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growth — the good, the bad, and the ugly / 46th st. gallen symposium
tom-lab 2016 position paper on alternatives to economic growth

EXECUTIVE SUMMARY

This summary presents the essence of the TOM-LAB 2016 position paper on alternatives to economic growth.

The community of leaders at the St. Gallen Symposium asked the question "What are alternatives to economic growth?" as a provocative topic for the symposium's global student essay competition. This position paper – created through a collaboration between the essay competition finalists and Harvard University's Center for International Development – distils some of the best ideas to come out of the 46th St. Gallen Symposium in response to this question. Four major themes emerged from their analysis.

First, the authors highlight the need to **contextualize any discussion of economic growth**. There is no "one size fits all" prescription; any proposition on growth is context dependent. In the developed world it might make sense to enact policies that trade off economic growth for other social objectives, but in the developing world economic growth remains an imperative. Sometimes the best solutions are local ones, and to discover them it may be necessary to focus on regional needs and preferences to accommodate a context-specific concept of growth.

Second, **new models of consumption** may reduce the importance of growth in developed markets. If well-off consumers were to adopt a sufficiency mindset and to value experiences over material goods, quality of life can rise without the social and environmental downsides that often accompany economic growth. Related to this idea, the sharing-economy and the gig-economy represent an opportunity to democratize the economy and reduce environmental impact, with an associated risk of creating new monopolies and leaving many workers in precarious employment.

Third, the authors note that the **rising level of inequality** in many countries is a major concern, and suggest ways to address it through inclusive economic models. They draw attention to a tried and tested organizational model for inclusive growth – the cooperative form of organisation – as a vehicle for making progress on both social and economic goals. And they point towards large gains that could be made by addressing gender inequality, by empowering women in the workforce in general, and in leadership positions in particular.

Fourth, the trend of **digitalization is changing what growth means**. There are fundamental differences between the digital economy and the classic industrial paradigm; differences which conventional thinking has not fully caught up with yet. Digital platforms create a lot of value for their users, not all of which gets reflected in conventional GDP statistics. Also, the digital economy offers opportunities to generate economic growth that is less energy and resource intensive than industrial growth.

Overall, the authors conclude that the nature of economic growth as we know it is changing. In rich countries, annual GDP growth has slowed to a "new normal" that cannot match the faster rates of past decades. Across the world, labour collects a decreasing share of national income (relative to capital), upending a trend that held constant for most of the 20th century. Businesses, supply chains, and even entire economies have globalized. These changes are irreversible in the foreseeable future, and they present governments and their citizens with an unprecedented set of opportunities and challenges.

The TOM-LAB 2016 was conducted by the six student finalists of the St. Gallen Wings of Excellence Award 2016, under the auspices of the St. Gallen Symposium, and in collaboration with the Center for International Development at Harvard University (CID).

St.Gallen Symposium

ALTERNATIVES TO ECONOMIC GROWTH: PERSPECTIVES FROM THE ST. GALLEN SYMPOSIUM LEADERS OF TOMORROW

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The St. Gallen Symposium's community of leaders posed the question "What are alternatives to economic growth?" as a provocative topic for the St. Gallen Wings of Excellence Award essay competition. This question was derived from the symposium's theme, "Growth: The good, the bad, and the ugly," which was debated in a wide range of sessions at the symposium itself in May 2016. After the symposium, the six competition finalists were brought together with research fellows of Harvard University's Center for International Development (CID) to analyse, elaborate, and stress-test some of the ideas discussed at the symposium as part of the symposium's Tomorrow-Laboratory (TOM-LAB) initiative. This concept note distils their findings on some of the best ideas and concepts that surfaced during the symposium on the topic of Alternatives to Growth.[1]

INTRODUCTION: THE GOOD, THE BAD, AND THE UGLY SIDES OF GROWTH

Economic growth is central to human prosperity. As a result, GDP growth is one of the most closely watched indicators of a nation's overall level of progress. Economic growth is often accompanied by higher standards of living and falling levels of poverty.

The premise of the 46th symposium's theme was that the benefits of economic growth too often go unquestioned; the desirability of unending growth is too often taken for granted. Growth is not, in fact, an unadulterated "good thing;" rather it is more complex. Discussions at the symposium delved deeply into many facets of growth. As the symposium's topic briefing noted, the side-effects of growth are salient in the developed world in debates around technology-fuelled economic change. Technological scalability can mean that the fruits of growth are captured by a tiny elite, leading to potentially harmful levels of inequality. Increasing automation also raises the spectre of job destruction. In the developing world, the factors inhibiting convergence of GDP per capita to developed market levels stimulate a great deal of debate. And economic growth often goes hand-in-hand with rising resource consump-tion and waste emissions, which put stress on the environment and are not likely to be ecologically viable in the long run.

It is against the backdrop of these challenges to the concept of economic growth that the Leaders of Tomorrow developed their essay ideas and the participants at the symposium discussed many and varied perspec-tives on growth. In summarizing some of the best ideas, we arrange this paper around four themes that emerged in the TOM-LAB workshop: (1) No "one size fits all:" any proposition on growth is context dependent; (2) New models of consumption reduce the importance of growth in developed markets; (3) Inequality must be addressed through inclusion; (4) Digitalization is changing what growth means.

THEME 1: NO "ONE SIZE FITS ALL:" ANY PROPOSITION ON GROWTH IS CONTEXT DEPENDENT

A major takeaway from the symposium and from the discussions with Harvard CID research fellows is that it is all too easy to make general statements about economic growth that don't stand up to closer inspection in the light of the contextual specificities that different countries – or different regions within countries – face.

Growth and development

A major risk in discussing upsides and downsides of growth is that the focus falls narrowly on a developed-world perspective, without acknowledging the vast differences between countries in their level of economic development. Indeed, discourse on "*alternatives* to growth" is inherently privileged, because it assumes that there is an alternative. It assumes that basic needs have already been met, and that we can debate the appropriate level of growth in much the same way we would discuss the pros and cons of consuming a luxury good. This point was brought home even by growth-sceptics, such as Professor Tim Jackson, who made a clear distinction between rich-world settings in which we can reasonably pursue increases in prosperity without economic growth, and developing-country settings in which growth remains an imperative in order to provide basic necessities of food, shelter, education, and healthcare.

The contextual specificity of growth is also central to the CID's work on "Growth Diagnostics," an in-depth process by which its researchers develop tailored policy recommendations for governments that they advise. The Growth Diagnostics approach was developed by Ricardo Hausmann, Dani Rodrik and Andres

Velasco (2005). Their starting point was their criticism of two common aspects of development policies at the time: (1) the application of an identical growth strategy to all countries regardless of context – at the time, the Washington Consensus (WC) policies – and (2) the uselessness of unprioritised 'laundry lists' of reforms for governments. The first criticism was based on the accumulated evidence that the WC reforms had worked in some contexts, but failed in others. The second criticism was based not only on the fact that bureaucracies have limited administrative capabilities and cannot implement unlimited reforms, but also on the fact that politicians have a limited stock of policy-making capital. For these two reasons, there is a clear need to design prioritized, context-specific policies.

This is exactly what Growth Diagnostics aims to do: to identify the most binding constraints to growth (and hence the right set of policies to be implemented) by following a differential diagnosis approach. Instead of assuming a doctrinaire position (e.g., "let's liberalize all markets at once" or "let's subsidize our infant industries") or focusing just on gaps against benchmarks (e.g., "our savings rate is half the one of the U.S., therefore we need to increase it"), Growth Diagnostics looks at the empirical evidence available (just as a doctor would do) to discard competing hypothesis and find the one(s) more likely to be constraining growth. For instance, a developing economy can both have an underdeveloped financial system and inadequate returns to investment. However, both factors cannot simultaneously be behind low private investment rates for a simple reason: either there is an excess of supply or an excess of demand.

Among the hypotheses evaluated by the Growth Diagnostics, one developed at the CID focuses on economic diversity and complexity. The more diverse and more unique a country's exports or production, the more valuable are the technological and knowledge-based capabilities that underlie their production. Capabilities are hard to develop because a large component of knowledge is "tacit," meaning it is impossible to codify. Tacit knowledge can only be acquired through training and work experience. This approach to development economics leads to a heightened emphasis on the path-dependence of development trajectories, where one capability may be easier to develop in a country or region that possesses related capabilities, and also on attention to conduits for the transfer of productive knowledge between locations, such as workers' inter-regional migration, foreign direct investment or trade flows.

Regional independence

One of the symposium essay ideas that generated much discussion was the possibility of using greater regional independence as a means of generating contextualized policy that fits the local environment. Regional independence may address the public desire for reform in developed countries, as observed by the rise of far-right and -left wing parties across the globe. It should be noted, however, that the concept is heavily contested; the following ideas should serve to spark debate and not be regarded as a full endorsement for the concept.

Swiss federalism, with its direct democracy elements, could be a role model for other countries. Regional autonomy applies the principle of subsidiarity, which assumes that it is best to design solutions at the local level whenever feasible. Additionally, regional independence could increase the economic system's resistance to global shocks by reducing the degree of coupling between different areas. The underlying motivation stems from the conviction that Europe, with its long-standing history of various cultures and sovereign states, will need to adopt a different system from the United States, where the political union rests on a much stronger footing.

Intense discussion of this idea at the CID, however, also showed its limitations, as it would in most cases come at the cost of economies of scale. For example, there was a general agreement that some issues such as climate change or the European refugee crisis will continue to require centralized decision-making. Furthermore, the implementation of such an economic and political system appears extremely complicated. The optimal size of political districts isn't straightforward, and neither is the degree of political autonomy of each region. Brexit and other independence movements (such as in Catalonia) certainly require European leaders to address this issue. The ideal level of autonomy would generate dynamic competition between regions; it would enable experimentation with different policies and learning spillovers when more effective policies are found. The research fellows of the CID pointed out the broad academic literature on regionalism, where the same challenge – how to determine the optimal allocation of decision making between local and global authorities – is a key topic of concern.

Market-based mechanisms providing monetary incentives for cooperation between autonomous regions and the centralized government might be a necessary design feature for a federal state. In that environment, regions are free to choose protectionist economic policy, oriented toward self-sufficiency, following the infant industry or import substitution arguments well known in

development economics, while having to pay a penalty to the central government to compensate for the negative externalities these policies generate. In the long run, there will be enough evidence on which regions performed better than others. Most likely, regional protection will help to foster economic growth only in very specific cases. For example, farmers in Tuscany complain that the current certification system of extra virgin olive oil doesn't prevent fraud (Interview with Aljoscha Zimmermann, www.corzanoepaterno.com). Import duties may solve this problem. Eventually, some regions want to choose protectionism even if it comes at the cost of lower economic growth. (For example, maybe domestic quality products provide a higher utility than a higher quantity of lower quality international goods).

In Europe, countries like Switzerland or Germany give more power to regions, while in France the political decision-making is more centralized. Neither national nor supranational juridical constitutions grant lower political bodies the flexibility to choose political autonomy or economic isolationism. The main reasons are the fear that the political construct would fall apart, together with the provision of public goods such as national security or public transport. The introduction of a market mechanism, i.e., putting a price on public goods and regional independence, might be the solution to achieve the optimal allocation of political power.

The Scottish approach as a role model

A work session at the symposium led by Dr Gary Gillespie, chief economist of the Scottish government, provided an illustration of the importance of regional decision-making powers for pursuing policy that is consistent with local priorities. The Scottish inclusive growth agenda shows that growth concepts are sometimes most adequately implemented and understood within a regional context. Generally speaking, the inclusive growth imperative (which we discuss further in Theme 3 below) links a growth agenda with more qualitative goals such as employment, inclusion of marginalized groups, minimum living standards, etc., through government policies and incentive structures.

Scotland took significant steps towards realizing an inclusive growth economy post-2008 through a very regionally-oriented and inclusive government agenda, specially designed ministerial portfolios (e.g., introduction of a poverty ministry), procurement policies (e.g., preference given to companies that pay Scottish minimum wages), increased public service provisions (e.g., access to free childcare, enabling mothers access to the workforce) as well as the proliferation of social enterprises (i.e., profit-oriented enterprises linked to a social purpose, such as high-profile restaurants employing Scottish ex-convicts).

In order to achieve an inclusive growth agenda, several aspects are of importance. First, it is crucial to communicate the positive reinforcing links of inclusion and growth to a broad audience. The inclusion of more women in the labour force, for example, is not only inclusive but in turns contributes to increased economic prosperity. Second, growth rates need to be regarded as correlated but disjointed from prosperity – growth rates may be lower but not imply lower prosperity; this needs to be communicated and framed accordingly to a wider public. Third, businesses need to be brought on-board and presented with profit-oriented opportunities linked to social purposes and/or an incentive structure that rewards responsible businesses (e.g., public procurement favouring companies with particular standards).

THEME 2: NEW MODELS OF CONSUMPTION REDUCE THE IMPORTANCE OF GROWTH IN DEVELOPED MARKETS

Having noted that economic growth has good, bad, and ugly aspects, a natural step is to find ways to maximize the good while minimizing the bad and the ugly. Several of the St. Gallen Symposium's Leaders of Tomorrow took this approach in their essays, suggesting we shift our societal goals to focus on more direct measures of generalized well-being instead of fixate on economic growth *per se*. Such a shift would need to trigger – or could be triggered by – a large-scale change in consumption practices in developed countries.

Discussions at the symposium revealed that many young people feel their consumption priorities are shifting compared to previous generations. There is a growing preference for goods and services that are produced in socially and environmentally conscious ways. There is also a growing preference amongst the young for obtaining meaningful, engaging "experiences" rather than possessing material goods. These are promising trends with respect to mitigating the potential social injustice and ecological damage that economic growth can bring about. We acknowledge that choices about socially conscious and experiential consumption may only be open to a privileged fraction of the population at present. But this broad trend could suggest that as countries get richer, consumers begin to take into account the negative externalities associated with their consumption and growth does not necessarily imply an ever-increasing demand for scarce resources.

Imagining a Sufficient Society

One of the promising arguments challenging the need for perpetual growth is that more is not always better. For an individual consuming a certain good, the marginal utility of consuming more at some point turns negative. This is known

as the "sufficiency point." Here are some examples:

- *Eat less - live longer*

  Academic research is unearthing evidence that, when it comes to food consumption, there may be benefits to eating less. Drawing on his experimental research with fruit flies, Dr. Matthew Piper estimates that when consuming 40% less, organisms may live up to 20% longer (Mair, Piper and Partridge, 2005). Reducing calorie intake – especially yeast and sugar (Partridge, Piper and Mair, 2005) – has several possible health benefits, ranging from better brain function and reduced risk of disease to better recovery from injuries. Fasting as an extreme form of reducing calorie intake has been found to put cells into "emergency mode," thereby recycling old, damaged cells and also regenerating crucial cells related to the immune system (Longo and Mattson, 2014). The evidence is accumulating: Eating less may make your body more efficient, healthier and longer-lived.

- *Compare less - decide more easily*

  An average, large supermarket today carries about 50,000 items. At the average Tesco, you can decide between 93 toothpastes, 91 shampoos and 45 red pasta sauces. The choice can be daunting. Myriad studies demonstrate that in many cases, less choice actually leads to higher levels of satisfaction (Iyengar and Lepper, 2000, Gladwell, 2004, Schwartz, 2004). The number of choices initially has a positive effect on satisfaction. As the choices grow, the marginal return diminishes and even turns negative. At that point, more choice makes us less happy. In 2015, Tesco announced plans to cut its product range by up to 30%.

Economists have long understood that the marginal return to more consumption, more options, etc. is diminishing. The essay of one the symposium finalists highlights the concept of the sufficiency point, drawing attention to the notion that more may actually be worse for you. While incomes in developing countries are a long way from a hypothetical sufficiency point, incomes for some individuals in developed countries may not be far off this point.

One can imagine a "Sufficient Society" in which people do not strive for more consumption once they have reached a reasonable level of wellbeing. In such a society, sufficiency would be more important than growth. Measurement would be binary and not quantity-based. Collaboration and sharing are the norm; competition is the exception. People are driven by happiness, not by future consumption. It is a world that combines the idea of *less is more* with the simplicity of sufficiency-based decision-making. In this world, the government cares more about shelter, health and happiness than about quantities of goods. National statistics would encompass binary data about homes, diseases and nutritional information. Its implementation would be similar to the poverty indices that use the principal component analysis (PCA) method and binary values (Henry, 2003). When adding the *sufficiency factors* to the government's landscape, a ceiling is introduced: These factors cannot increase infinitely. This concept constitutes the idea that more is not always better.

In this world, companies measure performance on financial, market, social and environmental aspects. Likewise, they measure in terms of sufficiency factors. Hence, companies have a higher purpose than profit maximization. However, they cannot be loss-making either. The sufficiency factor can be understood as a checkbox that is ticked when profits reach a sustainable level, for instance. This further solidifies the values of the non-competing society. In today's world, companies that are fortunate enough to hold a monopoly position, such as Google, are able to create far more welfare than companies that are competing for survival (Masters and Thiel, 2014). Google is able to care about its employees and serves a higher purpose, whereas companies that are facing heavy competition cannot afford to think about their long-term purpose when they are about to declare bankruptcy. By enabling companies to operate within the "holistic sufficiency quadrant," companies have the freedom (due to lower competition) to serve a higher purpose, but cannot be completely indolent.

In a Sufficient Society, people are not eternally unsatisfied. They are driven to reach certain sufficiency points. However, after obtaining them, there is no more to be gained. This reduces the complexity of decisions enormously. Ticked checkboxes disappear from the list of choices and thus simplify otherwise complex life decisions such as a potential move to a more sumptuous home. Extrinsic concepts such as wealth and status are superseded by intrinsic motivation and people strive for happiness. Therefore, their preferences are strongly skewed towards the present. They work at a company for a purpose. They strive because they are fully immersed in the world. A Sufficient Society is a rich world – not necessarily materially rich, but rich in satisfaction. This vision of a world is one that the Leaders of Tomorrow find intriguing; it provides a healthy opportunity to reflect and challenge our assumptions about consumption.

The sharing-economy and the gig-economy

Consumption models that allow single assets to be shared by multiple users are gaining in popularity. In its most pure form,

the "sharing economy" is about a community pooling some resource and allowing people to use it for free – exemplified by free libraries, or the sharing of DIY tools with a nearby group of people. These low-tech forms of asset sharing are part of a conscious consumption trend that the Leaders of Tomorrow sense might be gaining ground.

The sharing economy label has also been applied to technology-driven platforms that match supply with demand for goods and services, such as spare rooms or private car services. Since these platforms also entail some labour on the supply side, they are also considered part of the "gig economy." The digital nature of these platforms has allowed them to scale up and access large pools of adopters at an unprecedented pace. Gig-economy consumption models are based on a system of generalized reputation, which allows them to expand into countries where the institutional infrastructure is otherwise weak. These platforms can help the economy to utilize spare capacity on existing assets, providing services without growing the economy's asset base. They also bring with them concurrent challenges such as displacing an existing workforce (e.g. taxi drivers), side-stepping social security contributions by structuring work as contracting rather than employment, and creating a *de facto* monopoly which concentrates wealth and power with the platform owner. We therefore view this consumption model as an important trend that brings many positive benefits along with a number of disruptive side effects.

THEME 3: INEQUALITY MUST BE ADDRESSED THROUGH INCLUSION

One motivation behind the symposium's theme, laid out in the topic briefing, is that the gains from growth are felt very unevenly. Historic data on inequality, captured by the Gini coefficient, show a rising trend for an array of developing and developed countries over the last 20 years (see Figure 1). (We note, however, that Latin America poses an interesting counter-example, with falling inequality in this time-frame). The Leaders of Tomorrow were highly engaged in this topic and there was little dispute that extreme inequality is undesirable.

Amongst the drivers of economic inequality discussed at the symposium, technology loomed large, with Martin Ford – author of "Rise of the Robots: Technology and the Threat of a Jobless Future"– sharing his insights in several sessions.[2] The threat of jobless growth fuelled by increasing automation is a narrative that many of the Leaders of Tomorrow agree is plausible and worrying. Mr. Ford's proposed solution is to provide all citizens with a basic income. We find it note-worthy that this concept is now part of the mainstream discourse in some countries, and has proponents from both ends of the political spectrum. The basic income is a response to inequality that is at its heart redistributive.

The limitations of redistributive policy were brought to the foreground at the symposium through discussions on the topic of tax havens. In one lively plenary session, the Vice Minister of Finance of the Republic of Panama, Mrs. Eyda Varela de Chinchilla, was challenged on stage on the topic of the taxation policy and financial transparency. Since the publication of the so-called "Panama Papers" the Central American country has been heavily criticized for its poor governance of off-shore corporations used by clients to minimize their domestic tax bills. By facilitating tax avoidance, tax havens undermine attempts to address inequality through redistributive taxation. For governments, minimizing the lost tax revenues by closing tax loopholes is a simple step toward reducing inequality.

Here, we highlight two proposals to tackle inequality that focus on a strategy of *inclusion*, an alternate approach that we feel is a necessary complement to redistributive policy.

Cooperatives: Overcoming short-term thinking and focusing on the common good

We recognize two worrying trends in the current business world. First, astonishing gaps and disparities both in pay and employment between the workforce and top managers threaten stability. Second, one of the most disturbing and counter-productive trends of the last half-century has been the startling compression of time horizons for public companies. Every quarterly release is a potential harbinger of doom, ignoring the fact that many necessary and constructive processes, steps and trends take time to plan and implement, let alone produce results. An unsatisfactory quarterly report can devastate a public company's stock price and produce vastly disproportional damage and after-effects. So how can we realize the elusive prosperity-for-all goal and allow continued progress and a fairer version of prosperity?

A return to some of the basic tenets of cooperative company structures would be a very good way to deal with these issues. Cooperatives are ancient and venerable structures, with historical roots in renaissance Europe, when guilds began to ally themselves to encourage trade, maximize locally-available labour on all levels, and create the proverbial "rising tide that lifts all boats." Interestingly, an early goal of cooperatives was to counter monopolistic trends and foster competition (Zamagni and Zamagni, 2010).

The most widely used definition of a cooperative enterprise is that of the International Cooperative Alliance, which reads: "A co-operative is an autonomous association of persons united voluntarily to meet their common economic, social,

and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise." The fundamental principles of the modern cooperative enterprise have remained unchanged for over a century and a half (Zamagni and Zamagni, 2010). They are based on the values of self-help, self-responsibility, democracy, equality, equity and solidarity. The United Nations declared 2012 "The International Year of Cooperatives," highlighting their contribution to socio-economic development, particularly their impact on poverty reduction, employment generation and social integration. Successful examples of cooperatives exist across a range of countries. In Switzerland, the country's leading retail organization is the Migros supermarket chain, which is owned by its customers. In India, the dairy cooperative Amul spurred India's so-called White Revolution and transformed the country from a milk-importing to a milk-exporting country (Kurien, 2007).

Unlike publicly traded firms, managers of cooperative organizations face less pressure to optimize short-term profit and constantly justify quarterly reports. This shift from "quarterly capitalism" towards a true longer-term way of thinking would require wide-ranging shifts in mind-set and practice of managers facing pressure from owners and stock markets (Barton & Wiseman, 2015). Managers of cooperatives also need to justify how their management decisions and activities have contributed to the overarching goals of the cooperative. These goals include profitability but, importantly, are not limited to narrow profit maximization.

The appeal of the cooperative model lies in its ability to counteract a market dynamic the American economist Sherwin Rosen has called the "superstar effect:" winner takes it all, loser leaves all. Cooperatives function in a much more inclusive manner because they enable many more players to be part of the economic game, as well as encouraging informed involvement with one's own group and knowledge about others (Bruni and Zamagni, 2007). A practical example of cooperatives' inclusive mechanism is the "cooperative promotion," which promotes inter-firm solidarity. In Italy, for example, cooperatives allocate 3 per cent of their net operating result to form or support other cooperative enterprises (Zamagni and Zamagni, 2010).

What makes cooperatives unique is that they integrate two dimensions: on one hand, they incorporate the economic characteristics of an enterprise operating within market structures and logic; on the other hand, they possess the social dimension of an institution that follows meta-economic aims and produces positive externalities for the community and society (Zamagni and Zamagni, 2010).

Womenomics

In much of the developed world, girls perform better in school than boys, and more women than men are getting university degrees.[3] Moreover, a large part of global GDP growth can be attributed to the rise in female employment over the past decades (The Economist, 2006). Women not only comprise an increasing share of the global workforce but are also increasingly important as consumers, entrepreneurs, managers, and investors.

When better included in the economy, women can help drive positive social and economic outcomes. The World Bank's 2012 World Development Report (WDR 2012), for example, states that women with decision-making power drive positive development outcomes, and studies from the World Economic Forum confirm a strong correlation between an increase in gender equality and an increase in per capita GDP. A prominent example discussed broadly at the symposium was Goldman Sach's Kathy Matsui's research on quantifying female contribution. Her work estimates closing the gender employment gap results in an increase in GDP as high as 13%. Whilst these are first steps in quantifying women's contribution to prosperity, Matsui believes that a more inclusive agenda must include both concrete government policies incentivizing and enabling female inclusion (e.g., free childcare, quotas etc.) as well as "softer" factors, such as female confidence, risk-taking preferences, and empowerment through education.

Women are proven catalysts for economic growth, so coming up with creative solutions to gender inequality should be a top priority for every country's growth agenda. According to the World Bank, three main factors contribute to gender segregation in the economy: (1) differences in time use (mostly stemming from differences in childcare responsibilities and running the household), (2) differences in access to productive inputs (primarily land and credit), and (3) different impacts of market and institutional failures (e.g. biased laws / regulations and limited infrastructure). This gender segregation reinforces itself and creates a productivity trap whereby women tend to be in low-productivity and low-paying jobs (compared to men), which provides them with a comparative advantage in domestic production. This reinforces existing incentives for specialization in housework and childcare, thus strengthening gender differences in time use. Breaking out of this productivity trap requires interventions that lift time constraints, correct market and institutional failures, and increase women's access to productive inputs.

In many developing countries, girls suffer from lower access to education than boys, and so improving educational

opportunities has potential to stimulate growth.[4] In countries and regions with rapidly aging populations, educated and empowered women can help dampen the impact of shrinking working-age populations by expanding women's rate of participation in the workforce.

THEME 4: DIGITALIZATION IS CHANGING WHAT GROWTH MEANS

From the beginning of the Industrial Revolution up to the turn of the millennium, economic growth has been driven chiefly by industrialization: the mechanization and augmentation of labour with sophisticated physical equipment. As research from the CID highlights, this went hand in hand with the distribution of knowledge work into increasingly specialised sub-areas, allowing economies to become more complex and, in turn, produce an increasing variety of goods. In this paradigm, economic growth implied that higher quantities of raw materials were extracted from the ground, processed into usable products, and used or consumed by people. Our measures of economic output – chiefly GDP – were developed with this industrial paradigm in mind.

A recurring theme amongst the Leaders of the Tomorrow community was how some present-day economic activity transcends the industrial paradigm. Amongst the LoT community at the symposium were a broad range of entrepreneurs and technologists who are advancing the frontier of the digital economy, in areas ranging from fundamental advances in data transmission and data storage to digital applications of crypto-currency and artificial intelligence. Other Leaders of Tomorrow represented the incubators and accelerators that form an ecosystem supporting the creation of businesses based upon digital business models. While much of today's digital economy activity takes place in developed countries, cheap smartphones are making the services available in developing nations and regional technology ecosystems are flourishing in countries at various levels of development, such as India, China, Kenya, and Malaysia.

While traditional industrial growth gets captured in GDP statistics thanks to transactions over physical products, digital growth can create a vast amount of value that is never reflected in GDP statistics. For example, many digital services are provided as "two-sided platforms," in which a technology company interacts with two distinct stakeholder groups, such as a search engine interacting with advertisers and with the population at large. The value created for advertisers (who pay the search engine company) is reflected in GDP statistics, but the value created for search engine users is not subject to any transaction, so it gets omitted. Providing digital services that are free at point of consumption is possible because transferring bits and bytes has zero marginal cost. Additionally, since many digital services represent entirely new product categories we don't have a sensible way to account for them in the computation of inflation indices. Inflation is an important constituent of how we measure real GDP growth, and while there is debate among economists over the impact of technology on inflation, several noted economists suggest we may be seriously underestimating the contribution of the digital economy to (real) GDP growth.[5]

Grow without resources

The digital economy also points toward a mode of growth that isn't based on consumption of material resources. We already substitute screens for newspapers, video conferences for long-distance travel, digital downloads for hard copy CDs and DVDs. The future promises further substitution, as immersive 3D technology improves and new applications of augmented reality are discovered. For example, holographic projection could allow video-conferencing to become an increasingly acceptable substitute for business travel. Furthermore, digital technology can enhance the design and production of physical goods so that they use less material, by employing simulations rather than physical prototypes and by optimizing designs for material efficiency. This trend is borne out in statistics on resource use: the energy intensity of global GDP has been falling since 1990 (see Figure 2) and in the US primary energy consumption has fallen in absolute terms since 2007, despite 10% economic growth.[6] Resource usage and economic growth are becoming decoupled, or in the words of one of the CID research fellows, *GDP is becoming lighter*.

The increasing demand for digital services will raise demand for cheap hardware. Because obsolete electronics are hard to recycle under the current consumption model, that demand has potentially negative environmental consequences. One of the essay writers argued that a move towards more modular product designs would facilitate a "circular economy" product life cycle, in which products are designed for disassembly and re-processed at the component level. This approach could be a promising way to offset some of the side-effects of growing hardware consumption.

CONCLUSION

We believe that the nature of economic growth as we know it is changing. In rich countries, annual GDP growth has slowed to a "new normal" that cannot match the faster rates of past decades. Across the world, labour collects a decreasing share of national income (relative to capital) –

upending a trend that held constant for most of the 20th century. Businesses, supply chains, and even entire economies have globalised. These changes are irreversible in the foreseeable future, presenting governments and their citizens with both opportunities and challenges. Ultimately, each of these trends has altered who holds power and who benefits from growth in both rich and developing economies. In the face of such changes, we believe that policymakers and business leaders should be asking what the alternatives to economic growth are.

In this paper, we have investigated this question – identifying several alternatives to growth that might help a greater number of people benefit from the changing global economic landscape. First, we argued that it is critical to **contextualize growth**. Developing countries still need traditional GDP growth to expand economic output and catch up to wealthier counties, while rich nations may want to consider increasing regional federalism. Second, we considered how adopting a sufficiency mindset and embracing the sharing economy present an opportunity to leverage **changing consumption patterns** to democratise the economy and minimise environmental impacts. Third, we considered how cooperative business models and policies to offer women equal opportunities in the workplace can address **rising inequality** by fostering greater economic inclusion. Lastly, we discussed how **digitalization** offers opportunities to generate economic growth without additional energy and resource consumption. The alternatives discussed here represent a few of the best ideas from the 46th St. Gallen Symposium on how to meet the challenges and leverage the opportunities of the changing face of economic growth in the 21st century.

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[1] *The ideas in this note do not necessarily represent the authors' personal beliefs, but rather this document summarizes some of the most innovative and prescient ideas to come out of the 2016 symposium.*

[2] *We note that other factors that contribute to inequality gained less attention at the symposium. Globalization, the decline of unions, shrinking of the welfare state, and regulatory capture by corporate interests are all worthy topics for deep exploration at future symposia.*

[3] *UNESCO World Atlas of Gender Equality in Education: http://www.uis.unesco.org/Education/Documents/unesco-world-atlas-gender-education-2012.pdf and OECD Pisa 2012 Results: http://www.oecd.org/pisa/keyfindings/pisa-2012-results-gender.htm*

[4] *UNESCO World Atlas of Gender Equality in Education*

[5] *"Technology, inflation and the Federal Reserve" by Gavyn Davies, http://blogs.ft.com/gavyndavies/2015/05/25/technology-inflation-and-the-federal-reserve/ and "The U.S. Underestimates Growth: The official statistics are missing changes that are lifting American incomes" by Martin Feldstein, http://www.wsj.com/articles/the-u-s-underestimates-growth-1431989720*

[6] *Business Council for Sustainable Energy / Bloomberg New Energy Finance 2016 Sustainable Energy in America Factbook: http://www.bcse.org/sustainableenergyfactbook/*

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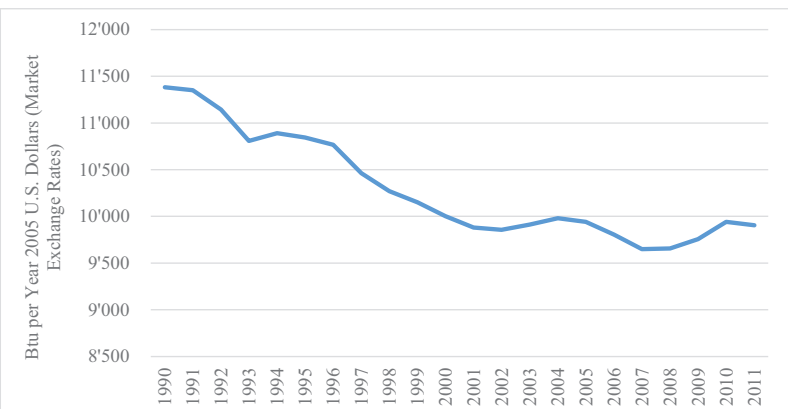
FIGURES

Figure 1: *Gini coefficient of selected countries, 1990-2010*

Figure 2: *Total primary energy consumption per dollar of GDP, global average 1990-2011*



ABOUT

TOM-LAB

The TOM-LAB is a working and collaboration space for Leaders of Tomorrow of the St. Gallen Symposium to develop out-of-the-box ideas. The labs produce concepts and other papers that lay the foundation for action.

> www.symposium.org/tomlab

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