

WP/21/29

IMF Working Paper

Fair and Inclusive Markets: Why Dynamism Matters

by Philippe Aghion, Reda Cherif, and Fuad Hasanov

IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate. The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

I N T E R N A T I O N A L M O N E T A R Y F U N D

IMF Working Paper

Institute for Capacity Development

Fair and Inclusive Markets: Why Dynamism Matters

Prepared by Philippe Aghion, Reda Cherif, and Fuad Hasanov¹

Authorized for distribution by Paulo Drummond

February 2021

IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate. The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

Abstract

We show empirical evidence that there may not be a tradeoff between market income inequality and high sustained growth, which is key for poverty alleviation. We argue that the economies that achieved high sustained growth and low market income inequality are characterized by dynamism—a drive toward sophisticated export industries, innovation, and creative destruction and a high level of competition. What a country produces and how much it competes domestically and internationally are important for achieving fair and inclusive markets. We explore policy options to steer industrial and market structures toward providing growth opportunities for both workers and firms.

JEL Classification Numbers: D63, O40, O30, O25, L10, D40

Keywords: Inequality; inclusive growth; creative destruction; competition; market power; industrial policy; sophistication; innovation; manufacturing

Authors' E-Mail Addresses: paghion@fas.harvard.edu; acherif@imf.org; fhasanov@imf.org

¹ Aghion: College de France and London School of Economics; Cherif and Hasanov: IMF. We are grateful to Valerie Cerra, Woon Gyu Choi, Nada Choueiri, Sharmini Coorey, Barry Eichengreen, Asmaa El Ganayni, Francesco Luna, Chris Papageorgiou, Martin Schindler, and John Spray for excellent discussions and suggestions. We would also like to thank participants at the IMF seminar for helpful comments. We are grateful to Talia Zulueta for formatting the paper. All errors are our own.

Contents	Page
ABSTRACT	2
I. INTRODUCTION	4
II. THE MARKET AT WORK: INDUSTRIAL STRUCTURE AND INCLUSIVE GROWTH	5
A. Is There a Tradeoff Between Growth and Inequality?	5
B. Beyond Growth: “Dynamism” Matters	8
C. Dynamism: Sophistication, Creative Destruction, and Structural Transformation	9
III. IN PURSUIT OF A BETTER GROWTH MODEL FOR INCLUSIVE GROWTH	9
IV. HOW TO PROMOTE DYNAMISM	13
A. Competition, Market Power, and Innovation	14
B. Competition Policy to Spur Dynamism	17
V. CONCLUSION	18
REFERENCES	19
FIGURES	
Figure 1. Long-Run Economic Growth vs. Market Inequality, 1974-2014	6
Figure 2. Average Market Income Inequality (Gini Coefficient) by Decade	7
Figure 3. Long-run Structural Export Sophistication vs. Market Inequality	8
TABLE	
Table 1. Growth vs. Market Inequality: A Few Regressions	7

I. INTRODUCTION

Improving prosperity and standards of living of a country's population are central goals of each society. The rising inequality and stagnating median income despite GDP growth in many countries over the last decades has put the capitalist model at the center of the discussion, including in liberal democracies. Since the 1980s, the supremacy of the unfettered market and limited state intervention have gained ground as the main narrative to achieve prosperity and high standards of living for everyone, or in other words, inclusive growth. Although the narrative about the importance of the free market in achieving prosperity was supported by relatively high aggregate growth and employment numbers before the financial crisis of 2008, the gains did not trickle down much as real incomes in the lower half of the income distribution stagnated.² This trend has become more visible since the financial crisis of 2008 and the Great Recession of 2009. The resulting bank bailouts, fiscal austerity, and the widening income polarization brought back to the fore the discussion about the role of markets and the state in achieving prosperity for all. The disproportionately devastating effect of the COVID-19 pandemic on the poor and the most vulnerable further intensify this debate.

We contribute to this debate by highlighting that *dynamism for fair and inclusive markets* is key for achieving high sustained and inclusive growth. We show empirically that there may not be a tradeoff between market income inequality and high sustained growth. We argue that the economies that achieved high sustained growth are characterized by dynamic and sophisticated export industries, innovation and creative destruction, and a high level of competition. In other words, dynamism—an economy's dynamo—matters for inclusiveness as well and not only for growth and efficiency. These features are important for improving market income inequality, that is, predistribution, as opposed to redistribution, which is usually the focus of inclusive growth economics.

We define fair and inclusive markets as those that provide growth opportunities for a large number of workers and firms. To provide these opportunities, high sustained growth is indispensable; as the size of the economic pie increases, so do the incomes at the lower end of the income distribution. Poverty levels fall and average living standards increase. The experience of China illustrates this starkly as about 850 million people were lifted out of poverty in four decades (Yang 2019), contributing to a decline in worldwide inequality over the 2000s (Sala-i-Martin 2006) although it has also resulted in rising domestic inequality (Ang 2019). High growth alone may not be sufficient for inclusive growth and sustainability, and sources of growth, or “growth models,” and market characteristics may be as important. In this regard, economic/production or industrial structure as well as market structure—market power and competition—of a country have implications on aggregate growth, the distribution of income, employment, and living standards. We thus explore how these features affect inclusive growth and what the role of the state is in this process.

We study different growth models and the relationship between industrial and market structures and inclusive growth outcomes. In particular, the Asian Miracle growth model has

² As Robert Shiller in his book *Narrative Economics* has emphasized the importance of the narrative in economic decision-making and outcomes, the narrative of the roles of the state and the market in achieving inclusive growth has indeed been slowly making a comeback toward a more active state (Cherif, Engher, and Hasanov 2020).

useful lessons not only for maintaining high and sustained growth but also for achieving inclusive growth. We observe that the Asian Miracles—Hong Kong (SAR, China), Japan, Korea, Singapore, and Taiwan Province of China—have achieved sustained high growth for decades and propelled themselves from low or middle-income status to high-income levels relatively fast. Meanwhile, they have also witnessed relatively less unequal distribution of market income.

While many policies to improve business environment, investment, and education are important, the experience of the Asian Miracles shows that a state intervention leading to technology creation, innovation, and creative destruction coupled with competition in sophisticated export markets could be necessary. Dynamism could be key to creating inclusive growth, but at the same time, the growth of big firms, while important, could potentially result in increasing market power.

Competition policy is another indispensable instrument of policymakers' toolkit. The focus of competition policy should be not only consumer welfare and existing markets, but also firms' monopsony powers, impact on workers, effects on innovation and knowledge diffusion, and missing markets. The relations of workers and small firms with large firms need to be considered. Antitrust policies that examine barriers to entry, intellectual property rights, and knowledge diffusion could also be important in addressing the rise in market power.

By examining the two key aspects of a country's economy—what a country produces and how much it competes domestically and internationally—we attempt to shed light on how these two important economic characteristics affect market inequality and inclusive growth. We further explore policy options to steer industrial and market structures toward fair and inclusive markets.

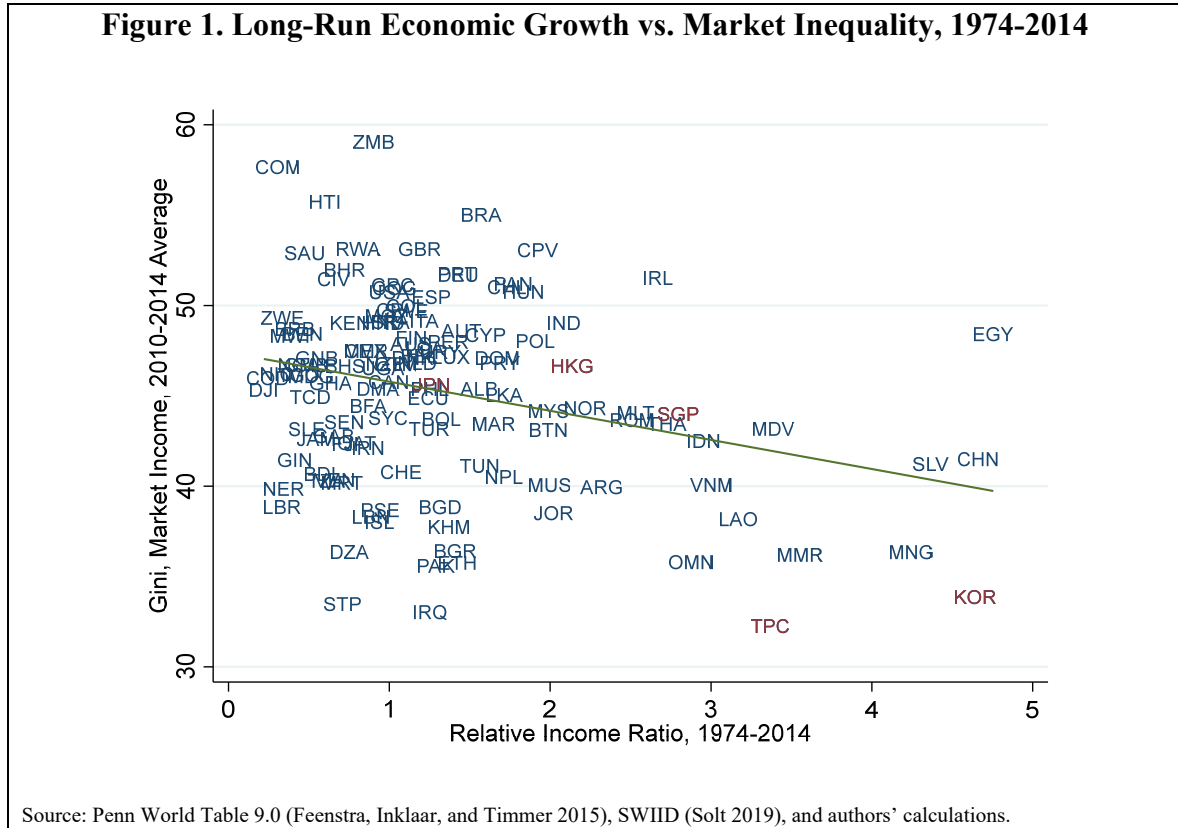
II. THE MARKET AT WORK: INDUSTRIAL STRUCTURE AND INCLUSIVE GROWTH

A. Is There a Tradeoff Between Growth and Inequality?

There exists convincing evidence that broad-based growth, that is, the increase in median income, is the most important factor explaining poverty alleviation. High sustained growth not only increases the size of the economic pie but also substantially raises incomes of the lower quintiles of income distribution. In the past few decades, there was a large reduction of poverty in the most populous countries, China and India (Yang 2019). Dollar, Kleineberg, and Kraay (2013) have shown that a rising tide lifts all boats—that is, higher growth translates to higher income growth of the lower income quintiles. Not only high growth substantially increases market income of the lower income quintiles but also results in a larger economic pie that makes it easier in general to redistribute the benefits.

But contrary to a common belief, the empirical evidence does not suggest that there is a tradeoff between market income inequality and high growth, and in fact it points to the opposite. There is a widespread narrative that a rise in inequality is the price of achieving higher growth. Yet, the cross-country scatter plot over forty years (1974-2014) shows a negative relationship between the growth of country's relative income per capita vs. that of

the U.S. and the recent market income Gini coefficient (Figure 1).³ We use market Gini, that is, the Gini index of income before taxes and transfers, as it is a much more accurate indicator of market income.⁴ In contrast, the standard Gini index measuring disposable income inequality would reflect more broad social choices in terms redistribution as well.



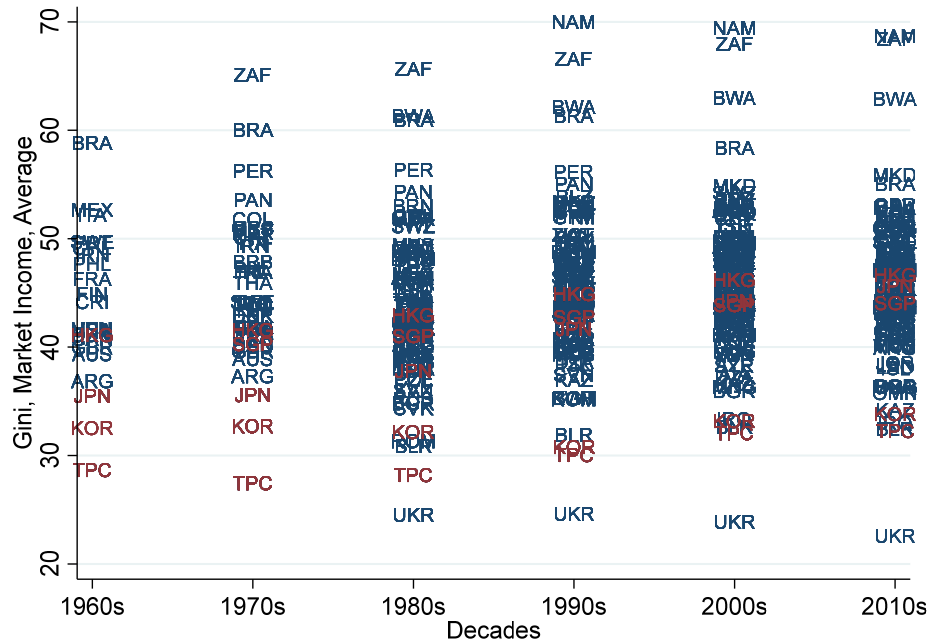
Another striking fact is that the high sustained growth of China and the Asian Miracles, among the highest in the world, has not come at the expense of inequality. And in fact, Korea and Taiwan Province of China have had consistently among the lowest market inequality in the world throughout their miraculous transformation since the 1960s (Figure 2).

This result holds over the short and medium run as well. Controlling for other factors such as the level of development (real GDP per capita relative to that in the U.S.), and lagged Gini, a country that had grown faster than others over the previous five years or a decade would have a lower level of market inequality over the following five or ten years (Table 1).⁵

³ Using Penn World Tables 9.0 data on real GDP per capita (2011 constant PPP dollars), we compute the ratios of real GDP per capita relative to the U.S. GDP per capita over 1974-2014 and graph them against recent (2010-2014 average) market Gini inequality (SWIID, Solt 2019).

⁴ Sometimes referred to as a measure of predistribution inequality.

⁵ The sample period is 1970-2014 with nonoverlapping 5- and 10-year data. The regressions are estimated using fixed effects OLS with lagged Gini, relative income, and log structural export sophistication (EXPY adjusted for commodity exports) for the previous 5- or 10-year period. The GMM-System regressions use 10- or 20-year lagged values of included regressors as GMM instruments with the collapsed matrix of instruments. Lagged Gini is not instrumented.

Figure 2. Average Market Income Inequality (Gini Coefficient) by Decade

Source: SWIID (Solt 2019) and authors' calculations.

Table 1. Growth vs. Market Inequality: A Few Regressions

	5-year periods				10-year periods			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent: Gini coefficient, market income	FE	GMM	FE	GMM	FE	GMM	FE	GMM
Gini (5-year/10-year lag)	0.844*** (0.030)	0.975*** (0.011)	0.856*** (0.033)	0.974*** (0.010)	0.512*** (0.080)	0.918*** (0.036)	0.539*** (0.081)	0.912*** (0.038)
Relative income (vs. U.S., 5-year/10-year lag)	1.166** (0.515)	-0.126 (0.257)	1.232** (0.521)	0.767* (0.400)	4.898*** (1.428)	1.886** (0.842)	5.059*** (1.614)	4.595** (2.081)
Relative income growth over 5 or 10 years (vs U.S., 5-year/10-year lag)	-0.754*** (0.201)	-0.267* (0.136)	-0.727*** (0.210)	-0.095 (0.142)	-1.540*** (0.568)	0.784 (0.929)	-1.714*** (0.592)	-0.875 (1.194)
Structural export sophistication (log, 5-year/10-year lag)			-0.201 (0.149)	-0.649*** (0.221)			-0.330 (0.341)	-1.353* (0.777)
Constant	7.730*** (1.335)	1.675*** (0.545)	8.793*** (1.484)	6.787*** (1.813)	22.726*** (3.714)	2.893 (1.969)	24.355*** (4.366)	15.661** (7.197)
Adjusted R-squared	0.72		0.72		0.35		0.35	
\# of countries	162	162	162	162	134	134	132	132
\# of observations	837	837	822	822	276	276	271	271
\# of instruments		7		10		7		10
\# of overidentifying restrictions		3		5		3		5
Hansen J-test p-value		0.00		0.18		0.05		0.22

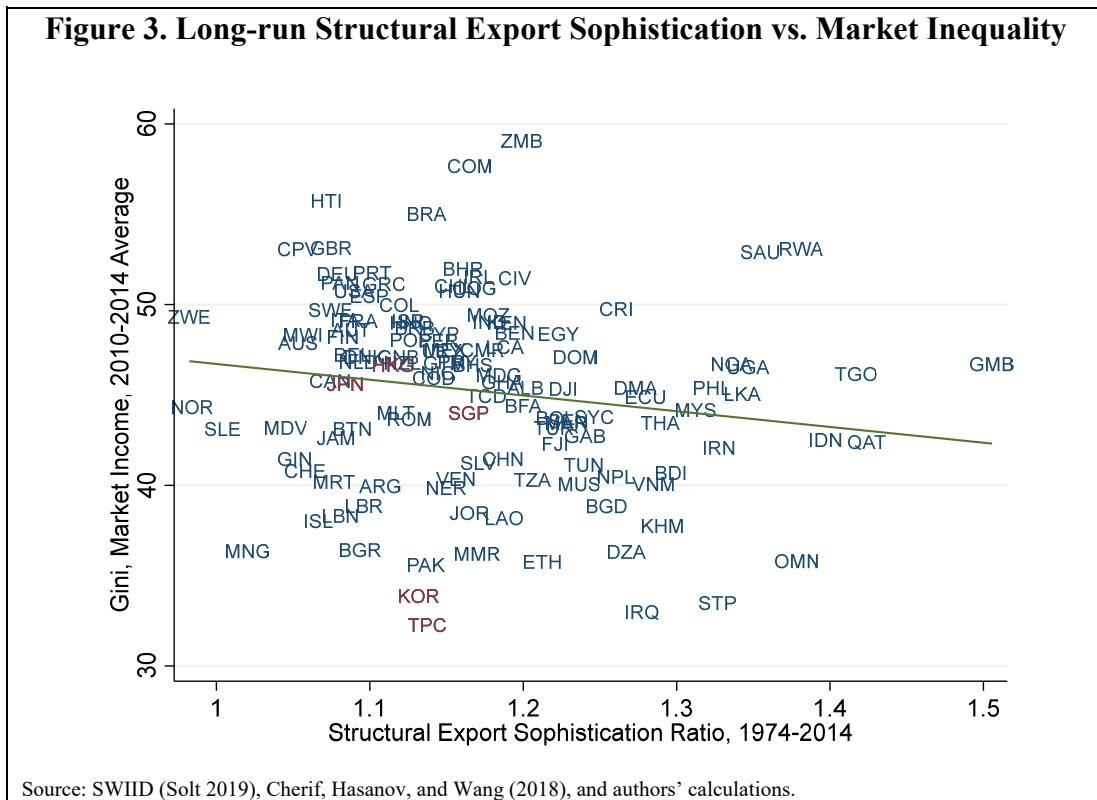
Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' calculations.

B. Beyond Growth: “Dynamism” Matters

The search for the key determinants of growth is still ongoing, and the list of candidates is extensive (e.g., education, business environment, institutions). Among these factors, production sophistication is both a potential determinant of economic growth (Hausmann, Rodrik and Hwang 2007 and Cherif, Hasanov, and Wang 2018) as well as a likely factor in decreasing market inequality (Table 1). The level of production sophistication in an economy can be proxied by structural export sophistication (Cherif, Hasanov, and Wang 2018). Its evolution is associated with a dampening effect on market Gini. Figure 3 plots the scatter of the ratio of structural export sophistication between 1974 and 2014 and the average market inequality in 2010-2014, indicating the negative relationship.



The growth models of various countries may be key to understanding the evolution of market inequality. A higher pace of catching up could lead to a lower market income inequality than inequality resulting from a slower pace of catching up (everything else constant). Stagnation thus may lead to a much worse market inequality outcome compared to economic dynamism. And this stagnation of incomes may lead to other economic and social ills (Case and Deaton, 2020 and Galbraith 2020). Moreover, the sources of this dynamism or sustained growth matter. Higher export sophistication is associated with lower market Gini, and moving up the quality ladder and toward more sophisticated production may thus have a dampening effect on inequality. A larger industry share (as percent of GDP) is negatively associated with inequality and is one of the robust correlates of inequality (Furceri and Ostry 2019).

C. Dynamism: Sophistication, Creative Destruction, and Structural Transformation

There is a relationship between moving toward more sophistication and creative destruction. This is key to generating productivity gains and growth. Indeed, firms coming up with innovations would displace incumbents leading to a net gain for the economy in terms of productivity and employment (Aghion and Howitt 1992). In addition, moving toward more sophisticated sectors would produce a similar outcome. However, the impact on inequality and poverty would depend on the speed of the transition period and the safety nets in place. In the medium run, moving up the sophistication ladder would not only lift the incomes of the lower quintiles of income distribution but also put a lid on increasing market income inequality.

This relationship can be extended to the context of sophistication in developing economies (or underdeveloped regions of advanced ones). As more advanced technologies are introduced, some firms would cease to exist, while others would thrive. If it happens at the level of an entire sector, it would lead to structural transformation as it was the case during the industrial revolution. What is common to all the successful experiences of development is the disappearance of whole sectors of activities replaced by others at a relatively rapid pace. The study of the export structure of countries that witnessed high sustained growth reveals such a pattern (Cherif and Hasanov 2019). For example, Koreans moved from exporting rice and wigs to light manufacturing such as textile to cars and electronics within three decades. Taiwan Province of China went from exporting vegetables to sewing machines to electronics.

However, important questions remain as to the role of new firms vs. incumbents. First, while Schumpeter's idea was focused on the destruction of incumbent firms, the experience of the Asian miracles and Japan before them, shows us that incumbent firms can be themselves the vector of the transformation toward more sophisticated products and industries. Most of Korea's chaebols (and Japan's zaibatsu firms), or conglomerates, had existed for decades before their miraculous transformation. They were family-owned companies mostly focused on low-tech nontradable industries such as trading noodles (Samsung) or construction (Hyundai). However, they managed to move into much more sophisticated industries such as automotive, shipbuilding, chemicals and electronics relatively fast. In contrast, in Taiwan Province of China, electronics superstar firms such UMC and TSMC were born, or rather created by the state, in the 1970s (Cherif and Hasanov 2019, 2019b).

For a lack of a more precise term, *dynamism*, a rapid and massive “creative destruction” of activities toward more sophisticated products and sectors, changing the industrial structure of economy, has likely been behind high sustained growth. This process is driven by innovative firms behind Schumpeterian “creative destruction” (Aghion and Howitt 1992). This is also illustrated by the importance of constantly entering new activities to take advantage of the steep learning curve to sustain aggregate growth in the presence of learning-by-doing with decreasing marginal productivity gains (Lucas 1993).

III. IN PURSUIT OF A BETTER GROWTH MODEL FOR INCLUSIVE GROWTH

The growth model that is likely to produce the most inclusive growth would exhibit dynamism—a drive toward more sophistication. We first argue that growth models deprived of this type of dynamism, typically natural resource or low-skilled industry dependent

economies would fail to deliver high sustained broad-based growth and might increase inequality. We then attempt to identify the mechanism at work relying on the contrast between dynamic and non-dynamic growth models.

The alternative growth models to a dynamic one may provide growth spurts for a period of time but may not be sustainable over long periods of time. A growth model based on an expansion of exports of commodities such as oil or copper, or agricultural products such as soy or wheat could under some conditions yield sustained growth. But this type of growth would only be possible if a large endowment in natural resources exists and the relative price of these commodities is favorable. In fact, in many high-income natural resource exporters productivity growth has been stagnant or negative, resulting in declining relative income over time (Cherif, Hasanov, and Zhu 2016).

The growth model based on commodity exports may not lead to lower market income inequality. Higher terms of trade could create temporary growth spells and increased economic activity in nontradable sectors, keeping a lid on market inequality. Natural resource rents could also result in a large increase of the public sector. However, these growth spells are not long-lived. In addition, in the absence of a strong taxation policy of natural resources and redistribution, an increase in disposable income inequality is very likely. Typically, natural resource or commodity exploitation is concentrated among few corporations, or perhaps a group of large landowners, with little backward linkages with the rest of the economy, suggesting that the large revenues generated would be concentrated in a small fraction of the labor force. In addition, low-income agricultural producers with large parts of the population in subsistence farming may have low market Gini inequality, but this is misleading—with a low average income in the bottom income quintiles, or high poverty rates, inclusive growth is far from being achieved.

The global coronavirus pandemic of 2020 has further shown the vulnerability arising for many developing countries that have undiversified industrial and export structures such as high dependence on commodity exports and tourism. As global trade declined and economies went into recessions with lockdowns, travel restrictions, and social distancing, commodity prices collapsed, and tourism revenues dried up. The resulting economic fallout has disproportionately affected the bottom income quintiles that worked in service industries such as restaurants, hotels, transportation, and retail that to a large extent could not be moved to work from home. Only sophisticated services and high-skilled work have suffered less. Even manufacturing industries have been operating at a higher risk to their low-income “essential” employees. The external shock of the pandemic with its negative impact on inclusive growth has highlighted the importance of diversification of the industrial structure.

The growth model based on sophisticated production rather than commodity extraction or low-skilled services should affect inclusive growth in a positive and sustained manner. It should provide not only growth benefits over long time but also opportunities for workers and firms to move up the production ladder and skillset. The structural transformation experiences of East Asia (Diao, McMillan, and Rodrik 2017), entailing an entry into more sophisticated industries, especially manufacturing, resulted in an expansion of relatively high-paying jobs. Maintaining a high level of competition on foreign and domestic markets gave the incentive

for firms to keep investing and innovating while preventing market power from reaching levels that could have triggered a rapid increase in income inequality.

The emphasis on moving into more sophisticated industries implies that creative destruction is at work. The transformation of the export structure of the best performing countries in terms of sustained growth illustrates this point well. The Asian miracles, for example, had still exported commodities and low-skilled manufacturing goods such as textiles and footwear, well into the early 1990s but have been slowly advancing into more sophisticated sectors. Subsequently, these low-skilled exports disappeared relatively swiftly while automotive and electronics exports surged. Meanwhile, real wages were increasing steadily reflecting the moving up on the quality ladder. In more recent growth success stories such as China, a similar process has been at work with a rapid transformation of exports, from crude oil to textile to electronics in parallel with a rise in real wages. In contrast, most low and middle-income countries in a state of “snail crawl” growth have had a stable export and tradable production structure, mostly in commodities, for decades (McMillan and Rodrik 2011, Diao, McMillan, and Rodrik 2017) while real wages have not grown much. The translation of high sustained growth into real wage growth for many workers is key to keeping a lid on inequality as a country gets richer.

The extent of the technological leap to sophisticated industries early on and the extent of the technology creation by domestic firms would determine how high and sustained growth could be. Many middle-income countries relying on foreign direct investment like Thailand and Malaysia, have not produced homegrown technology, delaying their escape from the “middle-income trap” and progress toward high-income status (Cherif and Hasanov 2019b). In contrast, the Asian miracles have relied heavily on supporting manufacturing and innovation early on, moving into sophisticated sectors with continuous “creative destruction,” and creating homegrown technology, that helped them reach high-income status within a few decades (Cherif and Hasanov 2019). The features of their growth model created growth opportunities for both workers and firms—promoting fair and inclusive markets.

The production of sophisticated products and continuous creative destruction would be conducive to high productivity gains, spillovers and linkages and thus more opportunities for firms and workers, better jobs, and high wages. Sustained productivity gains can be generated by the introduction of new goods/sectors, development of new technologies, and quality upgrading. The new goods and technologies would also increase the scope of the goods produced and further support productivity growth. Sophisticated sectors with linkages and spillovers are more likely to be conducive to new technologies and sustained productivity gains than other sectors. These sectors, especially in manufacturing, tend to have a high content of intermediate goods to create backward linkages in the production process. The spillovers and high linkages could result in agglomeration effects and clusters feeding back into productivity gains. And these sectors tend to be the tradable sectors. Herrendorf and Valentinyi (2012) show that aggregate TFP differences across countries are largely driven by productivity differences in the tradable sector, especially in tradable investment goods such as machinery and equipment. Productivity gains, linkages and spillovers, and agglomeration and clusters should support high sustained employment and good high-paying jobs, which are key elements of inclusive growth.

Less sophisticated sectors, in contrast, may not be as conducive to good jobs and high wages as sophisticated industries. For instance, developing a tourism industry by building the necessary infrastructure such as hotels, roads, restaurants, sightseeing places, etc. could produce some export of services, productivity gains, and inclusive growth. It has spillovers mostly to the nontradable sector. Yet whether it could be sustained for a long time is less likely since tourism activities are not conducive to the introduction of new goods and development of new technologies. Although tourism activities are labor-intensive and low-skilled and provide employment for many workers, they are not paying high wages and do not provide a lot of opportunities for advancement, learning on the job, and specialization (Cherif, Hasanov, and Zhu 2016). Sustained growth may also require an ever-increasing flow of tourists, which would put a strain on public services and infrastructure and more important on the environment. Eventually, there is a physical limit on the number of tourists a country can receive. In the long run, the economy is likely to stagnate, negatively affecting not only low-income workers but also overall market inequality. The global 2020 pandemic shock has illustrated the fragility of this model as many countries that relied on tourism have suffered substantially in terms of tourism-related jobs and increased poverty.

The sophisticated industries are mostly in manufacturing and high-skill services, which tend to benefit economies that enter these sectors and keep innovating. Cherif and Hasanov (2019) measure sophistication using R&D intensity. According to this measure, the “sophisticated” sectors are computer/electronic/optical products, pharmaceuticals, transport equipment, motor vehicles, information technology services, electrical equipment, machinery and equipment, chemicals, and scientific/professional/technical services. To a large extent, firms from advanced economies produce in these sectors, giving these firms and economies an advantage in terms of innovation, productivity growth, and high-paying jobs. In developing and emerging countries, except a few countries like China and a few East Asian economies, manufacturing shares are small and premature deindustrialization (Rodrik 2016) has taken hold. In addition, the share of informal economy is large, on average about 40 percent in low-income countries, as measured by Medina and Schneider (2018), and about 30 percent in emerging markets, further restraining the growth of sophisticated sectors, social mobility, and good jobs.

The sophisticated sectors command a high wage premium. These sectors broadly provide good jobs and high wages. Clearly, they require high skills and higher education. However, in many manufacturing sectors, specialized skills are acquired on the job and in many cases, do not require higher education. Even after controlling for skills, compensation (wages and benefits) premium in manufacturing is higher than in other sectors (Mishel 2018). The premium is about 13 percent in the U.S. in the 2010s but has declined since the 1980s from about 17 percent as outsourcing has eroded many jobs. Manufacturing jobs essentially act as transformers of skills, taking many low-skilled entrants and making them into specialized high-skilled workers while paying good salaries. Salvatori and Falco (2017) indicate that about one-third of the reduction in the middle-skilled jobs’ share in OECD countries is due to the decline in manufacturing. In addition, low-skilled workers benefit substantially more in innovative firms than other firms (Aghion et al, 2019b), and more of these types of firms in the economy could help reduce inequality.

Creative destruction may also increase social mobility. Aghion et al (2016) argue that although innovation by incumbents and entrants increases top income inequality, innovation by entrants increases social mobility. Higher innovation increases the entrepreneurial share of income, and new firms and employees not only provide more opportunities to be future business owners but also create role models to follow. They confirm in the cross-state and commuting zone data in the U.S. that innovation is positively related with top income inequality (1 percent) but has negative or no relationship with the broad measure of inequality like the Gini coefficient. More important, the authors find that creative destruction, or innovation by entrants, makes growth more inclusive and increases social mobility.

Overall, a growth model based on sophisticated sectors or moving toward those sectors implies continuous creative destruction and innovation-based strategies that lead to a more inclusive market outcome. The innovation-based model in turn requires high R&D spending. The business R&D data from top innovation nations show R&D spending is mostly driven by large domestic firms in high-tech areas, mostly manufacturing (Cherif and Hasanov 2019). Big firms and firms in manufacturing tend to generate good and high-paying jobs. However, a large industry concentration of big firms may also create potential barriers to entry and the rising market power. Strong competition and low barriers to entry are important to keep innovation and growth on a sustained trajectory.

The slower pace of creative destruction observed in recent years in advanced countries may have large negative implications for both sustained and inclusive growth. Aghion and coauthors (2019) show that advances in ICT have created ample opportunities for firms to venture into new markets, become big, and gain market power, initially creating a burst of growth but eventually resulting in growth slowdown and higher rents. This has negative impact on market inequality and inclusive growth. Akcigit and Ates (2019) further show that declining business dynamism and rising market power and rents stem from the decline in knowledge diffusion from frontier to laggard firms.

IV. HOW TO PROMOTE DYNAMISM

We posit that the type of inclusive dynamism needed would derive from balancing three types of policies. A first set of policies represent state interventions aiming at channeling resources toward more sophistication within sectors as well as structural transformation and promoting innovation. The second set is related to enforcing competition. The last set of policies is to encourage technology diffusion.

The decline in knowledge diffusion, slower creative destruction, and moving up the quality ladder into sophisticated industries require policy intervention. Horizontal policies, or those that improve education, infrastructure, business environment, and regulations, are important but are not sufficient. Many of these policies tackle what is known as “government failures,” (Rodrik 2005) that do not correct many “market failures” such as externalities (e.g., learning-by-doing, climate change, and technology development), informational asymmetries, and coordination failures. Fixing these failures necessitates the state intervention to help develop sophisticated industries while providing an accountability framework for firms receiving support. This type of intervention would involve vertical, or industrial, policies (Cherif and Hasanov 2019).

Although many growth policies such as improving education and infrastructure would also support inclusive growth, industrial policies to promote sophisticated industries may be needed. In developing countries, support for the right institutional framework is crucial so that regulatory capture and corruption could be avoided. Exports could act as a signaling device for the provision of support. Import-substitution policies as illustrated in many past failed cases in Latin America and the Middle East should be discouraged. Fiscal instruments such as investment support and credit policy could be powerful tools for businesses. Skill training for workers is important, while R&D support, university research, national labs, and industry clusters could also be promoted. Development banks, venture capital, and export and investment promotion agencies have their role to play in this process. Developing purpose-specific skills and infrastructure for select industries, while laying out an accountability framework with export market signals, would help countries bridge the knowledge gap, advance the technological frontier, and move the economic structure toward sophisticated products (Cherif, Hasanov, and Zhu 2016 and Aghion 2016). This industrial structure would not only support high sustained growth but also lift incomes of the bottom quintiles, help create good jobs, and keep a lid on market inequality.

The trade-off between the benefits and costs of state intervention suggests that the way the state intervenes in the economy is crucial. This intervention needs to be cognizant of exacerbating government failures such as rent-seeking and corruption, or “doing no harm.” The institutional framework of planning agencies and clear goals set by policymakers together with competition on both domestic and international markets could mitigate potential problems.

A. Competition, Market Power, and Innovation

As one of the principles of “True Industrial Policy” (TIP), competition is one of the key elements needed to support high sustained growth (Cherif and Hasanov 2019), which is an important precursor for inclusive growth. Competition can affect income and productivity growth through its effect on the economic or production structure of the economy as well as incentives to invest and innovate. It can also mitigate potential capture by firms supporting accountability of firms receiving state support. More important, by keeping entry barriers low, competition can affect the bargaining power of workers in the labor market as well as of firms in the supply chain and lead to a more equitable distribution of market income.

Both international and domestic competition is key to promoting inclusive growth. Export orientation helps firms compete globally against the frontier multinational firms and provides a market signal for the state support received while ensuring accountability and minimizing corruption (Cherif and Hasanov 2019). Domestic competition supports the growth and health of the industry while bets on any particular firm are no longer required, especially when the state support is involved. That is, it is not about picking winners; rather, it is about supporting the growth of industries. In addition, state support is more likely to be more beneficial in more competitive industries than less competitive ones (Aghion et al, 2012). Although Schumpeterian growth paradigm argues that too much competition may deter innovation as firms give up on catching up (Aghion et al, 2005), it calls for the right design of the intellectual property system that is neither too generous nor too restrictive. There is more to lose from less competition than from more competition as state could provide enough incentives to innovate in case firms “give up” on innovating.

In fact, state support for firms is more beneficial for innovation and growth in more competitive sectors. Aghion and coauthors (2012) develop a simple model showing that targeted subsidies can be used to induce several firms to operate in the same sector, and that the more competitive the sector is, the more it will induce firms to innovate in order to “escape competition” (Aghion et al, 2005). Of course, a lot depends upon the design of industrial policy. Such policy should target sectors, not particular firms. Using Chinese firm-level panel data, Aghion et al (2012) look at the interaction between state subsidies to a sector and the level of product market competition in that sector. They show that TFP, TFP growth, and product innovation (defined as the ratio between output value generated by new products to total output value) are all positively correlated with the interaction between state aid to the sector and market competition in the sector. In other words, the more competitive the recipient sector is, the more positive the effects of targeted state subsidies to that sector are. In fact, for sectors with low degree of competition the effects are negative, whereas the effects become positive in sectors with sufficiently high degree of competition. Finally, the interaction between state aid and product market competition in the sector is more positive when state aid is less concentrated.

High concentration observed in many industries does not necessarily imply low competition (Syverson 2019). The “escape competition” effect for the risk taken by innovators could justify extracting monopoly rents for some time (Aghion et al, 2005). In this vein, high concentration may imply “contestable” markets in which firms compete vigorously with each other. The rise of Big Firms, including Big Tech, could be thus due to the innovations and large investments in information technologies and the “winner-take-all” paradigm. The fierce competition should imply that the innovative firms are investing and innovating substantially, while other firms would either follow suit to catch up or give up. Alternatively, once becoming big, the firms could erect barriers to entry making it harder for other firms to catch up (Philippon 2019). At the aggregate level, productivity and investment rates could potentially rise or fall.

Yet the rise of market concentration could very well imply a rise in market power due to higher barriers to entry. The empirical evidence suggests that business dynamism has been on a decline in many countries with negative macroeconomic implications (Akcigit and Ates 2019, Baker 2019). This rise in market power may stifle innovation and thus sustained and inclusive growth. Even though big firms tend to pay well, eventually in the aggregate many may lose out as many firms cannot enter industries and workers cannot get good jobs. This behavior is even starker in developing countries, in which large conglomerates with high barriers to entry control the market in mostly non-tradable sectors such as communications, banking, and construction. They may also be import monopolies further aggravating competition and increasing prices, especially input prices. Many of these firms that benefit from high barriers to entry, whether as part of import-substitution industrialization or as implicit monopolies, have no competition and no incentives to invest and innovate. The wealthy tycoons of these big firms (Freund and Oliver 2016) combined with low wages (and high relative prices of goods and services) for most workers largely exacerbate market inequality.

Although some big firms could wield market power by erecting barriers to entry, other firms become big to reap economies of scale, absorb frontier technology and managerial practices, and compete on international markets to provide good jobs and create productivity gains (Chandler 1990, Freund and others 2016, and Cherif and Hasanov 2019). For instance, Korea's Samsung and Hyundai have become large and profitable conglomerates due to fierce international competition in sophisticated sectors. Employing a significant share of skilled and low-skilled Korean workers at relatively high wages, they have contributed not only to sustained growth but also inclusiveness. More important, representing more than a third of total country's exports, these export powerhouses continuously innovate and create productivity gains with spillovers to other sectors of the economy, raising living standards across all sectors, as Balassa-Samuelson effect would predict.

Barring big firms thriving under protectionism that need more competition, other types of big firms such as multinationals and large technology companies require a more careful approach. Whether more competition, stricter antitrust regulations such as breakup of big firms, or intellectual property regulations such as technology sharing, would need to be examined. More important, encouraging young and small firms to grow big is key to employment growth and absorption of new labor market entrants.

Even despite high concentration and contestability of markets, the "winner-take-all" paradigm or network effects that make firms big such as the Big Tech, may not necessarily result in optimal outcomes across all dimensions. Indeed, certain services could be relatively cheap and even workers could be paid relatively better. Median wages in the top technology companies such as Google and Facebook are more than four times the average wage in the same sector in the U.S. (Autor and others 2017 and Gutierrez and Philippon 2017) that could potentially drive the wage inequality across firms. In addition, in aggregate, other firms, workers, and consumers could lose substantially. In the case of Big Tech, it could be privacy concerns. In other cases, in Amazon and Walmart or other big wholesale and retail chains, it could be supply chain relations. Other firms and thus their workers could be worse off due to monopsony relations with the big buyer of their goods or services or with the digital platform/marketplace owner. All the producer surplus of supply firms would be effectively absorbed by the big firm. These could still constitute "rents" or supernormal returns despite relatively competitive markets. In addition, the buyouts of potential competitors early on, which Big Tech firms have been doing, could also suggest of invisible barriers to entry that could stifle innovation, competition, and eventually growth and inequality.

More important, the rise of the Big Firms could create political influence, lobbying, and "oligarchy." The antitrust regulations of the early 20th century U.S. recognized this potential menace and the breakup of big firms in oil, steel, communications, and other industries followed (Lamoureaux 2019). Big firms may exert influence that many smaller firms would not be able to achieve. With this influence, it is not only competition that would suffer with erected barriers to entry, but also political outcomes could be tilted toward a richer class. The creation of oligarchy is what the antitrust regulators were concerned about. The implications on inclusive growth are thus profound creating a two-tiered society, the left behind, and social unrest. Even in the mid-20th century, Galbraith (1967) argued that the big firms and multinationals were becoming the new power structure in pursuit of "immortality" for a

continuous stream of large rents and earnings. This is even more prevalent in developing countries with tycoons, oligarchs and big firms (Freund and Oliver 2016).

B. Competition Policy to Spur Dynamism

Spurring a dynamic private sector requires both the market and the state. The focus on long term goals and on stakeholders rather than only shareholders requires a change in company practices. It is about a pursuit of not only profits, as Milton Friedman advocated, but also welfare of workers, suppliers, community, and society at large. The short-termism of companies in the recent past despite creating large stock market gains in many countries have only intensified the negative impact on market inequality and the income growth of the lower quintiles of the income distribution. In this regard, the state with its powers needs a clear framework, including the development of antitrust laws, setting up independent and well-functioning institutions, and promoting a fair judiciary system. The adoption of competition laws and the establishment of competition agencies, although important, is not sufficient. The intensity of competition in many developing countries remains significantly lower than in emerging and developed economies (IMF 2019a, 2019b).

The existence of competition policy, market liberalization, and firm privatizations do not necessarily imply stronger and fairer competition. Liberalizations and privatizations may result in less competition and monopolies, especially in weaker institutional environments. This calls for stronger competition authorities that are well-funded, staffed with competent civil servants, and are autonomous. In addition, the objectives of competition policy need to be revamped. It is not only prices and existing markets with a view of improving only consumer welfare (Phillips Sawyer 2019) that should drive antitrust and competition policies. Low prices and free services, as illustrated in the cases of the Big Tech or big retail firms, may not portray the aggregate picture of everyone in the economy better off. Rather, a more comprehensive approach examining workers, suppliers, innovation and missing markets, and even political influence (Khan and Vaheesan 2017) is needed. A focus on inequality could also be made explicit in antitrust regulations (Baker and Salop 2015).

A focus on big firms' conduct toward competitors with a ban on anticompetitive or exclusionary practices is needed to have sufficient competition to support innovation and growth while not unduly restraining big firms and the advantages of bigness. Although too much competition in its potential to erode monopoly rents could reduce competition (Aghion and others 2005), the argument is about perfect competition. Intellectual property regimes in fact may be too generous today than in the past granting too much monopoly rents. In natural monopoly sectors like utilities, the competition policy calls for clear regulation on pricing, investment, and rate of returns. Even during the WWII when private firms were given government contracts to build airplanes, tanks, and ammunition, rates of return were capped at a single rate. Even when a breakup of big firms is not clear due to network effects such as the Big Tech, it is clear that a merger and acquisition policy or practices against potential barriers to entry need to be in place.

The case of AT&T and Bell Labs illustrates the importance of antitrust and competition policy to spur technology diffusion and indicate a potential approach for dealing with Big Firms. In the early 20th century, AT&T established Bell Labs to conduct its R&D in communication technology to showcase its contribution to society and avoid antitrust actions. In 1958, the

U.S. government passed an antitrust decision for a free access to Bell Labs' existing patents for all national companies and an access to future patents for only a small license fee. The antitrust policy of the time created a pressure for AT&T to engage in significant R&D at Bell Labs. This decision had a sizable effect on innovation in the U.S. (Fackler and others 2017). It accelerated the diffusion of the technologies to the rest of the economy, contributing to the creation of new sophisticated sectors and good-paying jobs.

V. CONCLUSION

Dynamic economies are more likely to achieve high sustained growth, which is key for poverty alleviation, as well as better outcomes in terms of market inequality. Both industrial and market structures affect inclusive growth and market inequality. Moving toward sophisticated sectors with continuous creative destruction while curbing market power and supporting competition require state intervention. Policy advice to only fix government failures may not be sufficient to improve industrial structure and promote diversification and innovation. Moreover, to deal with market power, the focus on standard competition policy as it relates to the impact on consumers may not be sufficient, either. There is a role for industrial, or diversification, policy to achieve better industrial structure such as competition through export orientation and innovation. The role of large and incumbent firms in creating dynamic economies is yet to be fully explored. Moreover, how in practice policies promote entry into new and risky sectors while preserving competition is yet to be examined.

There is also a role for a revamped competition policy to further limit market power and keep barriers to entry low. This policy could go beyond a simple metric of low prices and consumer welfare to include the impact on workers, suppliers, and innovation and inequality. To encourage innovation and creative destruction, the competition policy needs to focus on technology creation and diffusion. The case of Bell Labs illustrates this point vividly and suggests an avenue for dealing with the Big Tech. A policy that would encourage Big Firms to set up industrial research labs, allowing all domestic firms to access the technologies produced in exchange for a relatively small license fee, could be very beneficial. The associated technology creation and diffusion could help revive dynamism and in turn mitigate the rise of inequality as recently witnessed by many countries.

REFERENCES

- Aghion, Philippe. 2016. "Aghion, Philippe. 2016. "Growth Policy Design for Middle-Income Countries." In Cherif, Reda, Fuad Hasanov, and Min Zhu (editors), *Breaking the Oil Spell: The Gulf Falcons' Path to Diversification*. Washington, DC: International Monetary Fund Press.
- Aghion, Philippe, Ufuk Akcigit, Antonin Bergeaud, Richard Blundell, and David Hemous. 2016. "Innovation and Top Income Inequality." Working paper.
- Aghion, Philippe, Antonin Bergeaud, Timo Boppart, Peter J. Klenow, Huiyu Li. 2019. "A Theory of Falling Growth and Rising Rents." Working paper.
- Aghion, Philippe, Antonin Bergeaud, Richard Blundell, and Rachel Griffith. 2019b. "The Innovation Premium to Soft Skills in Low-skilled Occupations," working paper, Collège de France.
- Aghion, Philippe, Nicholas Bloom, Richard Blundell, Rachel Griffith, and Peter Howitt. 2005. "Competition and Innovation: An Inverted U Relationship." *Quarterly Journal of Economics* 120(2), May: 701–728.
- Aghion, Philippe, Mathias Dewatripont, Luosha Du, Ann Harrison, and Patrick Legros. 2012. NBER Working Paper No. 18048, May.
- Aghion, Philippe and Peter Howitt. 1992. "A Model of Growth Through Creative Destruction." *Econometrica* 60: 323–51.
- Akcigit, Ufuk and Sina Ates. 2019. "Ten Facts on Declining Business Dynamism and Lessons from Endogenous Growth Theory." Working paper.
- Ang, Yuen Yuen. 2019. "Missing the Big Picture on Poverty Reduction." *Project Syndicate*. November 13. Available: <https://www.project-syndicate.org/commentary/china-poverty-reduction-reinforces-rct-doubts-by-yuen-yuen-ang-2019-11>.
- Autor, David, David Dorn, Lawrence F. Katz, Christina Patterson, and John Van Reenen. 2017. "Concentrating on the Fall of the Labor Share," *American Economic Review* 107(5), May: 180-185.
- Baker, Jonathan B. and Steven C. Salop. 2015. "Antitrust, Competition Policy, and Inequality." Georgetown Law Faculty Publications and Other Works, 1462.
- Baker, Jonathan B. 2019. *The Anti-Trust Paradigm*. Harvard University Press.
- Case, Anne and Angus Deaton. 2020. *Deaths of Despair and the Future of Capitalism*. Princeton University Press.
- Chandler, Alfred D., Jr. 1990. *Scale and Scope: The Dynamics of Industrial Capitalism*. Belknap Press, Cambridge.

Cherif, Reda, Fuad Hasanov, and Min Zhu (eds). 2016. *Breaking the Oil Spell: The Gulf Falcons' Path to Diversification*. Washington, DC: International Monetary Fund Press.

Cherif, Reda and Fuad Hasanov. 2019. "The Return of the Policy that Shall Not Be Named: Principles of Industrial Policy." IMF Working Paper 19/74.

Cherif, Reda and Fuad Hasanov. 2019b. "The Leap of the Tiger: Escaping the Middle-Income Trap to the Technological Frontier." *Global Policy* 10(4), November: 497-511.

Cherif, Reda, Fuad Hasanov, and Lichen Wang. 2018. "Sharp Instrument: A Stab at Identifying the Causes of Economic Growth." IMF Working Paper 18/117.

Cherif, Reda, Marc Engher, and Fuad Hasanov. 2020. "Crouching Beliefs, Hidden Biases: The Rise and Fall of Growth Narratives." IMF Working Paper 20/228.

Diao, Xinshen, Margaret McMillan, and Dani Rodrik. 2017. "The Recent Growth Boom in Developing Economies: A Structural Change Perspective." NBER Working Paper No. 23132.

Dollar, David, Tatjana Kleineberg, and Aart Kraay. 2013. "Growth Still is Good for the Poor." World Bank Policy Research Working Paper 6568.

Fackler, Thomas A., Markus Nagler, and Monika Schnitzer, Martin Watzinger. 2017. "How Antitrust Enforcement Can Spur Innovation: Bell Labs and the 1956 Consent Decree," CEPR Discussion Papers 11793, C.E.P.R. Discussion Papers.

Feenstra, Robert C., Robert Inklaar, and Marcel P. Timmer. 2015. "The Next Generation of the Penn World Table." *American Economic Review* 105(10): 3150-3182. Available: www.ggdc.net/pwt.

Freund, Caroline and Sarah Oliver. 2016. *Rich People Poor Countries: The Rise of Emerging-Market Tycoons and their Mega Firms*. Peterson Institute Press: All Books, Peterson Institute for International Economics, 7038, July.

Freund, Caroline and Martha Denisse Pierola, 2016. "The Origins and Dynamics of Export Superstars," Working Paper Series WP16-11, Peterson Institute for International Economics.

Furceri, Davide and Jonathan D. Ostry. 2019. "Robust Determinants of Income Inequality." *Oxford Review of Economic Policy* 35(3): 490–517.

Galbraith, John. 1967. *The New Industrial State*. Princeton University Press.

Galbraith, James. 2020. "The Roots of American Misery." Project Syndicate. September 18. Available: <https://www.project-syndicate.org/onpoint/why-america-is-miserable-by-james-k-galbraith-2020-09>.

Gutiérrez, Germán and Thomas Philippon. 2017. “Declining Competition and Investment in the U.S.” NBER Working Papers 23583, National Bureau of Economic Research, Inc.

Herrendorf, Berthold and Akos Valentinyi. 2012. “Which Sectors Make Poor Countries So Unproductive?” *Journal of the European Economic Association* 10(2): 323–41.

IMF. 2019a. “Competition, Competitiveness, and Growth in Sub-Saharan Africa.” *Sub-Saharan Africa Regional Economic Outlook*, October. Washington, D.C.

IMF. 2019b. “The Rise of Corporate Market Power and Its Macroeconomic Effects.” *World Economic Outlook*, April. Washington, D.C.

Khan, Lina and Sandeep Vaheesan. 2017. “Market Power and Inequality: The Antitrust Counterrevolution and its Discontents.” *Harvard Law & Policy Review* 235.

Lamoreaux, Naomi R. 2019. “The Problem of Bigness: From Standard Oil to Google.” *Journal of Economic Perspectives* 33(3): 94-117.

Lucas, Robert Jr., 1993. “Making a Miracle,” *Econometrica* 61(2), March: 251–72.

Matsuyama, Kiminori. 1992. “Agricultural Productivity, Comparative Advantage, and Economic Growth.” *Journal of Economic Theory* 58(2): 317-334.

McMillan, M., and D. Rodrik. 2011. “Globalization, Structural Change, and Productivity Growth.” NBER Working Paper 17143.

Medina, Leandro and Friedrich Schneider. 2018. “Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?” IMF Working Paper 18/17.

Mishel, Lawrence. 2018. “Yes, Manufacturing Still Provides a Pay Advantage, But Staffing Firm Outsourcing is Eroding It.” Economic Policy Institute, Report.

Philippon, Thomas. 2019. *The Great Reversal: How America Gave Up on Free Markets*. Belknap Press.

Phillips Sawyer, Laura. 2019. “U.S. Antitrust Law and Policy in Historical Perspective.” Harvard Business School Working Paper, No. 19-110, May.

Rodrik, Dani. 2005. “Growth Strategies,” in Philippe Aghion & Steven Durlauf (ed.), *Handbook of Economic Growth*, edition 1, volume 1, chapter 14, Oxford: Elsevier, 967–1014.

Rodrik, Dani. 2016. “Premature Deindustrialization,” *Journal of Economic Growth* 21(1), pp.1–33.

Salvatori, Andrea, and Paolo Falco. 2017. “Poles Apart? How Technology & Globalisation Have Affected the Global Workforce.” OECD Forum Network. September 5. Available: <https://www.oecd-forum.org/users/62601-andrea-salvatori-and-paolo-falco/posts/19894-poles-apart-how-technology-globalisation-have-affected-the-global-workforce>.

Syverson, Chad. 2019. "Macroeconomics and Market Power: Context, Implications, and Open Questions," *Journal of Economic Perspectives* 33(3), Summer: 23-43.

Sala-i-Martin, Xavier. 2006. "The World Distribution of Income: Falling Poverty and Convergence, Period," *The Quarterly Journal of Economics* 121(2): 351-397.

Solt, Frederick. 2019. "Measuring Income Inequality Across Countries and Over Time: The Standardized World Income Inequality Database." SWIID Version 8.2, November.

Yang, Yao. 2019. "The Open Secret of Development Economics." *Project Syndicate*. October 22. Available: <https://www.project-syndicate.org/commentary/development-economics-nobel-open-secret-by-yao-yang-2019-10>.