is an immense number of investment projects private individuals would not fund: transportation to the moon, production of water using chemical reactions, replacement of today’s car engines with solar energy propulsion etc. Does the market failure argument imply that government should support all these projects? If not, what criterion should be used to divide between worthy and unworthy investment ideas? All these questions can be hardly answered in an unambiguous way.

7. Conclusions

In this paper I have tried to address some of the more important problems associated to the information externality theory of entrepreneurship, as exposed by Hausmann and Rodrik. In particular, I have shown that these writers’ argument that market fails to provide sufficient entrepreneurial actions is based on a misunderstanding of the notion of entrepreneurship. Further, Hausmann and Rodrik’s thesis cannot be defended empirically and is internally inconsistent and, thus, it fails to advance the case for industrial policy. Overall, the attempt to theorize new market failures and build a solid framework for market-correcting policies has to be considered unsatisfactorily.

¹³ Mises explains: “It is proposed that a railroad, the construction and operation of which does not promise profitability, is to be made possible by a government subsidy. It may be, it is said, that the railroad is not profitable in the usual sense of the word and that, therefore, it is not attractive to entrepreneurs and capitalists, but it would contribute to the development of the whole region. It would promote trade, commerce, and agriculture and thus it would make an important contribution to the progress of the economy [...] This reasoning is thoroughly mistaken [...] Certainly, these subsidies contribute to the economic development of a region where otherwise less would be produced. But the production increase in the part of the country thus favored by the government’s railroad policy is to be contrasted with the burden placed on production and consumption in those parts of the country which have to pay the costs of the government policy.”

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