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Special Invited Lecture

The Geopolitics of Peace in a Post-Western World

PROF. JEFFREY SACHS

INTERNATIONAL RELATIONS AS A PRESCRIPTION FOR PEACE

We are in the midst of an extraordinarily dangerous and destructive hot war in Ukraine, and there is now daily talk about the prospects of a US-China war in Asia, perhaps over Taiwan. Such an expanded war is too horrific to contemplate, and yet it has become the casual discourse of US op-ed columns almost daily. The people who write these columns are not thinking straight, are not knowledgeable, and indeed are utterly irresponsible. We cannot afford a continuation of the current war, and we cannot afford a war between the US and China. That would be the end of civilisation.

There is also the idea that the Ukraine war will not spiral into a nuclear war. The English-speaking media, especially in the UK and the US, tells us not to worry, and that it is unlikely that Putin will use nuclear weapons. The media tell us not to be afraid. Let me tell you: Be afraid.

The world is not in safe hands right now. The governments in the United States, here in the UK, and around the world, are truly dangerous to our health and wellbeing. It is our responsibility to think clearly because our lives depend on it.

I have been thinking a lot about the Ukraine war, and I am very concerned. This is a war that is extraordinarily dangerous and should never have happened (see the Addendum). This is not simply a war that Putin decided to launch, unprovoked, on February 24, 2022. That is nonsense for anyone who has been around. I was an adviser to President Mikhail Gorbachev; I was advisor to President Boris Yeltsin; I was advisor to President Leonid Kuchma, the first president of independent Ukraine; and to others. What you're being told about this conflict and others is simply not true. I say that based on first-hand experience of more than 30 years.

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Author's Note: I wish to thank the Oxford-Pakistan programme for the great honor of inviting me to give this year's Allama Iqbal lecture. I am very moved by the invitation and I want to thank everyone here for the chance to think together, reason together, question together, and brainstorm together on some of the truly challenging and sometimes frightening issues of our time. I am very grateful to students on campuses across Pakistan for joining us online. I hope that tonight's lecture will be the beginning of ongoing discussions with young people on these issues, because you will very soon be the leaders of this world. You are going to receive the world in a very fragile condition. The world will need your wisdom, cooperation, and collaboration to salvage the transcendent human values to which Allama Iqbal aspired.

We're here this evening to reflect on international relations. Geopolitics is part of the field of international relations, or IR. International relations theory studies the interaction of states, especially regarding war and peace. There are many sound and good ideas in IR theory, but I want to make a basic proposition. International relations theory should involve not only a *description* of the causes of war, or a *prediction* of future wars, but also a *prescription* of the pathways to peace. International relations theory should be normative, that is, a healing field, not only a positive field aiming for description and prediction.

It is not good enough for IR to explain wars. We don't have medical schools merely to explain diseases; we have medical schools to cure diseases. We don't have schools of public health merely to explain epidemics; we have schools of public health to prevent and control epidemics. These disciplines, as well as economics and international relations, should be moral disciplines, in the sense that they should aim to improve the world, not merely to explain or predict it. The field of IR, in particular, should be a field to prevent and end wars.

President John F. Kennedy, the greatest US president of my lifetime, said a very important thing in his Inaugural Address (January 20, 1961) that we should keep in mind. He eloquently and succinctly described the existential reality of our time, declaring, "The world is very different now. For man holds in his mortal hands the power to abolish all forms of human poverty and all forms of human life." This truth remains our overwhelming and existential reality. We have technologies now that are so remarkable that if we put our mind to it, we can end poverty; education can be made accessible to every child in the world; and healthcare coverage can reach every person. We can provide every young person with the tools for a productive life. All of this is within reach in a very practical and affordable sense.

Yet the same powerful technologies, the same breakthroughs in semiconductors and atomic physics and other areas that enable us to end poverty, also make it possible to deploy thermonuclear weapons that can end humanity, or that power the massive destruction of the physical environment and climate system on which global civilisation depends.

Kennedy came into his presidency more sensitive to the opportunities and perils of technology than any president of modern history, yet he nearly stumbled into full-scale nuclear war during the Cuban Missile Crisis in October 1962. This fact is very telling for us. The world is complicated, and even if a leader has great wisdom, blunders, lies, and political pressure can bring the world to the brink of destruction. Kennedy made terrible blunders in the first year of his government, especially in agreeing to the CIA-led invasion of Cuba (the so-called Bay of Pigs invasion). The subsequent reactions of Soviet Chairman Nikita Khrushchev, who thereafter placed offensive nuclear weapons in Cuba, brought the world to within a hair's breadth of nuclear war.

The Cuban Missile Crisis, sixty years ago, shows us vividly how dangerous our world really is.¹ If you are not afraid, you are not getting it. We need to pull back from the brink of nuclear war in the ways that I am going to speak about this evening.

¹ The most remarkable, accurate, and chilling account of the Cuban Missile Crisis is in Martin Sherwin's book, *Gambling with Armageddon* (2020).

A CHALLENGE TO THE INEVITABLE TRAGEDY OF GREAT POWER POLITICS

John J. Mearsheimer, a learned and distinguished professor at the University of Chicago, has written one of the most powerful books of international relations of our time, *The Tragedy of Great Power Politics* (2001). In recent years, he has also been one of the wisest scholars explaining how the Ukraine War needlessly emerged in no small part through the provocations of the United States. *The Tragedy of Great Power Politics* is one of the most important books of recent decades, yet it does not meet the standard that I have set for international relations: to be a moral field.

Mearsheimer's book is powerfully descriptive. It talks about the tragedy of great power politics and the unnecessary, tragic, and devastating wars that we therefore fight. Mearsheimer writes that tragedy is an inevitable fact of life of great power politics, yet I do not believe that we can afford to accept tragedy as our fate, especially in the existential conditions that John F. Kennedy described.

Tragedy in the past meant World War I or World War II; tragedy in the future could well mean the end of the world because our modern technologies, especially nuclear weapons, make possible the destruction of the world at human hands. We cannot accept the tragedy of great power politics as the conclusion of international relations. We should view the tragedy of great power politics as the starting point of international relations, because we need to find a solution to the tragedy. We need great power peace, not great power tragedy.

The words Mearsheimer wrote in 2001 are very powerful: "The sad fact is that international politics has always been a ruthless and dangerous business, and it is likely to remain that way. Although the intensity of their competition waxes and wanes, great powers fear each other and always compete with each other for power. The overriding goal of each state is to maximise its share of world power, which means gaining power at the expense of other states. But great powers do not merely strive to be the strongest of all the great powers, although that is a welcome outcome. Their ultimate aim is to be the hegemon—that is, the only great power in the system."

Mearsheimer argues that there are three features of the international system that lead to that. The first feature is the absence of central authority leading to international anarchy; in other words, the lack of a global Leviathan, in Hobbesian terms, leaving only anarchy at the top, with great powers thrusting for survival and dominance within that anarchic system. The second feature is that states have offensive military capability, so states must be aware that another state can launch a surprise attack, or first strike, which could potentially be devastating. And third, states can never be certain about the intentions of other states. Therefore, Mearsheimer argues, the best guarantee of survival is to be a hegemon because no other state can seriously threaten such a mighty power.

We can easily see the tragedy that results when all major powers try to be number one. The struggle to be the hegemon means endless strife, as it is impossible that every nation, or indeed any nation, achieves global hegemony. Since no state is likely to achieve global hegemony, the world is condemned to perpetual great power competition and repeated wars. That is *realism* in international relations theory, and there is nobody that has developed that theory more effectively and cogently than Mearsheimer.

Incidentally, Mearsheimer's powerful book was written two decades ago when the US had seemingly normal relations with China and with Russia. It seemed, at the time, to be an American-led world, with the US as the sole superpower. Nobody at the time was talking about great power tragedy. The concern was about terrorism, not great power conflict.

To his enormous descriptive and predictive credit, Mearsheimer presciently wrote that the period of calm would not last and that the world would return to a period of conflict. He correctly predicted that China's rise would lead to dire US-China tensions, and perhaps to outright conflict. His realist ideas proved to be powerful and predictive, yet also tragic. They are powerful, yet not powerful enough, because they do not give us the power to surmount the tragedy of great power politics.

I want to talk about peace as the avoidance of war. As a non-IR specialist and as an economist who has been engaged in global economic diplomacy for 40 years, I want to talk about international relations and war as I see it from my professional vantage point, while also acknowledging that I would like to see solutions emerging from the field of international relations as a prescriptive theory of peace.

THREE CATEGORIES OF WAR

We should start by differentiating the kinds of wars that we are aiming to avoid, because wars are not all in the same category, so there are also different kinds of peace that must be achieved. While all categorisations are oversimplifications, and my categories are surely oversimplifications, I believe that a three-way classification of war can be useful.

I distinguish three categories of war. The first kind are wars of empire or wars of plunder. The second kind is the great power conflicts. And the third kind of war is inter-ethnic conflicts, including many civil wars. I believe that these three distinctive categories require not only distinctive descriptive theories but also distinctive prescriptive approaches for stopping these wars.

What are wars of plunder? Wars of plunder include the British conquest of the Indian subcontinent; the European conquest of Africa at the end of the 19th century; and the United States' destruction of Native American nations, especially during the 19th century, which are a series of genocides that are not even recognised today as genocides because hegemonic powers don't have to explain their actions. History is written by the victors after all, especially when genocides lead to the destruction of whole nations. The United States killed, enslaved, and kept under apartheid millions of African Americans, Native Americans, and other racial and ethnic minorities. Such are wars of imperial plunder.

Great power wars are wars of hegemonic competition in Mearsheimer's sense. We can go back to the Peloponnesian Wars between Sparta and Athens from 431 to 404 BCE, or the wars between Persia and ancient Greece about which Herodotus wrote in *The Histories*. World War I and World War II are clearly great power conflicts. We must be clear that there are also *proxy wars* that function as hegemonic wars. For example, the Vietnam War was not really a war between the United States and North Vietnam, but between the United States and the communist world, especially the Soviet Union and China, with Vietnam (and Laos and Cambodia) as the battleground. Similarly, the Ukraine war is not mainly a war between Russia and Ukraine, despite what you read every day. It is primarily a war between Russia and the United States, and it needs to be understood in

those terms. (It is not even a war between Russia and NATO, since the US utterly dominates NATO in military, political, and economic terms.)

The great enthusiasm of the British press for the Ukraine war is mainly due to nostalgia for the Crimean War, another hegemonic war in which Britain and France fought Russia between 1853 and 1856. Former Prime Minister Boris Johnson surely saw himself as today's Lord Palmerston, the imperialist leader of Britain during the Crimean War, whose aim was to smash Russia, in part to prevent Russia from challenging Britain's imperial domination of South Asia.

The third type of war is inter-ethnic war. The Israel and Palestine conflict is an example of that. So too is the Ethiopian war that has now reached a ceasefire and may mercifully be ending. The India-Pakistan wars are complicated, of course, but to a significant extent, are also inter-ethnic wars. This category of war is distinctive. These wars are clashes of cultures, of societies, and of religions.

Wars of plunder are wars of the strong versus the weak; that is, wars of injustice. Wars of great powers are wars of the strong versus the strong; that is, wars of hegemonic competition. Wars of inter-ethnic conflict are wars of the weak versus the weak; that is, wars of mutual fear.

ECONOMIC AND TECHNOLOGICAL CHANGES AS CAUSES OF WAR

In 2020, I wrote a book called *The Ages of Globalisation: Geography, Technology, and Institutions* (Columbia University Press), in which I described how technological and institutional changes, as well as physical geography, interact to produce long-term global changes across many different ages of globalisation. One of the notable facts of that study is that each new epoch, driven by technological and institutional changes, was typically accompanied by wars, as technological changes in various ways led to changes in relative economic and military power. Changes in relative power lead, in turn, to the kind of wars that I have described.

Technological divergence occurs when the more technologically advanced countries gain further decisive advantages over less technologically advanced nations, leading to wars of plunder. Imperial wars are wars in which a more powerful adversary has more powerful economics and underlying military technologies that allow it to expand its geopolitical power.

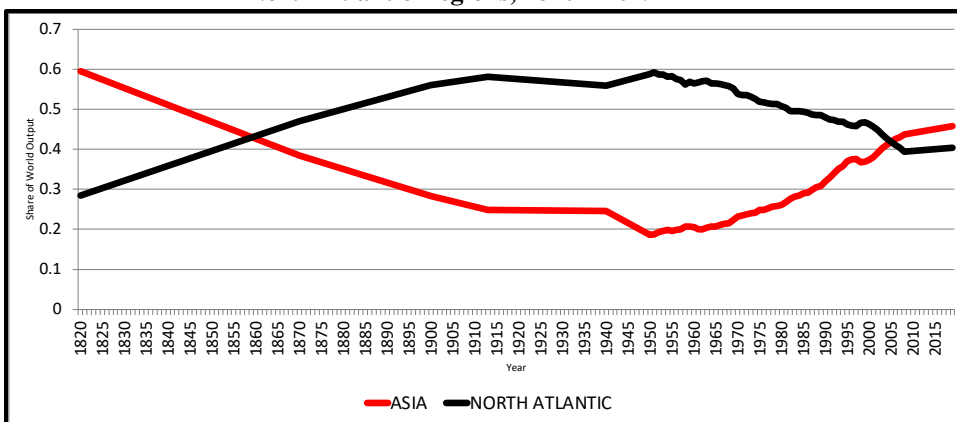
Technological convergence, on the other hand, means that poorer countries are catching up with the richer countries. Perhaps surprisingly, technological convergence is also conducive to war, typically to wars of competition, as poorer countries narrow the gap with richer countries, thereby threatening the hegemonic power of the dominant nations. Periods of technological convergence therefore tend to be periods of wars of competition, and the tragedy of great power politics. I believe that we are in an age of technological convergence giving rise to new and tragic hegemonic conflict.

Finally, shared vulnerabilities of various kinds, including economic vulnerabilities such as poverty, and environmental vulnerabilities such as droughts and floods caused by long-term climate change, are conducive to rising fear and intensified inter-ethnic violence. For populations with higher income levels, less hunger, and longer life expectancy, inter-ethnic or intergroup struggles tend to diminish in fervor. The dire facts of poverty and

competition for basic economic resources, on top of usual inter-group stresses due to religion, ethnicity, or culture, are therefore conducive to this third kind of war.

I will provide a few quick examples of technological change as the driver for imperial war. The great cause of 19th-century divergence was the invention of the improved steam engine by James Watt at the University of Glasgow. The steam engine is probably the most important invention of the last 500 years in both economics and geopolitics. From the point of view of economic power, productivity, industrialisation, inter-ocean transport, and military force, Watt's steam engine was a critical development, and Britain used it to become the first industrial society. Britain over-powered the rest of the world in economic, financial, and military might, which led to the so-called Second British Empire of the 19th century and one of the great turns of history.

Fig 1. GDP as a Share of World Output of Asia and the North Atlantic Regions, 1820 – 2019



Data from Maddison Project Database, version 2020. Bolt, Jutta, and Jan Luiten van Zanden (2020), "Maddison style estimates of the evolution of the world economy. A new 2020 update."

Figure 1 shows the shares of world output of Asia and the North Atlantic regions between 1820 and 2019, as measured by the late macroeconomic historian Angus Maddison and his team. As late as 1820, Asia had 60 percent of world output, and the Indian subcontinent was still the textile center of the world. Asia's share of the population was also roughly 60 percent, with per capita incomes still relatively equal around the world. Around 1790, however, the new Watt steam engine was first connected to a belt to move power looms and spinning jennies, and Britain soon became the world's manufacturing powerhouse. India was soon relegated to providing raw cotton to the industrial mills of Lancashire, Manchester, and Liverpool in England. Of course, the Indian sub-continent soon fell under Britain's imperial rule, formally by 1858.

The industrial age was therefore a momentous era of divergence. The rich countries, notably in the North Atlantic (England, continental Western Europe, the US, Canada, and very few others), gained enormous industrial strength and rising output per person in the 19th century. The poor countries, notably in Asia and Africa, succumbed to North Atlantic imperial domination. Latin American countries were somewhere in limbo, no longer the imperial possessions of European powers, but also not industrialised.

During the 19th and early 20th centuries, the North Atlantic became the dominant geopolitical force of the world, the global hegemon. Britain dominated the North Atlantic till around the 1870s, but then was challenged increasingly by the US and German industrialisation. By the early 20th century, the rise of Germany had given rise to the tragic wars of hegemonic competition with Britain, alongside the ongoing wars of plunder by the North Atlantic countries in Africa and Asia.

Still looking at Figure 1, the largest gap between the North Atlantic and Asia occurred in 1950, after which the outputs started to converge again. It is extremely important to understand this timing. In 1947, India and Pakistan became independent countries, and in 1949, the People's Republic of China became a newly independent country after decades of invasion and civil war. That independence provided the basis for the subsequent era of convergence. More generally, 1950 marked the end of North Atlantic imperialism, and the rapid spread of independence in Africa and Asia.

Broadly speaking, therefore, the period from 1800 to 1950 was a period of technological divergence and the growing power of the North Atlantic relative to the rest of the world. It was the period of European high imperialism, and the conquest of large areas of Africa and Asia. The period after 1950, broadly speaking, was a period of technological convergence. The most important reason for convergence is sovereignty, and sovereignty means the beginning of mass education. In 1950, Pakistan and India had illiteracy rates of around 90 percent because there was no mass education under the British Raj. The essence of empire was to deny even basic education because illiteracy of the masses facilitated subjugation of the masses. Therefore, independence was fundamental for the economic divergence to become economic convergence. The end of World War II and the beginning of independence across the world from European empires enabled the beginning of mass education and led to global changes.

Fig 2. Liberal Hegemony

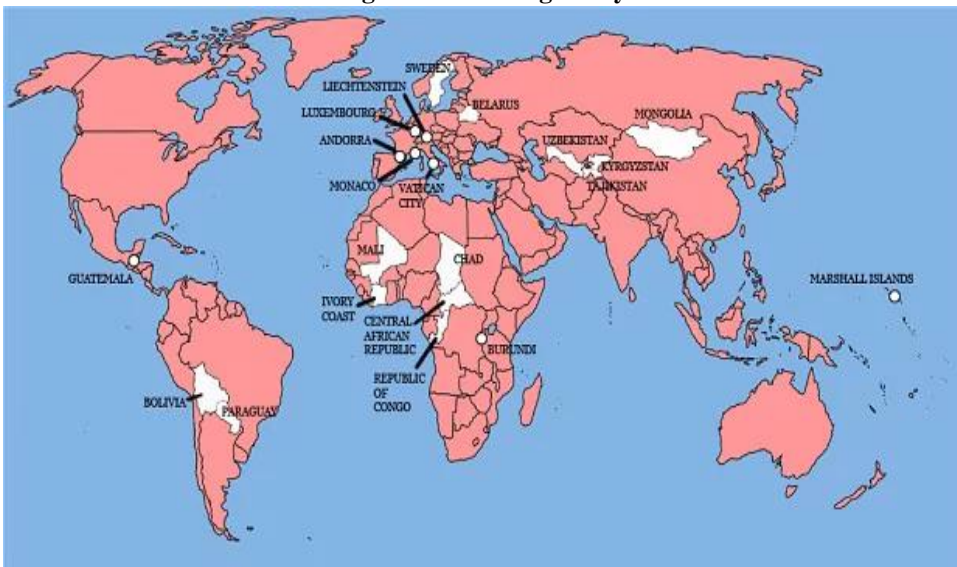


Figure 2. "Liberal Hegemony," adapted from Stuart Laylock, *All the Countries We've Ever Invaded: And the Few We Never Got Round To*, The History Press Ltd., 2012.

Figure 2 is a semi-serious, semi-facetious map from the book *All the Countries We've Ever Invaded: And the Few We Never Got Round To* (2012) by Stuart Laylock. The countries in white (there are 22 of them out of 193 UN member states) never were attacked by Britain. Britain was the most militaristic country in the world in the 19th century, and the United States, in my estimation, has been the most militaristic country in the world after 1950. It goes with the territory of being the hegemon. Yet, Britain and the US are also supposedly liberal democracies. The basic point is that liberal democracy has little to do with peaceful foreign policy. Foreign policy is about relative power. Britain used its vast relative power advantage to conquer large parts of the world, and for the parts that it didn't conquer, it invaded at various times. We should not confuse democracy at home with peace abroad.

What are the main solutions to wars of plunder? I propose that there are two main solutions. The first is technological convergence to narrow the gap so that the rich can't exploit the poor. The second is collective security to protect the weak from the strong through collective security mechanisms such as the United Nations. The end of European imperial rule led to a shift from divergence to convergence, and that fact did diminish the frequency of wars of plunder. There was a trailing edge of roughly 30 years (1950-1980) of the final stages of imperialist wars, a prime example of which was the Vietnam War, which raged until 1975 as a war of independence from France later taken over by the United States. Similarly, there were the late imperial wars in Algeria, Indonesia, and elsewhere. Yet the shift from divergence to convergence eventually reduced the frequency of wars of plunder.

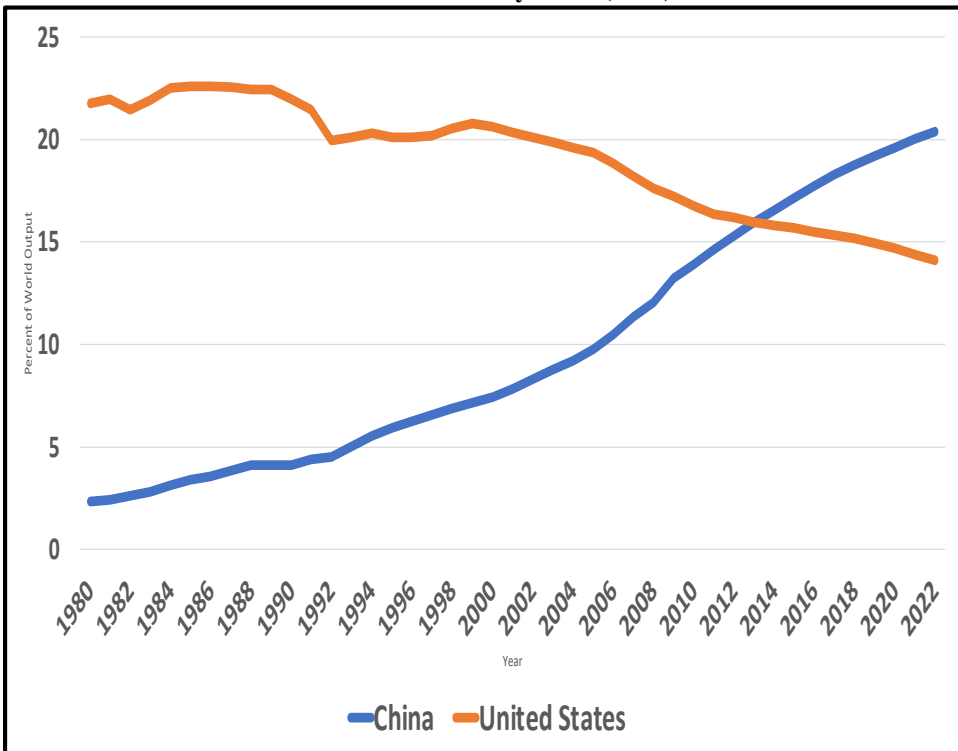
GREAT POWER WARS

Technological convergence reduces wars of plunder, but it also is conducive to more great power conflict. That is the Mearsheimer tragedy: as countries converge in economic and military power, they begin to compete more aggressively for domination. Rising powers fear that they'll be held back by incumbent powers. That was Japan's fear in 1941, and that was Germany's fear in 1914. This is also China's realistic assessment now that the United States is explicitly trying to contain China's rise.

Incumbent powers fear they will be overtaken by rising powers. Graham Allison at the Kennedy School of Government wrote a widely read book called *Destined for War: Can America and China Escape Thucydides's Trap?* (Houghton Mifflin Harcourt, 2017). Thucydides's Trap is an analogy to Athens' rise in power in the fifth century BCE that, according to Thucydides, triggered a hegemonic contest between the leading military power, Sparta, and the rising power, Athens. Although Sparta technically won the contest, both Sparta and Athens were exhausted by decades of war and Sparta was soon toppled from regional influence. Athens' heyday of democracy and even independence ended in the fourth century BCE. The Peloponnesian War, like so many tragic wars of hegemonic competition, was a negative sum war.

Today we are in a similar situation. According to the International Monetary Fund (IMF), China overtook the United States in total output in 2011, measured in purchasing-power-parity prices (Figure 3). This means that China is now a larger economy compared to the United States. This should be expected, as China has four times the population of the United States. Of course, China will be a larger economy, except if China for some reason remained perennially poor, or technically, remained at less than 1/4 the per capita income of the United States. Why wouldn't China rise in economic terms? China is enormously productive, creative, innovative, hardworking, and has an excellent education system.

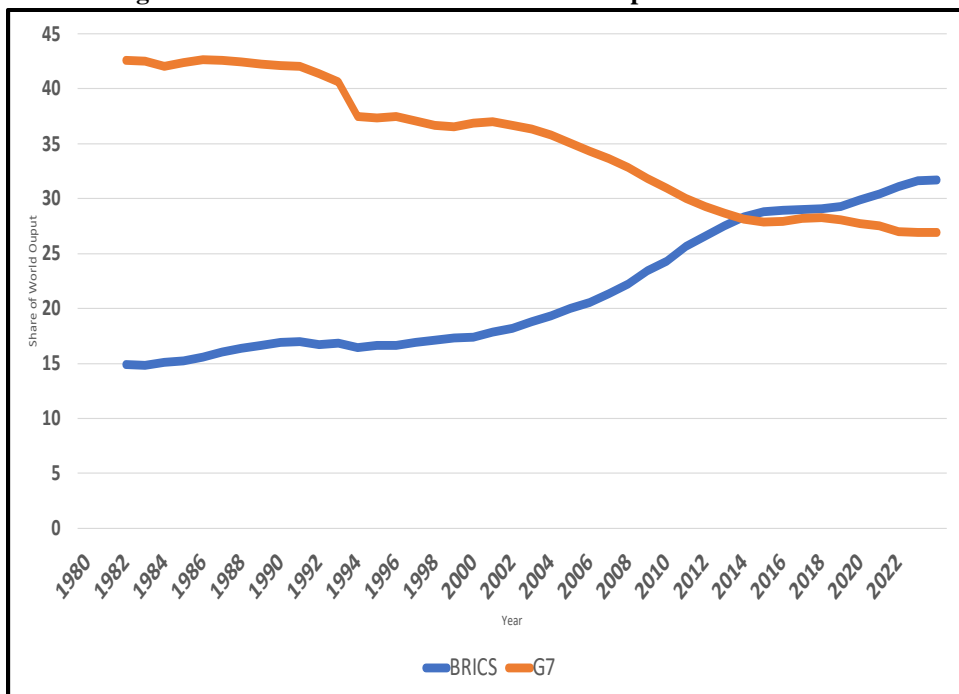
Fig. 3. China Overtakes US World Output. Data from International Monetary Fund (IMF).



As Mearsheimer uncannily predicted in 2001, China's rise led to the onset of US-China hostility. I was certainly wrong about this. I've been engaged with China for 40 years now, and many of my students are senior officials or academics in China. I could never have imagined in 2001 that we would currently have US-China tensions, simply because China is not a threat to the world. It is only in our imagination that China is a threat to the world. Yet, what Mearsheimer said came true. As China got bigger, China became an enemy. Mearsheimer is predictively right. Convergence brings threats, counter-threats, a dramatic escalation of rhetoric, daily opinion columns about a coming war, and then, yes, finally there will be a self-fulfilling tragedy.

Note, too, that the BRICS countries – Brazil, Russia, India, China, and South Africa– now have a larger combined output than the G7 countries (Figure 4). This is rather remarkable because it means that economic convergence is taking place far more generally than China. The North Atlantic is being pushed from its perch in the age of technological convergence.

Fig. 4. Share of G7 and BRICS in World Output. Data from IMF



THE PRISONER'S DILEMMA AND THE TRAGEDY OF GREAT POWER POLITICS

I include a moment of game theory here to say that the tragedy of the great power politics is reasonably well depicted, at least at first pass, by the famous Prisoner's Dilemma, which is the game theory concept developed in 1950 to show the possible anti-cooperative outcomes of a social dilemma. The Prisoner's Dilemma Game features two parties who can either cooperate with the other party or cheat on the other party. Even though cooperation is mutually beneficial compared with mutual cheating, they often end up cheating, which is a tragedy as both parties end up worse off.

The Prisoner's Dilemma is conventionally presented as a 2-by-2 game, with possible outcomes depicted as four quadrants. In the game depicted in Figure 5, the US choices are depicted as rows, while the Russian choices are depicted as columns. The first number in each quadrant is the payoff to the US, while the second number is the payoff to Russia. (Of course, these are the payoffs to the leaders in each country, which may or may not represent the real payoffs to the average citizen of each country.)

Fig. 5. The US-Russia Strategic Dilemma in Ukraine, Prisoner's Dilemma

USA \ RUSSIA	De-escalate	Escalate
De-escalate	5,5	-10,10
Escalate	10,-10	-5,-5

Author's own illustration.

In this game, each side can choose to escalate or to de-escalate. Suppose that both sides de-escalate. They avoid war and the costs of an arms race. Their payoff is 5 to each side. Suppose that both sides escalate. They end up bearing the heavy costs of war, with payoffs each of -5.

But suppose that the US de-escalates while Russia escalates. That is akin to unilateral disarmament. Russia can come in and swoop up the prize, such as geopolitical and resource dominance over Ukraine and other countries. In this case, Russia wins big-time (payoff of 10) while the US loses big-time (payoff of -10).

The punch line of the famous Prisoner's Dilemma is the possibility, or indeed, the likelihood according to game theory, that the players will each choose "escalate," ending up with payoffs of -5, instead of de-escalate, ending up with payoffs of 5. The Prisoner's Dilemma is a Mearsheimer-type tragedy.

To see why the tragedy occurs, consider the US strategy. If Russia chooses to escalate, the US clearly should choose to escalate. But if Russia chooses to de-escalate, the US should again choose to escalate, walking away with the big prize of 10 (and leaving Russia with -10). Therefore, the dominant strategy for the US is to escalate. By symmetrical reasoning, the dominant strategy for Russia is to escalate. Both sides choose to escalate and both sides end up with payoffs of -5. Hence, the tragedy.

Mearsheimer's point is that escalation is the *rational action* to take if each side is playing for its advantage, taking as given what the other country is doing. In the case of the war in Ukraine, both sides escalate, and both sides lose, while Ukraine, the site of the US-Russia proxy war, of course, loses the most.

In practice, the US pushes NATO enlargement and Russia pushes war in Ukraine to stop NATO enlargement. This ends up in a disaster for both sides. Instead, both countries should realise that this non-cooperative outcome is working badly for both sides. They should both de-escalate. The US should stop trying to expand NATO. Russia should go home and let Ukraine be, secure that NATO will not expand to fill the void. This approach – NATO non-enlargement and Russian withdrawal – would leave both nations better off, and would save Ukraine.

International relations theory should provide answers on how to get both sides to de-escalate, rather than being a theory that explains the tragedy of escalation. Yet we are

in the tragedy of great power politics, and the situation is getting worse, and fast. As Mearsheimer rightly says, we are not in a static situation with payoffs of -5 for both sides. We are in a situation of continuing escalation, the end of which could be nuclear annihilation.

If Ukraine were to be armed by NATO for a successful invasion of Crimea, there would very likely be a nuclear war. We would no doubt be instructed by the mainstream media not to worry, just moments before annihilation. My advice, once again, is to worry. We need to move urgently from the bottom right cell (escalate - escalate) to the top left cell (de-escalate - de-escalate) because it's mutually beneficial, and can avoid Armageddon. We do not yet have an adequate international relations theory to accomplish this, but that is what we are searching for.

I believe that the first answer to the crisis is to negotiate. John F. Kennedy also made this point in his Inaugural Address, when he declared, "Let us never negotiate out of fear. But let us never fear to negotiate."

There is a famous and frequent finding in game theory that if the people playing the Prisoner's Dilemma are allowed to speak with each other before they play, even without any way to reach a binding agreement, they will cooperate most of the time (in some experimental settings, cooperation with pre-play communication rises to 90 percent).² The mere human touch of negotiating changes the game fundamentally, even though there is no binding mechanism to the talk. Yet how many times has President Biden spoken with President Putin since February 2022? The disastrous truth is that the two leaders have not spoken even one time.

The second key point about the Prisoner's Dilemma is one that Ronald Reagan emphasised: "Trust but Verify." A mutual agreement on de-escalation need not be based on trust alone. The idea is to trust but *verify* through observable measures, such as peacekeepers, demilitarisation, third-party guarantors, risks of sanctions triggered by non-compliance, inspection regimes, etc.

There is a closely related game to the Prisoner's Dilemma, sometimes called the Game of Chicken or the Hawk-Dove Game. In that game, the escalate-escalate outcome is so dire (e.g., nuclear war) that each party prefers to play de-escalate ("surrender") if the other side insists on playing "escalate." In this case, there are multiple possible outcomes, including each side scaring the other into submission, or each rolling the dice (a "randomised strategy") with the possibility that both dice come up with "escalation," leading to Armageddon.

In some ways, the Ukraine War is better described as a Game of Chicken rather than as a Prisoner's Dilemma. The West wants to scare Russia into accepting NATO enlargement. Russia wants to scare the West into the risk of nuclear war. Both sides want to prove their toughness, and so both "randomise," giving the possible outcome of escalation to nuclear Armageddon. As with the Prisoner's Dilemma, the escape from this tragedy, perhaps the ultimate tragedy, is for both sides to play "de-escalate."

² For a recent discussion, see Kagel, John, "Cooperation through communication: Teams and individuals in finitely repeated Prisoners' dilemma games," *Journal of Economic Behaviour & Organisation*, 2018, vol. 146, issue C, 55-64, accessible here: <https://econpapers.repec.org/RePEc:eee:jeborg:v:146:y:2018:i:c:p:55-64>

INTER-COMMUNAL VIOLENCE AND THE SOCIAL STRUCTURES OF FEAR

The third kind of war is inter-communal violence, which is a special kind of war governed by the social structures of fear, notably fear of the “other.” This type of conflict is amplified by group identity in which there is little or no peaceful communication between the two identity groups. There is instead open hostility, typically long-lasting, with very high fear on both sides. Both sides are typically prisoners of history. As my wife quips, reversing Santayana’s famous aphorism, “Those who can’t forget history, are condemned to repeat it.” This is opposite to the usual idea: when groups are stuck in inter-communal conflicts, if they cannot forget past wrongs by one side against the other, then they may be too fearful to find a path to peace.

There are very few structures of protection for communities in inter-ethnic settings, so fear runs very, very high. There is no well-developed jurisprudence or political structure for group rights. In the United States, the law focuses on individual rights, not on group rights. US law is (supposedly) “racially blind” even after centuries of slavery and racial discrimination and persecution. This blindness of the law to group protection leads to heightened inter-ethnic fear, and indeed, inter-ethnic and inter-racial violence.

The world community, including the UN system, does not have adequate concepts as to how to ensure the rights of different communities in a diverse, multi-ethnic society. The Ottoman Empire was a multi-ethnic community with the so-called millet system, in which there was a measure of self-jurisdiction of non-Muslim populations, including the right to practice other faiths. These non-Muslim populations were not of the social stature of the Muslim populations in the Ottoman realms, but they had autonomy and a governance structure. This system thereby maintained important group rights. Yet our current constitutional designs do not generally include the search for effective and workable group rights, and this makes inter-communal conflict more likely and persistent.

Fear is a deep driver of this. There are powerful studies by psychologists, social psychologists, neuroscientists, and conflict resolution specialists emphasising the role of fear as a subcortical, fast-reactive kind of decision-making. To move from the lower right cell (escalate-escalate) in conflict to the upper left cell (de-escalate-de-escalate) in cooperation is a cognitive act, not an emotional act. Fear derails that kind of cognitive act.

As Maria Jarymowicz and Daniel Bar-Tal have written, “[F]ear is an evolutionary safeguard to ensure survival in view of potential threats and dangers. It is a component of a fundamental survival mechanism. But at the same time, because of classical conditioning or due to the irrational thinking evoked by fear, it often has extremely mal-adaptive consequences.”³

Therefore, some potential partial answers to resolving these kinds of conflicts would include group rights, especially for minority groups within a multi-ethnic political setting; the search for universals in ethics (this is where Allama Iqbal plays an important role); ethics of tolerance, which is a special kind of ethics; intergroup dialogue; social and political structures of mediation; and shared culture, including arts, sports, music, and literature. I disagree fundamentally with the call, for example, of excluding Russian

³ “The dominance of fear over hope in the life of individuals and collectives,” Maria Jarymowicz and Daniel Bar-Tal, *European Journal of Social Psychology*, 36, 367–392 (2006).

athletes from the 2024 Olympics or to stop playing Tchaikovsky or to stop Russian ballets. This is the opposite of what we need to find peace in the world.

ANCIENT WISDOM TO FIND SOLUTIONS

I believe that ancient wisdom can help us to find solutions, whether it is Confucius, the Buddha, Aristotle, Averroes, or the prophet Isaiah. There is a commonality of views across the great faiths that I think is what Allama Iqbal was searching for, and that is vital if we're going to find an end to this kind of conflict.

There are at least six shared pillars of ancient wisdom across the Greek, Jewish, and Christian traditions, the Islamic faith, Buddhism, Hinduism, and other ancient wisdom traditions. First, they are all based on virtue ethics, which teaches that to achieve well-being we must build our characters. This was not the dominant form of ethics in the English and Germanic world of the last three centuries, but it is making a very strong comeback. I think virtue ethics is the right form of ethics, more than deontological or utilitarian ethics because it puts ethics as the core of individual responsibility.

Second, these six ancient wisdoms emphasise that humans struggle between lower urges, such as cheating to take advantage, and their higher callings, including cooperation. Virtue ethics call on reason of various kinds as fundamental to reaching that higher calling. Virtue ethics say that we need a vision of perfection, which is where spirituality or religion are fundamental. From Plato and Aristotle through the various faiths, God or the first mover or the idea of the ideal form are the sense of perfection, and humans have a responsibility to strive for something better. Iqbal emphasised that science and the spiritual are conjoined, and ancient wisdom strongly emphasises this point. The idea that religion and science are antithetical is a modern idea, not the idea of ancient wisdom.

Finally, virtue ethics supposes that there is a single human family. The modern genetics of *Homo sapiens* proves this, rooted in our knowledge of the single human family in the migration from Africa around 70,000 years ago, as well as the idea that we can find a common spirit as the basis of our shared humanity, despite our distinctive faiths and cultures. This is a shared view of all of these ancient wisdom traditions.

Iqbal, as a great thinker and philosopher, as well as a poet, offered the goal of Islam as a message for all humanity, not just a message for the believers. He argued that we need to search for rational foundations in science and Islam. Iqbal quotes the Prophet as saying, "God! grant me knowledge of the ultimate nature of things!" (Iqbal, Allama Muhammad. *Reconstruction of Religious Thought in Islam*. Kindle Edition, p. 2) and he says, "The main purpose of the Qur'an is to awaken in man the higher consciousness of his manifold relations with God and the universe" (p. 5).

In this spirit of a geopolitics of peace, Iqbal wrote in his New Year's Message in 1938,⁴ on the eve of World War II, "[I]n every corner of the world, the spirit of freedom and the dignity of man are being trampled underfoot, in a way to which not

⁴ Allama Iqbal, New Year's Message 1938, <https://www.iqbal.com.pk/allama-iqbal-prose-works/speeches-writings-statements-of-allama-iqbal/991-prose-works/speeches-writings-and-statements-of-allama-iqbal/2620-allama-iqbal-new-years-message-broadcast-from-the-lahore-station-of-the-all-India-radio-on-the-1st-january-1938>.

even the darkest period of history presents a parallel,” anticipating what was to come, but calling for a world of universal human dignity. He wrote, “That only one unity is dependable, and that is unity of the brotherhood of man which is above race, nationality, color or language, so long as men do not demonstrate by their actions that they believe that the whole world is the family of God, they will never be able to lead a happy and contented life, and the beautiful ideals of liberty, equality, and fraternity will never be realised.” This is a single human family.

RESOLVING OUR DIFFERENCES FOR OUR COMMON INTERESTS

We still have the makings of a single human family, but they are extraordinarily fragile. This year is the 75th anniversary of the Universal Declaration of Human Rights (UDHR), which is the closest we have ever come as humanity to expressing a common shared ideal. The UDHR was brought to fruition by Eleanor Roosevelt, who assembled philosophers, theologians from all faiths, and leaders from across the world to forge the UDHR, which is based on the idea that all human beings are born free and equal in dignity and rights.

As I have laid out, there are different kinds of conflicts that need different kinds of remedies. We need different kinds of institutional approaches. I believe that the United Nations remains indispensable for our survival, even as its fragility is evident in the face of great power politics, private greed, and state impunity. The world is very difficult now, and the UN has a very difficult time functioning in a difficult world. But it remains, in my view, our best hope for the universal human family.

Let me close with the words of President John F. Kennedy from his Peace Speech, given on June 10, 1963. This speech is so powerful and inspiring, and practical in its beneficial effect, that I wrote a book to extol it and describe its place in history, *To Move the World: JFK's Quest for Peace* (2013).

In this wondrous speech, Kennedy asks the American people to change their attitudes towards the Soviet Union, because as JFK argued, the Soviet people are also human beings who also want peace. At the very height of the Cold War, just months after the Cuban Missile Crisis, an American President told the American people of the importance of empathising with the Soviet people in the interest of world peace. When Nikita Khrushchev heard Kennedy's speech, he immediately summoned the American envoy in Moscow, Ambassador Avril Harriman, and told Harriman that Kennedy's address was the finest speech by an American president since Franklin Roosevelt, and that Khrushchev wanted to make peace with Kennedy. Just six weeks later, the partial Nuclear Test Ban Treaty was signed. Kennedy and Khrushchev demonstrated how to get from the lower right quadrant to the upper left quadrant, with empathy, decency, and communication with each other as fellow human beings.

I close tonight's lecture with President Kennedy's eloquent and wise words from his Peace Speech:

So, let us not be blind to our differences--but let us also direct attention to our common interests and to the means by which those differences can be resolved. And if we cannot end now our differences, at least we can help make the world safe for diversity. For, in the final analysis, our most basic common link is that we all inhabit this small planet. We all breathe the same air. We all cherish our children's future. And we are all mortal.

ADDENDUM ON THE WAR IN UKRAINE

I have seen a lot of the history of the conflict in Ukraine firsthand, going back 30 years. This is a provoked war because the United States acted in a way that Russian leaders understandably viewed as deeply threatening to Russia's security.

Mikhail Gorbachev unilaterally disbanded the Warsaw Pact military alliance of the Soviet Union and sought peace between the Soviet Union with United States and Europe. This was an unimaginable dream, but it happened. I attribute a great deal of it not to the Soviet Union's weakness or need for reform, though that was undoubted, but to the extraordinary decency of Gorbachev and his search for a peaceful way forward. Here is a case where a leader made a decisive difference for peace.

As Gorbachev made his move toward peace, the United States and Germany (which was interested in German reunification) made it very clear to Gorbachev that the West would not take advantage of the Soviet's unilateral action by expanding the NATO alliance eastward. US neoconservatives, however, took a different view. Starting in 1992, after the demise of the Soviet Union, the neoconservatives, now in charge of US foreign policy, took the view that the US was now the only superpower and could do what it wanted. More specifically, the US should aim to be the global hegemon.

The authors of this unilateral strategy were from both political parties. In the Republican Party, these included Dick Cheney, Paul Wolfowitz, and Donald Rumsfeld; in the Democratic Party, Hillary Clinton, Victoria Nuland, President Biden, and others. The doctrine of neoconservatism is also the doctrine of US exceptionalism and US unipolarity (that is, the US as the world's sole superpower). The neoconservative aim is dominance, what is sometimes called "full-spectrum dominance," meaning military, technological, and economic dominance in every major region of the world.

In the mid-1990s, there was a huge fight inside the US government between those who said that NATO should not be expanded as that would wreck relations with Russia, and those who said that the US should do what it wants. In the end, Bill Clinton followed the "we do what we want" school of thought, and the first NATO expansion took place, to Poland, Czechia, and Hungary. That raised tensions with Russia, and one of the greatest statesmen and scholars of US-Russian relations in our modern history, George Kennan, said in 1997 that this would lead disastrously to a new Cold War. The Secretary of Defense at the time, Bill Perry, thought about resigning in protest he was so upset with the decision to expand NATO because he regarded it as a basic violation of promises as well as a basic provocation to Russia.

The first expansion was taken badly by Russia, but it did not lead to this war. The next step was in 1999, when for a variety of reasons, NATO bombed Serbia 48 straight days to break Serbia and to break Kosovo out of Serbia. This intervention was unacceptable in my opinion, and in violation of the UN Charter. It was also the first major war in Europe since World War II (not the Ukraine war as we are often told). The US took aim at Russia's close ally. That raised the temperature even higher.

Then came 9/11. President Putin immediately offered help and cooperation to the United States, showing that cooperation between the two sides was indeed still possible. Yet the US quickly made a few terrible decisions. First, the United States unilaterally walked out of the Anti-Ballistic Missile Treaty in 2002. This was seen as a direct threat to Russia because it meant the possibility of the United States looking for first-strike

capability against Russia. Then in 2003, the US launched the unprovoked Iraq War on false pretenses and phony intelligence. Again, that raised temperatures further. In 2004, the United States expanded NATO seven times, to Lithuania, Latvia, Estonia, Romania, Bulgaria, Slovakia, and Slovenia. This was like the water rising around Russia: the bombing of Serbia, the ABM Treaty withdrawal, NATO expansion to the Black Sea, and the Baltics. Finally, in 2007 at the Munich Security Summit, Putin warned the US to stop, as the US was crossing Russia's red lines.

In 2008, the US announced that NATO would expand to Ukraine and Georgia. The clear, if unstated, goal was to surround Russia in the Black Sea region: Ukraine, Romania, Bulgaria, Turkey, and Georgia would all be NATO members. Russia would no longer be able to project power in the eastern Mediterranean and Middle East.

At the time, European leaders said to me privately, "What is your president doing? This is completely reckless." Of course, European leaders don't say this publicly. This is part of the deception that goes on. 2008 was a watershed moment, a breakdown of cooperation. One of the results of the push of NATO to Georgia was the Russo-Georgian War. Even then, US policymakers refused to heed Russia's red lines.

In 2011-12, President Obama instructed the CIA and other parts of the U.S. government to work with regional powers in the Middle East to overthrow Bashar Al Assad in Syria. This was yet another US regime change operation. There would have been no Syrian War but for the United States. In 2012, the UN negotiated an end to the Syrian war, but the UN initiative was rejected by one country—the United States – because the US insisted that Assad must go in any peace deal. You will not find this in the media, because by 2012 the mainstream media had stopped reporting inconvenient truths.

In 2014, the United States helped to overthrow the Ukrainian government. We can even listen to the February 6 tape of Victoria Nuland, then the Assistant Secretary of State, speaking to the US ambassador in Ukraine, Geoffrey Pyatt, about the formation of the new government that would come to power through a coup two weeks later.

The United States helped to pay for the Maidan protests. The evidence suggests that the violence, including shooting into the crowds, came largely from the protestor side, not from the security forces of Yanukovich. These were indeed the first shots of the Ukraine war, as part of a US-supported overthrow of the Ukrainian government.

What was Yanukovich doing in 2013 that was so upsetting to the US? He was pursuing neutrality. He was against NATO enlargement. The US helped to overthrow the government and then immediately backed a Russophobic, highly nationalistic government that came into power the next day. The new government quickly dropped neutrality and even passed a law outlawing the Russian language, though the law was not implemented.

A few weeks later, Russia retook Crimea, and many pro-Russian forces in the Ukrainian military broke away from the Ukrainian military and started an insurrection in Eastern Ukraine (the Donbas). The United States sent billions of dollars of weapons to Ukraine during 2014-2021 to build and modernise Ukraine's army, which is why Ukraine's army could so effectively fight during this past year. The fortifications and the heavy armaments were funded by billions of dollars in support of the anti-Russian regime that the US had helped bring to power.

None of this history is recounted in our media, in our politics, or in our public discussion. Our mainstream media say that the war was wholly unprovoked and was

launched because an evil and delusional Vladimir Putin believes he is Peter the Great. In fact, the war has causes dating back 30 years. The United States should not have tried to move its military alliance right up to Russia's borders.

At the end of 2021, President Putin put forth three demands. The first was Ukraine's neutrality; the second was that Crimea should remain a part of Russia, as Crimea has been the home to Russia's Black Sea Fleet since 1783; and the third was that the Minsk II agreement should be implemented as Europe and Ukraine had promised, but then reneged upon. Yet the Biden Administration refused to negotiate.

I do not mean to justify the invasion and the killing, but to help understand it. Most importantly, we should understand that there is a way for this war to end. The way for this war to end, in my view, is for President Biden to pick up the phone and tell President Putin that NATO will not expand to Ukraine, and in return, Russia should end the war and withdraw the military. Of course, there are many other issues, but NATO enlargement is at the center.

Most world leaders believe this is a war of NATO expansion. They believe, as I do, that this is a US-Russia proxy war. If it is not, then the United States should prove it quickly and clearly, by stating publicly that NATO expansion is off the table as part of an overall peace agreement.

Korea's Saemaul Undong Revisited as Rural Development Game for Poverty Eradication: A New Development Economics Perspective

SUNG-HEE JWA

The 2019 Nobel Prize in Economics for Randomized Controlled Trials (RCT) has sparked the popularity of an experimental approach to poverty alleviation. This paper delves into this theme by revisiting the highly successful case of Korea's Saemaul Undong (New Village Movement) during the 1970s, which served as a precursor to such experimental approaches in economic development. It presents a comprehensive model of rural development aimed at poverty eradication, emphasizing the vital role of three key entities: the villagers, village organizations, and government, all operating under the principles of economic discrimination outlined in the new general theory of economic development. As a framework for rural development, this trinity model offers potential enhancements to existing market-oriented and villager-centered rural development approaches, as well as to the RCT model.

JEL Classification: B, D, O, Q, R

KEYWORDS: Korea's Saemaul Undong; Economic Discrimination; General Theory of Economic Development; Rural Development; Poverty Eradication

Glossaries: ED=Economic Discrimination; EE=Economic Egalitarianism; FR=Free-riding; GTED=General Theory of Economic Development; NIE=New Institutional Economics; RCT=Randomised Controlled Trial; SMU=Saemaul Undong

1. INTRODUCTION

The 2019 Nobel Prize in Economics honoured economists Professors Abhijit Banerjee, Esther Duflo, and Michael Kremer for conducting a Randomised Controlled Trial (RCT) similar to a clinical trial for its potential contribution to alleviating global poverty.¹ Surprisingly, however, it turns out that their RCT essentially mirrored to some extent Korea's successful rural development program known as Saemaul Undong (SMU) undertaken almost 50 years ago during the 1970s. Their findings are also similar to SMU's experiences: Small incentive differentiation can make a big difference in economic behaviour.

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¹For their research, see Banerjee, Duflo & Kremer (2016), and see The Committee for the Prize in Economic Sciences in Memory of Alfred Nobel (2019) for the survey of the RCT research.

Thanks to the SMU program and other similarly structured economic development policies such as export promotion and heavy and chemical industrialisation, Korea has transformed itself into a developed country that successfully eradicated poverty in the 1960s to 1970s and now became a member of the advanced world. This experience is one of only a few such episodes in the world after WWII.²

However, while the development economics professionals have been working hard to combat the global poverty, they have not been very successful thus far. Moreover, despite numerous studies and efforts in some corners of the developing world to learn the lessons of SMU's poverty eradication and rural development experience, they still do not fully grasp its true nature. SMU remains a local experience and has never been systematically dealt with by the development economics professionals, and its true nature as development economics is yet to be discovered. One should only be grateful for small mercies that the Nobel Prize committee unwittingly, though belatedly, recognised its value for development policy and economics via appreciating the RCT.

Saemaul Undong played a vital role in Korea's economic miracle and now turns out to be a hidden pathfinder for the RCT and even behavioural and experimental economics, as seen in coming discussions. Therefore, it may be natural to go back to its successful experiences to learn valuable lessons for growth and development-seeking countries. This paper intends to derive an inclusive and shared rural development model for poverty eradication based on the SMU's particular features, preceding and missed by the popular poverty-alleviation models, including the model of the RCT. This paper goes beyond explaining the success factors and implications of SMU done by Jwa (2018b) and presents a general model of poverty eradication based on the SMU experiences compared to the existing models. Therefore, this paper can be a sequel to Jwa (2018b) and is primarily motivated by the RCT model earning the Nobel economics prize.

Section 2 will briefly introduce some details of the SMU newly interpreted as a 'controlled economic development game', at the risk of duplication of some facts in Jwa (2018b). Section 3 will briefly introduce the new General Theory of Economic Development (GTED) (Jwa, 2017a, 2018a) as a basic theoretical framework to underpin the rural development model for poverty eradication. Section 4 will construct a general model for rural development for poverty eradication as a development game to be consistent with the GTED and the SMU and generally applicable, and compare it to popular community development models and the RCT model, suggesting some lessons from the SMU experience. Finally, section 5 will conclude the paper by emphasising the importance of protecting the economic discrimination policy from political distortion.

2. SMU, A 'CONTROLLED ECONOMIC DEVELOPMENT GAME'

2.1. A Short Overview of SMU

In the early 1970s, Korea launched the now well-known SMU (meaning 'New Village Movement'), purporting to develop rural communities comparably to the pace of urban development. Korean government implemented various infrastructure-building and farming projects and educational programs to change the mindset to a self-help spirit. The

² See World Bank (1993) for Korea's best inclusive and shared growth records in modern economic development history.

initiator, then-President Park Chung Hee, proclaimed the core principles of Saemaul as 'Diligence, Self-help, and Cooperation,' emphasizing his resolve to assist only those who endeavoured to help themselves. Remarkably, the President instituted a policy of granting additional support to villages demonstrating success in their self-help endeavours, while excluding those that were unsuccessful.

During the fall of 1970, an average of 300 bags of cement and a ton of steel bars were supplied to approximately 34,000 villages nationwide, allowing them to select and implement suitable projects autonomously. After six months, the government assessed all the villages' performance one by one and found that approximately 16,000 villages had made progress while 18,000 had not.

For the second round, the 16,000 successful villages were given 500 bags of cement, 200 more than the previous year, as an incentive. In comparison, the unsuccessful 18,000 villages were left out from SMU and received no government support. At the end of the second round, it turned out, 16,000 villages that performed well in the first round continue to excel, and, surprisingly, 6,000 out of the 18,000 left-out villages participated independently at their own cost and made a success. In this way, the government continuously carried out a strict meritocratic policy of supporting successful villages while dropping villages that did not perform well. The discriminative support policy based on each round's performance was decided by President Park Chung Hee alone at the risk of his own political fortunes, despite strong opposition from the State Council and the ruling political party concerned about losing the election.³

SMU identified three classes of villages based on their respective performance. The government's qualifications for a self-help village are 1) house roof improvement ≥ 70 percent; 2) farmland irrigation facility improvement ≥ 70 percent; 3) village fund ≥ 0.5 million Korean won; 4) average household income ≥ 0.8 million Korean won. The qualifications for a self-reliant village are 1) house roof improvement ≥ 80 percent; 2) farmland irrigation facility improvement ≥ 85 percent; 3) village fund ≥ 1 million Korean won; 4) average household income ≥ 1.4 million Korean won. The remaining lowest performers are classified as basic villages. The government supported only the self-help and self-reliant villages, leaving out the basic villages.

Now, I think it may be enlightening to see below an excerpt from President Park's keynote speech on the philosophy of SMU policy in 1972.

"Last year, the government provided subsidies, though not large sums, to about 34,000 rural villages nationwide to spur on the enthusiasm for economic self-improvement among them. The results were mixed: while some villages yielded good results, others did not. Based on this experience, we have decided to reject the universal support system in favour of a performance-based support system. This year, the government will support only about 16,000 villages that achieved good results last year. Out of those villages that receive subsidy this year, we will again select those that achieve substantial results this year and promote them to the "3rd grade" next year. Besides, out of the 18,000 villages that got failing grade last year and thus don't receive the subsidy this year, the government will select those that display unity and determination toward economic self-improvement and promote them to the "2nd grade," entitling them to this year's level of subsidy next year. This is the basic policy principle behind the government's support system in the SMU. It

³ See Jwa (2017a, 2017b, 2018b) for more details of the SMU policy.

is patently unfair to provide support for those villages where the residents idle away their days drinking and gambling in the same way as for those with residents who are determined to try to improve their own lives. The complaining voice from such villages may even drown out the voices of content from the thriving villages. However, there is no need to heed their complaints. It is said, “God helps those who help themselves.”⁴

President Park always emphasised the maxim of ‘God helps those who help themselves’ and adopted ‘the policy that rewards good performance and punishes underperformance based on actual performance’. This paper called this policy ‘Economic Discrimination(ED)’, treating economic differences differently by rewarding performance and punishing underperformance. This paper will argue later that ED is precisely the market’s economic development function that needs to be stimulated by the private corporation and the government for economic development.

2.2. How the SMU Worked as Development Game?

The western maxim that ‘God helps those who help themselves.’ is, of course, a familiar refrain to most of us. It is known to be from the parable of three servants, Matthew 25 in the Bible. In this biblical story, God praised two servants who doubled the balance of gold coins given by him but punished the last one who failed to do so.⁵ This maxim shares the same meaning with the oriental version of the dispensation of justice, ‘never fail to reward for merit and punish for faults’ by the Legalist School in the Warring States Period of China about 2,500 years ago. These maxims from both worlds are now substantiated as the economics of incentive by modern-day behavioural economics, which demonstrates two fundamental incentive devices of the ‘gain framing’ rewarding positive behaviour and the ‘loss framing’ punishing negative one.⁶

President Park’s SMU initiative is an ‘ED incentive policy’ that combines the ‘gain framing’ and the ‘loss framing’. SMU was indeed a ‘controlled economic development game’ that discriminatively provided incentives depending on the corresponding achievement levels – an outstanding example of a behavioural economics experiment that no other leader has dared to implement since, let alone back in the 1970s. With this mindset, President Park succeeded in solving the perennial poverty that had gripped Korea for eons in ten short years. This is a truly monumental achievement in the history of humankind. Even more astounding, this ED incentive policy was at the heart of his export business support policy, small and medium-sized firm support policy, and heavy and chemical industrialisation policy. In short, the so-called Miracle on the Han River was a direct result of this brave and determined behavioural economics experiment conducted on a nationwide scale.

Indeed, when evaluated side by side with the nearly inconceivable ‘Miracle of Failure’ north of the Demilitarised Zone, President Park’s ED incentive policy can be regarded as one camp of ‘controlled economic development game’ conducted over the entire Korean Peninsula. History has witnessed that South Korea which opted to reward

⁴ Excerpt from President Park’s speech delivered on a provincial inspection trip at North Gyeongsang Provincial Office, February 7, 1972. For the whole text, see Park (1979).

⁵ This maxim was made famous by Smiles (2008[1859]) in the midst of the English industrial revolution.

⁶ For the related works on the gain and loss framings, see Kahneman & Tversky (1979), Tversky & Kahneman (1981), Levitt & Dubner (2005), and Gneezy & List (2013).

self-motivation, achieving the Han River's Miracle on the one hand, and North Korea, which opted to purge self-helpers by labelling them bourgeois, setting an abject example of a failed state.

Now, one can see that the SMU under the ED policy was a 'controlled economic development game' of transforming the impoverished agrarian society into a modern, economically prosperous society played by all individual villages under the government-set ED policy rule.

Interestingly, in 2019, the Nobel Economics Prize was awarded to experimental economists, who conducted the RCT as mentioned already. The Prize Committee has acknowledged that their research will contribute to the poverty-eradication policy studies. Their experiments divide the target people or areas for research into intervention and (non-intervened) control groups and observe the impact of different incentives on their behaviours. Ultimately, their findings imply that differential incentives are the key driver for different behaviours.⁷ However, the RCT, as experimental research contributing to the evaluation of development policies, exhibits significant differences as well as similarities to the SMU as a real-world development policy. For example, the RCT, with the 'intervention group' typically receiving egalitarian incentives, ends up missing the essence of the ED incentive mechanism. These aspects will be discussed at length later in this paper.

Moreover, the SMU, a policy framework that might be borne out of the RCT or behavioural and experimental research, had already been tried and succeeded in real life and under dire economic hardship by President Park. Before those research became a significant new research trend in the world's development economics academia, he invented the incentive-based economic policy fifty years ago. He executed the same through sheer grit and determination against all the naysayers and political opposition. In so doing, he singlehandedly set one of the poorest nations on earth onto a trajectory towards the giddy heights of the 10th largest economy in the world today.

From this perspective, the paper intends to rediscover the SMU as a practical, experimental development game and, based on it, to build a new general model of rural development for poverty eradication, which can easily be accessible by poverty alleviation and rural development-seeking countries.

3. A GENERAL THEORY OF ECONOMIC DEVELOPMENT IN BRIEF

This section will introduce the General Theory of Economic Development (GTED) (Jwa, 2017a) as the theoretical framework for a poverty eradication model, only briefly for the self-completeness of the paper at the risk of some duplication of the previous works. The GTED extends the new institutional economics (NIE) (North, 1990, 1992b; Eggertsson, 1990) by incorporating the insight of complexity economics (Beinhocker, 2006), such as non-linear open interaction among economic agents leading to the subsequent emergence of economic development to a higher-order, complex economy.⁸

⁷ See The Committee for the Prize in Economic Sciences in Memory of Alfred Nobel (2019) for a comprehensive RCT research survey.

⁸ See Jwa(2017a) for the complete exposition of this theory and Jwa (2017b, 2020) for its theoretical and empirical application to Korean economic history. Also see Jwa (2018a) for a brief presentation of this theory and Stratieva (2018) for its concise review.

3.1. Weakness of Mainstream and New Institutional Economics

The NIE, as well as mainstream market-centric economics, now argues that economic institutions, primarily efficient property rights cum economic freedom, can play a crucial role in economic development as the efficient property rights system is the precondition for an efficient market. However, the questions linger, how to make property rights efficient, or have they ever been made so? Unless the way to make them efficient in an imperfect real-world market is fully articulated, the argument is reduced to circular reasoning. An efficient property rights system has been argued as the precondition for an efficient market. Still, at the same time, it is also true that an efficient market is a precondition for an efficient property rights system, as both depend on a perfect information assumption. Now, market-centric economics can blame inefficient property rights rather than an inefficient market as the cause for development failure.

In any case, market cum property rights institutions and economic freedom can indeed be important institutions for economic development but are hard to be a cure-all prescription. In analogy, the market is just like clean air. Clean air is necessary for healthy human living but not enough for nurturing an Olympic medallist athlete. In other words, the NIE lacks an enabling institution for the emergence of development. In this regard, the NIE needs to discover an enabling institution to help promote growth beyond the argument that the institutions of efficient property rights and economic freedom are essential. From this perspective, one of the GTED's main tasks is to discover what institutions can help bring about an emergence of a new economic order by going beyond the circular reasoning. The GTED argues that the enabling institution is the ED institution, which may not be a perfect solution but goes beyond the circular logic of the efficient property rights argument seeking the perfect answer in the imperfect world.

3.2. Development: Order-Transforming Emergence of Complex Economy

Following the logic of complexity, the GTED defines economic development as a non-linear order transformation of the economy, for example, from wagon economy to railway, to automobile, to airplane, and to spaceship economies, with necessary change of quality. This process is different from the linear transformation from an economy producing a few wagons to an economy producing a large number of wagons given the quality (order) fixed as in neoclassical allocation economics and growth literature. This interpretation is also entirely consistent with the Schumpeterian perspective, which reads, 'Add successively as many mail coaches as you please, you will never get a railway thereby'.⁹ This cleverly hints to us the complex nature of economic development, the realities of something more complex, larger, and beyond just the physical combination of coaches upon which mass transportation is built. Here, one could argue that the emergence of a new order rather than the mere combination of resources constitutes development.

3.3. Free-Riding: Necessary for Development but Cause for Development Failure

According to the Second Law of Thermodynamics, the open interaction for sharing synergy via exchanging success know-how ('meme' or cultural DNA) among economic agents is the fundamental process of the order-transforming development but necessarily involves free-

⁹ This quotation is from the first footnote on page 64 of Schumpeter (1974[1934]).

riding (FR), eventually killing the incentive for development and leading to development failure. The FR on the others' success know-how among interacting agents such as individuals and corporations is the natural economic development mechanism. However, it can eventually cause development failure by depleting the sources or creators of success know-how, unless non-market organisations provide the institutional protection for the interests of those sources, given that the market is always imperfect and subject to transaction costs.

3.4. Economic Discrimination: Necessary Condition for Development

Economic discrimination(ED), formally defined, as treating differences differently by favouring economic performances but disfavouring underperformances, can be a solution to the FR. The GTED argues that the ED is a grand principle to transform the unintentional evolutionary mechanism into the general theory for the emergence of a higher-order complex economy by dispensing economic justice via helping those who help themselves.¹⁰ On the other hand, economic egalitarianism (EE) can be defined as treating differences indifferently or equally. The GTED argues that economic discrimination (ED) is the necessary condition for economic development by motivating the incentive to grow, but economic egalitarianism (EE) is the sufficient condition for economic stagnation by killing the incentive to grow.

It is imperative to note that the ED principle should not be confused or associated with political and social discriminations. That is because strict ED is the optimal behavioural rule for survival in the market and can help drive out rather such discriminations from the market. The ED principle applies only to those whose economic performance should be justly compensated by precluding FR on their success know-how or providing alternative means of compensation.

3.5. Market: Necessary but Insufficient for Development

The GTED argues that the ED has become the market's fundamental function via the selection instinct and behaviour of market participants such as consumers, credit suppliers, corporations, workers, and any other agents, having the propensity to seek the best in the market transactions.

ED is a simple but fundamental behavioural rule of the market agents in a complex open interaction for non-linear order transformative economic development. The GTED emphasises that the market is fundamentally a motivational discriminator to motivate the market participants to grow and such a market's ED function is a necessary condition for sustainable development.

However, the market always fails in exercising ED correctly, that is, treating the sources of development fairly. The market alone cannot provide sufficient growth and development incentives because of the knowledge market imperfections and the resulting high transaction costs, leading to the FR.

3.6. Corporation: Invented to Internalise Market's Developmental Failure

Therefore, for retaining the development process, the transaction-cost-saving, non-market organisations must supplement the weak market incentive.¹¹ The history of

¹⁰ ED is consistent with the 3-step formalisation of the evolutionary mechanism via mutation, 'differentiation, selection, and amplification' by Beinhocker (2006).

¹¹ This argument is consistent with Simon's insight that the economy would rather be called an 'organisational economy' than a market economy. See Simon (1991).

economic development has been to invent transaction-cost saving organisations to supplement the market's ED function by internalising the FR behaviour. The private solution to the FR is the corporate organisation that can internalise the high-transaction-cost activities such as learning knowledge from others' success know-how. It turns out that the corporation and the market are the epitome of ED. The corporation's fundamental reason for coming into existence beyond the market lies in the ED function.^{1 2}

Human society has eventually invented capitalist corporate organisation, the limited-liability joint-stock company in the early 19th century after the long evolutionary history of firms. The corporate organisation's vertical command system helps avoid the transaction costs that otherwise have to be incurred by the market due to the horizontal negotiation mechanism of the market transactions.^{1 3} Moreover, the joint-stock company is a higher-order complex organisation that can expand the capital base and take investment risks, in principle, to an unlimitedly large scale that cannot be borne or even imagined by the individually- or family-owned companies prevalent in the era of the pre-industrial revolution. By inventing the joint-stock corporation, knowledge of success know-how has become easily internalised into the corporate organisation on a massive scale, and FR problems in a knowledge market could be significantly alleviated.

However, the corporations or the private economy (inclusive of the market) alone is not enough to generate growth and development because it remains subject to information imperfection and fails to exercise perfect ED. Successful corporations, in particular, are always under threat of FR on their own success know-how. The front-running, successful corporations are hard to sustain because their success know-how is continually exposed to and free-ridden by all the followers or potential predators.

3.7. Government: Necessary Part of Development

The national government needs to intervene by providing the ED institutions for the creators of success know-how to generate sustainable growth and development. Thus, the government becomes the necessary part of the economic development process with her ED support function, an essential and striking departure from mainstream neoclassical and neoliberal economic perspectives. The government (and the polities) needs to provide the ED institutions and policies for economic development, away from the EE institutions and policies.

This amounts to introducing a new theory of government policy consistent with the ED perspective as follows. The government should supplement and reinforce the ED institutions, particularly with corporate growth-friendly institutions, beyond usual market-friendly institutions. Economic policies and industrial policy, particularly for promoting S&MEs as well as corporations in general, should be designed to be incentive-differentiated based on performances, consistently with the ED principle. Moreover, Social policies in general, including welfare policies and social empowerment policies, should be designed to be consistent with the ED principle and could thereby be transformed into developmental policy. Note that the social policy's ultimate purpose should be to motivate

^{1 2} This argument is consistent with Alchian & Demsetz (1972), who see the firm and the market both as the mechanism of 'metering' productivity to match performance with reward.

^{1 3} Of course, the organisational costs for managing the corporate organisation must be considered to calculate the net cost saving.

and enable the low-income class to get out of the vicious cycle of poverty to join the upper-income classes, where the ED policy is indispensable. The state should also avoid introducing the EE policy regime for political purposes.

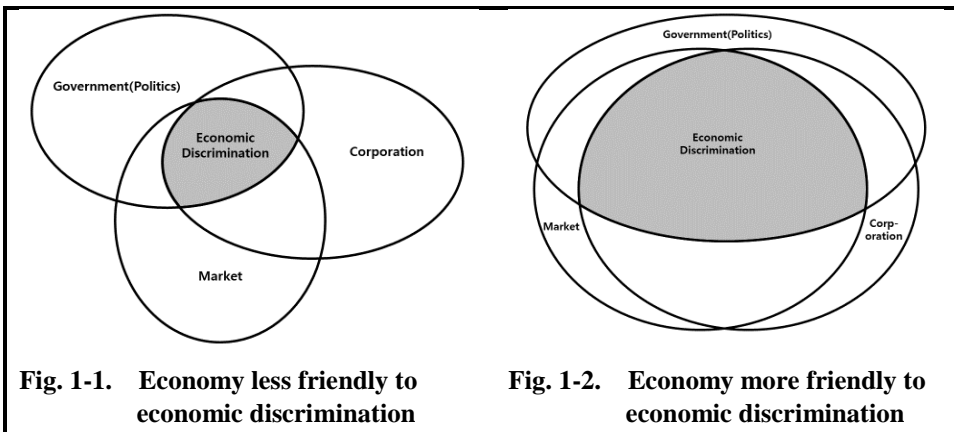
3.8. ED Union of Development Trinity: the GTED

Now, the market, the corporation, and the government constitute the development trinity. Therefore, they must work together as the economic discriminator if there can be any chance for an order-transforming economic development.

Figure 1 summarises the GTED. It implies that only when the trinity for economic development, market, corporation, and government exercises the ED policies jointly, the sustainable development process can occur. If anyone of them leaves the ED union, it is hard to achieve economic development. Moreover, the comparison of Figures 1-1 and 1-2 can help further understand the importance of ED institutions for development: as the trinity of development gets friendlier to economic discrimination, the chance to grow and develop will get larger. That is, as the set of union of economic discrimination gets larger as in <Figure 1-2> compared to <Figure 1-1>, the economy will get more chance to grow and develop. The economic development-seeking government should induce the markets and corporations to pull the growth and development with economic discrimination-friendly institutions and policies.

Therefore, the GTED declares that the ED by the development trinity is necessary for economic development, while the economic egalitarianism (EE), being the antithesis to the ED, is sufficient for economic stagnation.

Fig. 1. Exposition of General Theory of Economic Development



3.9. The GTED to Rescue New Institutional Economics

The GTED arrives at the argument that the theory of ED incentive is a grand theory of economic development. The ED institutions are the emergence-enabling institutions that have been searched long for by the development economics professions, in particular, by the NIE. In this regard, the ED institutions can tie up several loose ends of the NIE. While the NIE prescribes efficient property rights cum economic freedom for development, it has

not adequately addressed the critically important issues for development beyond them. In reality, it has to address properly the issue of how to motivate agents to compete, to take advantage of property rights efficiently, and to break away from the path dependence, all in the imperfect transaction cost-laden market. Lastly, it also needs to answer the question of what the guiding principles are for just and efficient institutions that the government has to provide. Instead, it used to say that as far as the efficient property rights system is out there, the competitive market would work powerfully to take care of everything.^{1 4} The reality tells us that the so-called efficient property rights and the resulting efficient market seem still a remote possibility, not to mention the efficient government and politics as the rule supplier.

The GTED is to overcome such circular reasoning built in the NIE by providing the ED policy regime, which can help resolve those issues. The GTED with the ED incentive mechanism embedded can:

- (1) Improve the weak market force of competition and the inefficient property rights via the ED's motivational function.
- (2) Change even the development-unfriendly mindset to a development-friendly self-help mindset by awakening agents' sleeping instincts for a better life.
- (3) Provide the ED as the guideline for just and efficient institution building.

Thereby, the GTED can also overcome the traditional laissez-faire market-centric allocation economics (inclusive of neoclassical growth economics) lacking the ED institution and the egalitarian socialist economics that is hostile to the ED institution. These implications are the most crucial contributions by the GTED, which can be taken home comfortably for the development policies in many other contexts like poverty eradication and rural or community development, as will be done in the following section.

3.10. The GTED to Extend Behavioural Economics to Macro-Development Economics

Behavioural economics has so far focused on explaining the microeconomic behaviour of non-rational agents in the real world economy, as seen in most works of leading behavioural and experimental economists.^{1 5} The GTED with the ED institution embedded amounts to a macro-development version of behavioural economics, implying the experiment can extend its scope from small to large to a nationwide scale. In fact, I think seeking economic development is no different from a nationwide competitive game played by the whole economic agents under the rule of the ED incentive system. The GTED implies that once the market, corporate firms, and the government altogether stick to the ED rule, this development game will naturally begin to create gradually more and more, and eventually mass self-motivated and self-reliant economic agents, leading to the development. Thus, the GTED is a macro-extension of the micro-behavioural economics via the ED incentive system enforced by the development trinity.

^{1 4} See North (1990, 1992b) and Eggertsson (1990) for the fundamental arguments of the NIE and North (1992a, 1993) for its critical loose ends.

^{1 5} See Kahneman & Tversky (1979); Tversky & Kahneman (1981); Levitt & Dubner (2005); Thaler & Sunstein (2008); Gneezy & List (2013); Banerjee, Duflo, & Kremer (2016).

3.11. The GTED as A New Theory of Political Economy

The GTED implies a new political economy theory that incorporates politics' role in development economics. The political regime can be development-friendly only if it embraces the ED institution. At the same time, the political regime becomes development-unfriendly if it becomes more inclined to the EE rather than ED institution. The former regime can be called the "economisation of politics", as it economises the politics, while the latter regime, as the "politicisation of economy, as it politicises economy. The critical point is, regardless of the specific types of political regimes, economic development can occur if the political regime supports the ED institution to be in place, while economic development is hard to come if the political regime adopts the EE institution. In short, only if the political regime helps to economise the politics, thereby helping to centralise the state power to mobilise resources for development by ED policy, can the development occur. This theory can be summarised as a four-regime paradigm of political-economy system by combining the economic institutions of ED vs. EE institution and the political institutions of democracy vs. non-democracy as follows: as market democracy (ED + democracy) and market authoritarianism (ED + non-democracy), which are development-friendly, and egalitarian democracy (EE + democracy) and communist/socialist dictatorship (EE + non-democracy), which are development-unfriendly.^{1 6}

This theory of political economy can help understand the complexity of economic development, like the stagnated growth of the developed economies under liberal democracy and the rapid growth under dictatorship, authoritarianism, or incomplete democracy like Korea and China. This theory implies that the reason for the success of Korea and China is that Park Chung Hee's authoritarian democracy and Deng Xiao-ping's communist dictatorship strongly supported and strictly applied the ED institutions to industrial or corporate policies and rural development policies. This logic can also apply to Singapore under Lee Kwan-yew and Taiwan under Chiang Kai-shek. Again, this logic can apply to the western industrial revolution under incomplete democracies with colonisation and slavery systems during the 18-19th century. All succeeded in economic development thanks to the ED institutions supported by their non-democratic governments. On the other hand, the long-term stagnation of the modern-day developed economies is due to the widespread adoption of EE institutions by their full-fledged democracies.

Interestingly, however, new institutional economics and the mainstream economics profession have difficulty explaining all those cases consistently. Especially how China lacking secure property rights and economic freedom could have grown so fast since the 1980s remains an economic perplexity. The new theory explains as follows. China adopted the ED incentive system applied to the collective farming sector and the state-owned enterprises, which has been the critical impetus for China's rapid development even under, but probably thanks to, the communist dictatorship. Note that Deng Xiao Ping's guiding ideology of 'the rich-led nation' is no different from the ED incentive system. The paper will return to this issue with more elaboration on Chinese rural development policy later.

^{1 6} See Jwa (2017a) for more details of the new theory of political economy.

Moreover, Acemoglu and Robinson (2012), while recently creating a buzzword of inclusive growth, fail to provide a convincing explanation for those cases. They designate political democracy as an inclusive political institution, non-democracy as an extractive political institution, and the market economy as an inclusive economic institution. In addition, they detail the inclusive political institution as a combination of plural politics and sufficiently centralised government without answering how those two elements could be consistently and harmoniously combined, while conceding the necessity of a strong centralised government for development. Here they are unclear about how a sufficiently centralised government can be democratic or different from an authoritarian government. With this simplified two-regime paradigm of inclusive vs. extractive institutions, they have difficulty explaining especially the successful cases of Korea and China under their mistakenly defined development-unfriendly, extractive political institutions. Compared to their model, the new theory with four regimes can provide much richer implications and applicability. Their model has no room for the non- or incomplete democratic, ED- and development-friendly political-economy regimes.

4. BUILDING A MODEL OF INCLUSIVE AND SHARED RURAL DEVELOPMENT FOR POVERTY ERADICATION

4.1. Necessary Elements of the Model

Now turning to the issue of rural development for poverty eradication, this section will discuss some essential ingredients of rural development model, which can be learned from the GTED, together with actual experiences of Korea's SMU.

4.1.1. ED Institutions

Above all, the GTED implies that the ED institutions are the precondition for inclusive and shared growth. The ED policy regime, via motivational incentive differentiation, can directly change the agents' economic behaviours, which, in turn, indirectly change their mindset to self-help spirit, reinforcing the development-friendly economic behaviour and producing inclusive and shared growth. Self-help mindset change, in turn, can help the ED policy regime to become permanent nature. Therefore, once the development process occurs thanks to the ED policy regime, the process will tend to be sustainable with favourable implications on inclusive and shared growth, as far as the ED incentive system continues to be intact. This case may be compared to the already-failed socialist economies adopting the EE policy regime, and most of the now-developed but growth-stagnated, the middle-income-trapped, and the underdeveloped economies all under the resurging EE policy regime. In this regard, the ED incentive-driven development will be sustainable with inclusive and shared growth. On the other hand, any policy regime antagonistic to the ED policy regime will be unsustainable, not to mention killing the incentive for economic development.

Moreover, as already mentioned, the 2019 Nobel prize-winning RCT and the now-well known propositions of behavioural economics such as loss and gain framings also imply the critical role of the ED incentive system in awakening the native people's self-help instinct dormant for long under the path-dependence of agrarian economic

mentality and in motivating them to run for self-improvement. Of course, this is no different from the significant discovery by the success experiences of the Saemaul Undong.

In this regard, the ED institution must be introduced as the critical element of any successful rural development game for poverty alleviation.

4.1.2. Non-market Organisation

The GTED implies that any development model should systematically incorporate non-market organisations' roles in the development process to be comparable to or even more crucial than the market. The organisation is the critical player to correct market failure and can play an even more vital role in a poverty-ridden rural economy where the market imperfections prevail so extensively due to such factors as the lack of social and physical infrastructure and the path-dependence on non-self-help agrarian mentality. The active roles of the village organisations and the government need to be fully incorporated in building the rural development model.

This was also the case for the Saemaul Undong, where the village organisation played a key role, just like the private corporation in the economy, with the village leaders assigned the active role like an entrepreneur.

4.1.3. Synergy between Formal and Informal Institutional Reforms

Having noted that the lack of the self-help spirit in the native farming or any other poverty-ridden society had been the key obstacle to development as widely observed in most developing countries, let us turn to the necessity of the government's mindset reform education. It is a necessary government's responsibility to supplement the formal ED policy regime by the informal self-help mindset reform via motivational education, which is an essential precondition for sustainable development. However, this issue has been treated lightly by the popular market-centric approaches, probably because it is assumed that an agent is rational or the mindset issue is supposed to be spontaneously handled by the market forces.

In general, the public policy intends to achieve a policy goal by changing the thoughts (mindsets or ideologies) and behaviours of the targeted people consistently with the policy goal. Thus, from NIE's perspective, firstly, the development policy should introduce and enforce strictly the formal institutions, which intend to induce the people's behaviour into a desirable direction. Secondly, the success of development policy also depends on how to change the informal institution such as people's mindsets to make the new behaviour sustainable because behavioural change forced only from outside without the supportive mindset change tends to be ephemeral. More specifically, the former task should be approached by formally establishing the ED institution that differentiates incentives according to whether the people's behaviour meets specific development standards. On the other hand, the latter task to change people's mindsets can be approached by educating people about the importance and necessity of a self-help mindset.

It has been very well recognised that the self-help spirits of the Saemaul leaders and the actively participating woman leaders, in particular, were critical for the SMU's

success. Naturally, things cannot go well without the voluntary and active participation of villagers. In that sense, it is noteworthy that the Saemaul education played an important role in changing the leaders' and the villagers' mindsets from blaming others for misfortune to the self-help spirit of blaming themselves. Note that the Saemaul spirits were declared as 'Diligence, Self-help, and Cooperation', and Saemaul education was concentrated on instilling such spirits into the people and teaching them how to work together to increase productivity and income. Saemaul leaders played a crucial role in this educational program as a lecturer by sharing their success experiences.

In the end, changes in mindset are essential, but nothing can happen without a change in actual behaviour or habits. According to the SMU experience, the ED policy with preferential treatment of the self-help villagers and villages helped transform all the villagers' mindsets and behaviours into self-help varieties. In the end, by combining the ED policy and Saemaul education synergistically, SMU was able to solve the crucial task of turning a non-self-help mindset into a self-help one and then turning it into actual behaviour for productivity increase.

In this regard, the rural development policy for poverty eradication needs to take advantage of the synergy between two reforms, formal institutional reform with the ED policy regime and informal institutional reform with self-help mindset education, to improve its sustainability.

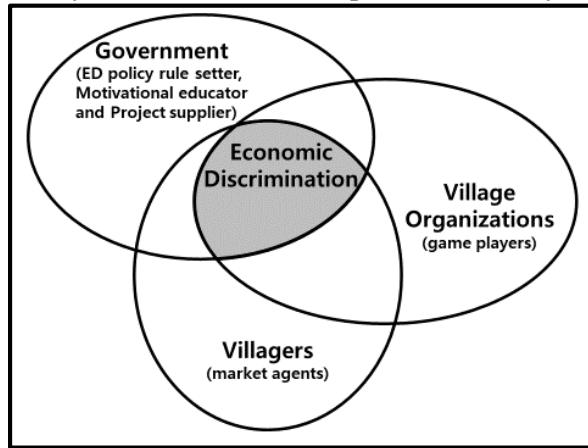
4.2. A Trinity Model of Rural Development for Poverty Eradication

4.2.1. Structure of the Model

Figure 2 presents the model of rural development for poverty eradication by consolidating the lessons from the new theory of development, GTED, as well as the experience of SMU. In fact, Figure 2 is the direct replication of Figure 1 in essence with some modifications suitable to the rural society. Here, one crucial extension from Figure 1 emphasises the need for the government to supplement the formal ED-rule setting with an informal institutional reform such as a self-help mindset change by motivational education and to provide appropriate projects for continuous income generation. This model states that the modernisation of rural society and poverty eradication can be achieved by implementing the ED principle by the trinity of development where:

- (1) The rural villagers (households) work as market agents.
- (2) The village organisations, as if corporations, internalise the FR behaviour and are led by village leaders as entrepreneurs.
- (3) The government sets the ED rule with motivational education and provides projects for continuous income generation.

This paper claims that this model, played as a development game under the ED rule, can bring a simultaneous achievement of increasing income and a self-help mindset reform, thereby leading to sustainable rural development with poverty alleviation and inclusive and shared growth.

Fig. 2. Trinity Model of Rural Development for Poverty Eradication

4.2.2. Role of the Trinity of Rural Development: Villagers, Village organisations, and Government

The trinity model identifies the trinity of rural development as villagers, village organisations, and the government. This section will elaborate on their specific roles for rural development in some details.

Overall, rural villagers engage in the Economic Discrimination (ED) function of the market through peer pressure within their communities. Village organizations, led by village leaders, enhance the villagers' relatively weak ED function within an imperfect rural market. Simultaneously, they are compelled to compete for improved performance under the government-established ED game rules.

Here, some details about how severe the market failure would be in the poor rural society, in general, may be necessary to understand the model better. First of all, for poor rural villagers or farmers as individual agents, the underdevelopment of public goods such as rural physical and institutional infrastructures is an absolute bottleneck limiting their capacity to break through their poverty trap. They cannot do much about it individually, given the FR-led market failure due to high transaction costs. Theoretically speaking, a village organisation can minimise transaction costs through its hierarchical command system, and therefore internalise the FR activities and minimise market failures. Accordingly, to provide public goods such as villages' physical infrastructure with high external effects for a whole village, the village organisations need to be in charge of village infrastructure construction and be designated as if they were a construction company. Naturally, the village organisations' leaders as project managers, by monitoring the participation and performance of individual villagers, can significantly help minimise the potential market failure and maximise the village and villagers' performances.

Furthermore, by recognising such a village organisation's role to internalise the FR-led market failure, this model breaks the conventional wisdom that market failure can be resolved only by government intervention. Thereby, the model can induce an inclusive and shared growth among all the village members, in principle, because every member is given an equal opportunity to participate in village projects jointly. The village organisations play a key role similar to a corporate organisation in the private economy, where the village

leaders play a function identical to private entrepreneurs. This village-based rural development policy will produce a shared growth compared to the individual household-based policy because it can more easily bring all the village members into ‘the development game’.

Lastly, the government should maintain the ED rule to support better-performing villages based on the village’s actual development performance with government-funded projects and provided an ongoing motivational education for a self-help mindset change. Thereby, the government can immerse all villagers and villages into a fierce performance competition, inspiring capitalist self-help spirits among the villagers, and can help transform the agrarian into a capitalist economy. As a result, the synergy effect of the ED functions of villagers, village organisations, and the government, acting together as an economic discriminator, can bring poverty eradication and rural development.

In sum, having the ED incentive structure and the self-help educational program enforced by the government and the market failure internalised by the village organisations, the trinity model can achieve an inclusive and shared growth driven by government and community together. This had also been the case for the similarly structured Korea’s SMU.

As a final point, the trinity model fundamentally embeds the community’s democratisation process by emphasising the role of village organisation. This model trains villagers in autonomously selecting the leaders, establishing village organisations such as the village general meeting and other internal sub-organisations, and monitoring them to work for the villagers’ common benefit as well as participating as members of those organisations. As the rural economy grows and villagers’ income increases in a shared manner, the whole nation would necessarily transform into a middle-income society, which, in turn, paves the road to a full-fledged modern democracy through the participation of community members pre-trained for democracy. In the case of Saemaul Undong, President Park Chung Hee often declared that the Saemaul Undong was an arena for pre-training democracy. Korea’s democracy has now greatly benefited from Saemaul Undong’s experiences.

4.2.3. How to Run the Trinity Model as Sustainable ‘Rural Development Game’?

The trinity model is meant to be a model for a controlled development game, a replica of SMU. Therefore, to complete the model to work as a game, the government has to find out how to have villagers and villages voluntarily rush to modernise their living environment and make income through either competition or cooperation with other towns if necessary. To address such real issues of the development game, the government and any outside donors need to resolve the issue of how to allocate investment funds for what kind of development projects, under the assumption that the government and donors could also solve the problem of fund mobilisation anyway.

Assuming that everything should begin from the zero base given the extreme poverty condition of the concerned villages, one can draw a fundamental investment policy principle from SMU’s experiences. That is, ‘most investment projects should be able to provide a direct income source for villagers and village units above anything else, and otherwise the game will lose momentum from the outset’. Therefore, while projects need to be funded by the government or outside donors, they should be managed by the village organisation unit and carried out by the villagers themselves under village leaders’ control.

Afterward, the government's allocation of the investment fund should abide by the ED principle, conditional on the previous-round project performance after the first-round unconditional support. The excellent performance with projects will bring new funding for the next round project, but the poor performance will cause no more or less funding in the next round. In the latter case, the villages will be given less chance to improve their living environment and income.

Project management by outside private construction or commercial companies is not advisable because it will kill the village organisation's chance to work and learn management experiences and earn income for the village as a whole, and the villagers will tend to be marginalised out as income-earning workers. Therefore under the assumption that the government and donors reasonably well select the projects suitable for the village level capability and as far as the government can provide various technical assistances if necessary and, at least, the village itself is reasonably capable of managing the project, then the management responsibility should be assigned to the village organisations.

Under this consideration, what could be the potential projects? The order of priority projects is as follows; public-good projects funded by the government come first in early pace, followed by villagers' private-good projects. Most infrastructure projects which in principle belong to the government's responsibility, could be the priority. In this case, the villages will compete or cooperate among themselves by the performance of their village infrastructure constructions such as roads, water canals, public buildings, public utility systems, reforestation projects, etc. The wish list of infrastructure projects could be different depending on each village's conditions. Therefore, the choice of projects should be made by the village's own decision, maybe via village general meeting with outside advice from the local government and others if necessary.

Following the initial stage of income-earning, saving, and capital accumulation aided by the micro-banking institutions usually self-managed by the village unit, a reasonable sum of capital for private projects will be accumulated, and a self-help mindset and behaviour will begin to be realised in terms of the level of project performances. Then the village and villagers can venture to new high-value-added, private farming projects and other village businesses with government financial support programs. Hopefully, this latter pace will be followed by the self-reliant stage where the development cycle with high-value-added private farming or small businesses is routinised as regular and sustainable.

4.3. Comparison of the Trinity Model and Other Popular Programs

It may be worth comparing the trinity model with other internationally popular poverty eradication and rural development models as compared in Table 1.

The traditional rural development models can be characterised as a household-centered market model or a small number of model village programs.¹⁷ Here, the government has been a benign bystander, or worse, a spoiler rather than a promoter by not actively adopting ED policy rules and motivational education programs, and the village organisations have not been allowed the leadership role. Thereby, traditional models have been prone to market failures and produced mixed results. The individual household-based approach may be useful to take advantage of the motivational effect of the households'

¹⁷ See, for example, Kretzmann & McKnight (1993), UN HABITAT (2008), and Stoltenberg Bruursema (2015).

Table 1

Comparison of Trinity Model and Other Programs

	Trinity Model of Rural Development *	Community Development Model in general**	UN Millennium Village Project***
Players	- Villagers (Households) and Village organisations (leaders)	- Single town (place-target), and/or Households (people-target)	- Village community and/or Households
The scale of the game	- Nation-wide, repeated game	- Target place and town	- Scaling up from a few to several villages via a learning process.
Rules of the game	- ED: Intense rivalry among Village organisations based on performance	- None	- None
Education	- Government-led motivational education on self-help mindset	- None	- None
Game makers	- Government · ED-rule setting, enforcement, and monitoring · Provision of infrastructure (public good) projects - Village organisations and leaders · Monitoring household participation for preventing free-riding and market failures	- Government · Need-based, people-target approach: egalitarian resource distributor · Asset-based, place-target approach: bystander (benign neglect) by egalitarianism	- International donors: funding but weak monitoring - Government: bystander (benign neglect) by egalitarianism - Community with weak ownership
Underlying Philosophy	- ‘God helps those who help themselves’ (emphasis on self-help spirit) - Organisation (government and village)-centered thought - Economics of Incentive	- Market-based Economics and egalitarianism	- Market-based economics and egalitarianism - Aid-driven development
Outcome or expected outcome	- Inclusive and shared growth (by joint efforts of government and community)****	Mixed	Mixed and unsustainable*****

Note: * Park (1979); Park (2005); Jwa (2017a, 2018b). ** Kretzmann & McKnight (1993); UN HABITAT (2008); Stoltenberg Bruursema (2015). *** The Earth Institute (home page). **** World Bank (1993); Jwa (2017b). ***** Mitchell et al. (2018); Sachs (2018); Sachs & Mitchell (2018).

ownership if they can invest in specific farming projects with outside supporters like the government and donors. However, suppose the rampant market failures in the poor rural society due to the free-riding prevent building basic infrastructure and sharing synergistic benefits stemming from cooperative works. In that case, the program's sustainability cannot be guaranteed. Furthermore, in this case, the lack of incentives to excel under the anti-ED, popular egalitarian support system and the lack of motivational education programs for self-help mindset reform will make matters worse on top of the insufficient infrastructure provision.

The trinity model, on the other hand, implies that a national development game under the government-provided ED rule and motivational education is likely to reduce the risk of failure by internalising the FR-led market failure and thereby facilitating the provision of public goods because it can bring all the villages and villagers into the game as players. Moreover, turning the policy target from individual households to village organisations, including and formally representing all households, will increase the possibility of inclusive and shared growth.

Recently, community capacity-building programs have focused on building a small number of model villages or individual projects, hoping others will voluntarily emulate such model villages; the UN Millennium village project was an example.¹⁸ However, even in this example of targeting the village unit, unless the other bystander villages are motivated enough to participate voluntarily, unlike Korea's SMU having a large-scale competitive game under the ED incentive rule, the program will become unsustainable. In this case, as mentioned several times, it must become evident that the ED incentive policy can serve as a wake-up call for the self-help instinct, which has been dormant under path dependence.

Concerning the community capacity-building programs, which now generally emphasise the importance of teaching how to catch fish rather than giving fish, Jwa (2018b: p 231) once stated, "*Knowing how to fish does not necessarily mean being a productive fisherman, or even going fishing. A more relevant question may be how to drive the fisherman to catch more fish in the sea or lake, not going on a picnic on the mountain with a fishing rod on his shoulder ... A fishing contest based on the ED incentive may help solve this dilemma*".

4.4. Some Suggestions for RCT

Deaton and Cartwright (2018) raise many interesting issues with the strength and weakness of the RCT experimental model, mainly from the statistical perspective. From the development perspective, this paper may provide a few suggestions on how to incorporate the emergent nature of development learned from the trinity model into the RCT, given the limited nature of the RCT as a *development experiment* compared to the SMU as *development policy* as shown in Table 2.

¹⁸ See, for example, the Earth Institute (home page in Google Web site), Mitchell et al. (2018), Sachs (2018), and Sachs & Mitchell (2018).

Table 2

Comparison of RCT and Saemaul Undong(SMU)

	RCT	Saemaul Undong
Philosophical basis	<ul style="list-style-type: none"> - Reductionism: The experimental group is treated as closed and isolated, without open interaction such as learning, rivalry, or cooperation. No complex mechanism for the synergy and emergence of the new order is allowed. - There is no referencing the ED incentive mechanism. 	<ul style="list-style-type: none"> - Holism based on complexity perspective: Cooperation, rivalry, and imitation led by open interaction among villages were fully utilised. Synergy via cooperation created a new order - Complex development process as non-linear order transformation via synergy effect could emerge. - ED incentive is the key philosophical and policy basis.
Methodology	<ul style="list-style-type: none"> - Simple application of lab experiments with unconscious body cells in medical research to conscious and complex human society reminds unsuccessful efforts for long by economists to make economics a genuine science. 	<ul style="list-style-type: none"> - The nationwide development game under the ED incentive rule helped maximise the development motivation by stimulating competitive spirit among individuals and villages who did consciously participate.
Experiment vs. Reality	<ul style="list-style-type: none"> - Participants may know RCT is a short-term experiment, responding opportunistically to meet the experiment's expectations. The experiment itself distorts the participants' behaviour, just like the aid recipients regarding the temporary donor-led program as a donors' exhibition program but not as their own development program. - Temporary experiments may fail to mimic the real impact under the permanent policy rule change. 	<ul style="list-style-type: none"> - Under the permanent change in the rule of the real-world game, agents felt pressed to be actively involved in the game in a self-help manner without being opportunistic. - Saemaul Undong was the actual game of success or failure, where the gain and loss framings were both operating. - Imposition of permanent game rule helped bring forth permanent change of self-help mindset and behaviour.
Policy implication or lesson	<ul style="list-style-type: none"> - The RCT concentrates on the aid or gift-induced development effect, typical with the ODA programs giving egalitarian support without referencing the ED incentive mechanism. - The RCT's "intervention group" members are given equal incentives, which kills the self-help spirit and behaviour. 	<ul style="list-style-type: none"> - The ED principle of only development rewarded can generate a development-friendly self-help spirit and behaviour. - Under the ED policy rule set by the government, the peer pressure by neighbours and the monitoring by village organisations helped prevent opportunistic behaviour.

It is noteworthy that the critical success factor of SMU stems from the open interactive process of the rural or national development game. However, the RCT has been trying to create a closed and isolated lab situation consistently with the statistical nature of the RCT. Motivation for development, learning from other villages, and cooperation among villagers, all created by rivalry among villages, were critical for the endogenous development process. It may be better to design the RCT to allow the synergistic interaction among the individual participants and the experimental groups to create such an emergent nature of development process. Thereby, the actual relevance of the experiment to development policy may greatly be enhanced.

The RCT is to apply the lab experiment with *unconscious body cells* in medical research to *conscious human society*. The RCT, lacking theory of economic development, may need to incorporate prior knowledge on the government development policy, which can be learned from the trinity development model and the SMU experiences. This paper proposes the ED incentive system can be the essential prior knowledge along the line emphasised by Deaton and Cartwright (2018, p.2), "RCTs can play a role in building scientific knowledge and useful predictions but they can only do so as part of a cumulative program, combining with other methods, including conceptual and theoretical development, to discover not 'what works', but 'why things work'." This paper could add that the SMU discovered '*things work only when the ED incentive policy is adopted and enforced.*'

The trinity model of rural development games directly targets the development performance, the evaluation of which, in turn, becomes the basis for further incentive differentiation for the next round so that the development process is automatically built into the game. *The ED principle of only development rewarded fundamentally differs from the RCT experiment to emphasise the aid or gift-induced development effect, typical with the so-far failure-prone ODA programs of usually giving egalitarian support. The former can generate a development-friendly self-help spirit and behaviour, but the latter may kill those spirits and behaviour. This paper implies that the RCT will be much improved in terms of policy relevance if adds the third intervention group under the ED incentive system, in addition to the ODA-type intervention group and the control group.*

4.5. The ED Institution as the Game Changer in Rural Development.

This paper's key theoretical and policy innovation lies in the ED policy regime. Now one may wonder how the ED institution can help overcome many problems commonly observed in implementing rural development policies in practice. For example, corruption of state leaders, policy-making officials, and even village leaders in charge of rural development, the inactivity of the villagers under the path-dependence of the ideology of blaming others for their misfortunes, political populism of promising free lunch and killing the self-help spirits, etc. have been common in the process of policy implementation, causing policy failure.

This paper argues that all those problems stem from the lack of ED institutions. The ED institution requires transparent and accurate evaluation of the performance and the corresponding fair reward or support. Therefore, once the ED institution is enforced as transparently and thoroughly as possible, there will be no place for such problems in general. Therefore, the government's strict enforcement of ED rules is critical to policy success.

Corruption or nepotism, in fact, stems from no or ill-enforced ED rules in national as well as local levels. Therefore, the ED institution becomes the effective preventer of corruption, nepotism or rent-seeking behaviour in policy implementation. In Korea's Saemaul Undong, the President himself directly monitored the Saemaul Undong and strictly enforced ED rules to prevent such behaviours. The corruption-free state leadership as such is a precondition for policy success.

An enough pool of innovative entrepreneurial village leaders is also critical for success. There is no shortcut for this except for utilising an evolutionary selection process where good leaders spontaneously emerge from inside the community. They should be democratically elected by the general community meeting as the village organisation's top managers but in honorary posts in the sense of no regular monetary compensation. Regular financial rewards would not be advisable to avoid village politics due to election competition but, if necessary, be minimised. Instead, they must be given appropriate incentives by recognising their leadership role. Based on the merit system, they will be given honorary recognition and special prizes for their excellent leadership linked to good village performance compared to other villages nationally. Such rivalry among villages for performance under incentive differentiation will help create an environment for good leaders to emerge. The management of the village organisation must keep to the ED principle, allowing every household an equal opportunity to participate and fair treatment, which helps prevent potential corruption, nepotism, and rent-seeking at the village level. The government must enforce the ED principle in evaluating and rewarding village performance and, on top of the motivational incentives, needs to provide leadership education for village leaders and villagers regularly.

Regarding the issue of activating the villagers' participation, one should note that there could be no purely voluntary participation in cooperative works only by moral suasion, even for one's own benefit. The ED incentive system is the solution for market failure due to externalities, and therefore, it can prevent not only the incentive to free ride but also moral hazard or nepotism. The ED incentive system treating people differently based on performance can wake up their self-help and self-interest instincts and make them move "voluntarily." Any household that opportunistically behaves and free rides must be excluded from the game until it changes behaviour and shows performance. In the case of Saemaul Undong, President Park Chung Hee always declared this principle to the people and enforced it. Thereby, the ED incentive systems help eradicate the incentive for inactivity and eventually help those villagers participate "voluntarily". Peer pressure by the village community members also helps. Even if the government and the village organisation provide the work for income, if some households take opportunistic behaviour, there is no reason to allow them to continue free riding. Only the ED principle can help change their behaviour and eventually make them successful. The ED policy is an effective means to turn failure-prone people into successful ones beyond simple moral suasion. The ED is the policy instrument to save people by declaring to discard them, just like the god who helps those who help themselves.

Therefore, the critical success factor for the trinity model will depend on how to effectively implement the ED policy regime. Above all, the performance evaluation should be fair and transparent, and the discriminatory support should be executed fairly. These are the precondition for guaranteeing people's compliance with the ED rule and the ED

policy's effectiveness and sustainability. It should be noted that if evaluations are unfair and opaque, and discrimination is not fair, then power politics for rent-seeking, moral hazard, and corruption will prevail, and the ED policy will fail. Therefore, implementing the ED rule fairly, transparently, and strictly is the precondition for the overall success of a sustainable poverty eradication and rural development policy. It may be worth noting that the originator of the Saemaul Undong, President Park Chung Hee was the champion of depoliticising the ED rule away from political distortion by the egalitarian policy, thereby paving the road for the Saemaul Undong's success, as already mentioned in Section 2. In fact, President Park Chung Hee stubbornly rejected the anti-ED, egalitarian idea of the cabinet and the political leaders to support all villages equally regardless of their different performances to avoid negative political implications.¹⁹

Finally, one may wonder how the trinity model would work differently under different political regimes or cultures. Note that the new theory of political economy based on GTED implies that as far as the ED institution is kept in place, the type of political regimes may not be as much relevant as usually emphasised in mainstream literature. The ED institution is truly a game changer in economic development. Formal as well as informal institutions (such as customs, cultures, and values) or political as well as economic institutions all need to conform to the ED institution if the society could have any chance to develop.

In this regard, one can understand why and how Korea and China could rapidly grow under authoritarian democracy and the communist regime, respectively. Moreover, it is very interesting to see that Korea achieved shared growth for urban and rural sectors with the success of Saemaul Undong, but China fell short of shared growth due to the limited success of her rural development effort. China adopted the well-known household-based cropping system to prioritise household share over collective one based on harvest performance by reforming the communist collective farming system, together with a corporate-led growth strategy, but because of the lack of enough incentive due to limited private land ownership, it failed to achieve shared growth. Note that the underlying land property ownership behind the success of Saemaul Undong was full private ownership, but China is still under the collective land ownership system. Therefore, China failed to replicate Korean Saemaul Undong to the fullest. In the end, Korea achieved shared growth, but China had a high but polarised growth between the rural and urban sectors. However, now Korea faces a new era of economic egalitarianism²⁰. China also seems at the juncture of turning back to a socialist egalitarianism by reversing the ED policy regime, which has brought current prosperity.

5. CONCLUDING REMARKS

The central message of this paper can be summarised as follows. Rural community development programs including poverty eradication, which aim at individual households or a small number of model villages according to the market-centric economics perspective, tend to deemphasise the active role of the government and the village organisations while

¹⁹ See Jwa (2017a, 2017b, 2018b) for this episode.

²⁰ See Jwa(2017b, 2020) for the history of Korea's rise and fall of economic development in recent decades.

deifying the market. However, those programs are destined to fail to create spillover effects for the whole community or all communities due to various obstacles such as high information/transaction costs-led market failures and behavioural path-dependence in rural society. Free markets alone are, therefore, not an effective solution to sustainable poverty alleviation and rural development.

To deal with this problem, designating the village organisation as an entity to monitor villagers' participation and performance and internalise their moral hazard behaviours that lead to market failure, such as opportunistic free-riding behaviour, can increase the program's probability of success. Ultimately, the government-led ED policy can be added as the game rule for the performance competition to complete the trinity model for sustainable poverty eradication and rural development. Besides, the education program for mindset reform will be required for visible and sustainable results.

Together with these formal and informal institutional reforms, the government should finance the village infrastructure projects to be managed by the village units and cooperatively carried out by the village members to generate income for village units and villagers and to modernise the living conditions of the villages simultaneously. In addition, these income-generating infrastructure projects can create spillover effects from the initial income-saving-capital accumulation to the investment into new farming businesses, further income-saving-capital accumulation, and reinvestment, leading to further positive feedback cycles.

Therefore, the trinity model can bring about sustainable, inclusive, and shared growth via the collaborative development action of all community members driven by the government and community together. Moreover, the trinity model suggests that the RCT experiment can be made more development-relevant by adding a new intervention group subject to the ED rule helping only those who perform well to the existing ODA-type intervention group receiving the egalitarian support disregarding the performances. In sum, the ED institution can help innovate the economic development theory and policy.

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Determinants of Management Practices among Manufacturing Firms in Pakistan

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A strong case for looking at management quality as a source of productivity has been assembled in recent years by studies showing that variations in management quality account for a big part of the productivity gap across firms and countries. In this paper, we investigate the determinants of management quality among Pakistani manufacturing firms, using a new World Bank Enterprise Survey that provides firm-level information on the use of modern management practices. Our findings suggest that the adoption of good management practices is influenced by such characteristics as firm size, product market competition, ownership type, and the information available to staff and managers. We also find that such considerations are more relevant for medium and large firms than for small firms. Finally, we find that the link between management practices and productivity is not uniform and varies from practice to practice.

JEL Classifications: L1; L25; M5.

Keywords: Management Practices; Productivity; Product Market Competition; Ownership Diffusion; Information Access; World Bank Enterprise Survey.

(A) INTRODUCTION

Good management is associated with certain formal and structured practices in offices, factories, and other workspaces whose adoption is considered to lead to better business performance, as reflected in productivity, employee satisfaction, customer retention, or social welfare considerations. Indeed, this is the core justification for the academic discipline of management science and considerable literature exists on the conceptual and empirical ramifications of this idea. Good management is also of relevance to the discipline of economics. In recent decades, a series of empirical studies have shown that variation in management practices accounts for a considerable part of the variation in productivity across firms and countries. This is the conclusion, for example, of periodic reviews of “the new empirical economics of management” (Bloom *et al.*, 2014 and Scur *et al.*, 2021). Furthermore, in international comparisons, management quality in developing countries is found to be much lower than in developed countries due to the former’s having a thick tail of poorly managed firms. Expanding the number of better-managed firms should, therefore, be a matter of high priority for developing countries.

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For many such countries, however, empirical assessment is hampered by a lack of datasets in which management practices are defined in a consistent manner, which are representative across different sectors and scales of enterprise, and which have been collected through a random sample approach. For Pakistan, published studies are typically based on samples selected non-randomly, containing a small number of observations, and narrowly focused on one or a few sectors.¹ Fortunately, better information on management practices in Pakistan has become available in recent years. One source is the latest World Bank Enterprise Survey for Pakistan (WBES, accessible at World Bank, 2023) which provides access to a large national random sample of manufacturing (and service) firms containing information on specific management practices.² The main objective of the present study is to conduct a rigorous analysis of the determinants of good management practices in Pakistan based on the latest WBES.

The remainder of this paper is organised as follows. Section B contains a brief review of what is known empirically about management practices in Pakistan from a variety of sources. It also contains a description of the management practices covered in the WBES dataset. This is followed by a discussion in Section C of the hypotheses we propose to investigate based on insights derived from theoretical considerations and the relevant literature. In Section D, we describe our analytic procedures and discuss the main results obtained. Section E concludes.

(B) MANAGEMENT PRACTICES AMONG PAKISTANI FIRMS

There are four main sources of information about management practices prevailing among Pakistani firms. First, some information about the awareness and application of different quality management practices is available from the secondary literature. Second, some information on the use of international certification is available from the International Organisation for Standards (IOS). Third, Choudhary *et al.*, (2018) provide information on management practices collected through the PK-MOPS project. Finally, some information is now available on management practices from the latest round of the WBES for Pakistan. We provide illustrative examples from the first three sources below and follow up with a more detailed description of information from the fourth source.

As already noted, the secondary literature for Pakistan consists largely of studies based on non-random samples of convenience whose findings cannot be generalised. Nevertheless, one study (Kureshi *et al.*, 2009) provides a useful point of departure. This study surveyed 107 small and medium enterprises (SMEs) in northern Pakistan inquiring about the level of awareness (knowledge among managers) and application (actual use by firm) of nineteen practices related to business improvement. The main findings were the following: (a) awareness rates varied greatly among the practices, ranging from lows of 34 percent for benchmarking and 43 percent for Six Sigma to highs of 83 percent for customer surveys and 74 percent for corporate social responsibility; (b) application rates also varied widely, from lows of 4 percent for Six Sigma and 20 percent for PDCA (plan-do-check-

¹ Such samples of convenience may produce useful learning in limited domains, but their results are not generalisable for policy purposes. Case studies, staples of the management literature, may be good tools for teaching but are limited when it comes to testing hypotheses and designing policies for wide application.

² Information on management practices was also collected through the Management and Organisational Practices Survey in Pakistan (PK-MOPS), conducted by the Pakistan Bureau of Statistics in several stages during 2014-18. For a description and discussion of this dataset, see Choudhary *et al.*, (2018).

act) to highs of 90 percent for employee suggestion schemes and 75 percent for business practice reengineering. The study did not investigate the causes of differences in application rates by sector or firm size or other possible determinants.

Information from the IOS shows how many firms adhere to its standards, including ISO 9001 which is broadly concerned with management practices relating to customer focus, efficiency, evidence-based decision-making, and relationship management. Over the last two decades, this certification has spread widely across countries and sectors. For Pakistan, the number of ISO 9001 certifications rose from around 600 in 2000 to over 3100 by 2022 (see IOS, 2023).

Analysing data from the PK-MOPS survey, Choudhary *et al.*, (2018) find 27 percent of Pakistani firms (from a combined sample of 6876 firm/year observations) using Performance Monitoring as a management practice and 22 percent using Incentives and Targets. They report that the use of these practices has risen over time (between 2010 and 2015) and varies enormously across provinces.

The latest WBES for Pakistan is our fourth source of information. It contains information on specific management practices collected on a national basis using a random sampling methodology. The WBES was administered to both manufacturing and service firms, the former being distributed across 23 industrial sectors and 5 regions of the country (see Annex 1). The sampling frame was designed to be stratified across sectors, regions, and establishment size.

The section on Management Practices contains 11 questions, including some of a follow-on nature that are only relevant if the previous question was answered in the affirmative. The questions pertain to six aspects of management with three relating to Operations (production monitoring, target setting, and process problem fixing) and three to Human Resources (bonus awarding, staff promotion, and underperformance remediation). These are shown in Table 1 below, along with the frequency distribution of usable responses. The exact questions asked, the possible responses, and how responses are coded are shown in Annex 2.

Table 1

Management Practice Questions and Responses in the WBES

Management Practices	Response Frequency
Performance Monitoring: Did this establishment monitor any production performance indicators?	320 yes, 501 no.
Target Setting: Did this establishment set any production provision targets?	314 yes, 506 no.
Problem Fixing: When production process problems occurred, were they addressed, or was no action taken?	501 appropriate actions taken, 312 not.
Bonus Awarding: Were performance bonuses for relevant staff based on production targets?	402 yes, 416 no.
Staff Promotion: Were non-manager staff promoted solely on performance and ability or based on other factors?	446 performance and ability; 290 other.
Underperformance Action: Was remedial action taken or not after identifying staff underperformance?	413 yes, 354 no.

Source: World Bank Enterprise Survey for Pakistan, 2023.

The first management practice, Performance Monitoring, records whether the firm monitors production performance indicators. Such indicators could include the volume of production, number of defects, cost of inputs, and so on. The second, Target Setting, records whether the firm sets targets with respect to production, defects, delivery times, and so on. The third, Problem Fixing, records whether the firm deals with process problems (such as machinery breakdown or worker errors) rapidly and thoroughly. The fourth, Bonus Awarding, records whether the firm rewarded relevant staff for meeting production targets. The fifth, Staff Promotion, records whether non-manager staff are promoted for performance and ability or other considerations. The sixth, Underperformance Action, records whether remedial action (reassignment or dismissal) is taken with respect to underperforming staff.

Note that affirmative answers to the above questions are considered good management practice (coded as 1) while negative answers are considered poor practice (coded as 0). Similar notions of good practice are found in the content of such concepts as Total Quality Management and ISO-9001 which are widely used in management science literature. The extent and distribution of relevant management practices is shown in Table 2. There are two main patterns. First, some practices are more popular than others. Less than half the firms claim that they follow good practices in the areas of Performance Monitoring, Target Setting, and Bonus Awarding while a much higher proportion reports following good practices in relation to Problem Fixing (61 percent), Staff Promotion (61 percent) and Underperformance Action (54 percent). Second, there is a clear relationship between management practices and firm size. The prevalence of each practice is higher among larger firms (with 20 or more workers) than among small firms (with fewer than 20 workers).

Table 2

Sample Means for Management Practices

	Full Sample	Larger Firms	Small Firms
<i>Management Practice</i>			
Performance Monitoring	0.39	0.44	0.25
Target Setting	0.38	0.43	0.25
Problem Fixing	0.61	0.64	0.55
Bonus Awarding	0.49	0.56	0.28
Staff Promotion	0.61	0.67	0.43
Underperformance Action	0.54	0.58	0.42

(C) THEORY, LITERATURE AND HYPOTHESES

What drives the adoption of good management practices? The management science literature reflects two broad conceptual approaches to this question. One considers that firms adopt practices largely to conform to established norms. The pressures that arise may be coercive (such as when certain practices are required by law or regulation), mimetic (such as when the adoption is imitative of peers or market leaders), or normative (when adoption is driven by an industry norm). This perspective goes under the name of new institutional theory (DiMaggio and Powell, 1983). Another perspective emphasises the

importance of the resources available to the firm as the main driver of management practices and is thus referred to as the resource-based view. The economics literature, of course, emphasises the perspective of profit-maximisation under which specific practices may be adopted if the benefits from doing so exceed the costs. The relevant costs and benefits need not be pecuniary and measurable in nature but could also be non-pecuniary and non-measurable.³ A review of the empirical literature suggests that most factors found to be statistically related to management practices can be accommodated under one or the other of these perspectives. In the discussion that follows we consider five broad categories of determinants of management practices: firm size, market structure, ownership characteristics, human capital and information environment, and business performance.

Firm Size

The role of firm size is conceptually straightforward. The larger a firm the more likely it is to have multiple operational products and processes, and diverse specialised functions. All these make the management of a large firm inherently more complex than that of a small firm. Accordingly, the larger the firm the more likely it is to require formal management practices, both for operations and for human resource deployment. Furthermore, operational efficiencies and cost savings may be achieved from upgrading management practices, which suggests that the economic perspective may be appropriate in this case. At the same time, however, the larger a firm is, the more resources it is likely to have at its command to upgrade its management practices, suggesting a link with the resource-based perspective.

A positive link between firm size and the adoption of good management practices is often found in the empirical literature. The interpretation of this link is complicated, however, by the fact that the relationship may be endogenous. Just as larger firm size may compel the adoption of formal management practices so also might the latter enable a firm to grow. In other words, better-managed firms may grow faster than poorly-managed firms. Bloom and Van Reenen (2016) report a positive correlation between firm size (measured by number of workers) and management quality score and interpret this as indicating that better management drives larger firm size. Agarwal *et al.* (2013) report a positive correlation for their study of firms in New Zealand but interpret it as larger firm size driving better management.

Studies of this link are rare for Pakistan because of the lack of datasets that cover a wide range of firm sizes. One study (Raziq, 2014), based on a sample of 357 firms (with 20-250 workers), reports mixed results that were only “partially supportive of a positive relationship between firm size and the adoption of high-performance management practices.” Partially supportive means that some management practices differed among the firms while others did not. Choudhary *et al.*, (2018), using a much larger sample, report a statistically significant correlation between firm size (measured by number of workers) and management quality (a composite score based on the various management practices engaged in by firms).

³ There is a fourth strand as well, sometimes referred to as contingent management. The idea here is that a firm’s management practices vary as its environment varies. Every firm’s management, therefore, is contingent on its specific circumstances.

Market Structure

The adoption of formal management practices could also be influenced by market structure. Firms in competitive markets have an incentive to adopt practices that may give them a production or marketing edge whereas firms in oligopolistic markets do not have a similar incentive. Also, in competitive markets, poorly--managed firms are more likely to exit, leaving better-managed firms to be more widely represented. Bloom and Van Reenen (2010) highlight variations in the intensity of product market competition as an important determinant of variations in the average quality of management practices across countries. In another study, Bloom *et al.* (2016) show that import penetration plays such a role across a multi-country sample: the higher the import penetration in an industrial sector the higher the management score of firms in that sector. Not all measures of competition find empirical verification. Agarwal *et al.* (2013) measure competitive pressure as the number of competitors reported by the firm and find that this is not significantly related to their measure of management quality for manufacturing firms in New Zealand. For Pakistan, Choudhary *et al.*, (2018) report a positive link between the management quality score of firms and their exporting status. These results generally support the economist's perspective with good management practices being adopted in reaction to revenue and profit threats (from the potential loss of sales) posed by competition. However, one could also frame these results as being consistent with the institutional perspective. Firms involved in exporting tend to have better management practices and this norm spreads throughout the relevant sector through mimetic or normative pressure.

Ownership Characteristics

Ownership arrangements vary from concentrated forms, such as sole proprietors and limited partnerships, to diffused forms, such as joint stock companies with many shareholders. The more widely ownership is dispersed the more pressure there should be for formal management processes that boards and shareholders can observe, and the more likely it is that poorly performing managers will be removed by restive boards and shareholder groups. By the same token, at the other end of the ownership spectrum, sole proprietorships are more likely to be characterised by inertia in management style and a reluctance to adopt new practices due to habit or ego, sometimes referred to as the "owner knows best" syndrome. Sole proprietorships are also more likely to feature transitions in executive management from father to son (usually the eldest son) with no regard necessarily for the latter's suitability for the job.

In their study of manufacturing firms in New Zealand, Agarwal *et al.* (2013) report significant links between different measures of ownership and management quality. For example, family ownership has a significant negative correlation with management quality while diffused and international ownership have positive correlations. Indeed, in a broad review, Tsoutsoura (2021) finds much evidence that family firms are typically less eager to adopt modern management practices. For Pakistan, Choudhary *et al.*, (2018) find that concentrated forms of ownership are negatively correlated with management quality. Iqbal and Nakhoda (2024) report a similar correlation of ownership diffusion with international certification, which may also be considered a type of good management practice.

There is indirect evidence as well on this issue for Pakistan. Khan and Nouman (2017) report a negative relation between firm performance and family domination in ownership while Ullah *et al.*, (2017) report the same for concentrated ownership. Similar evidence is reported for the effect of different forms of ownership on financial management (involving dividend distribution and debt leverage policies). However, most indirect evidence comes from studies of publicly listed firms which tend to be relatively large in scale and not statistically representative of the manufacturing sector of Pakistan.

Human Capital and Information Environment

Firms whose staff and managers operate in an environment in which information is easily acquired are more likely to adopt good management practices. This is more likely to happen when staff and managers are educated and thus able to access and process information from a variety of sources (professional networks, print and social media, and so on). In a recent review, Valero (2021) confirms a positive link between staff and manager education and management quality in a variety of settings including manufacturing and healthcare provision. Indeed, positive links are also reported between the presence of colleges and business schools in specific locations and the adoption of good management practices in nearby firms, an example of a positive spillover externality. For Pakistan, Choudhary *et al.*, (2018) report a positive correlation for management quality with measures of education of managers and non-managers. They also report a similar role for firm age which could also be thought of as a measure of accumulated human capital.

In other studies, the information interpretation and dissemination role of computers is emphasised as a determinant of good management practices (Bloom *et al.*, 2013). For Pakistan, the availability and use of websites and social media presence are found to be positively correlated with the adoption of international certification by Iqbal and Nakhoda (2024).

The roles of human capital and information appear to be more related to the institutional perspective than to other theoretical considerations. Knowledge about good management practices in peer or comparator firms is obtained through human capital and information technology channels. It is then communicated in the form of normative or mimetic pressure leading to the adoption of similar good management practices.

Business Performance

The link between management practices and business performance has been studied in diverse contexts using a variety of databases. Studies using the World Management Survey database have shown that higher management quality scores are correlated with better performance (measured in different ways) in a variety of manufacturing and service sector settings (Scur *et al.*, 2021). However, studies focused on international certification measures, such as the ISO 9001 protocol, report mixed results. They find positive, negative, and insignificant correlations between protocol adoption and better business performance (Sfreddo *et al.*, 2018).⁴

For Pakistan, Choudhary *et al.*, (2018) find management quality scores for firms to be positively and significantly correlated with various measures of business performance,

⁴ A negative correlation may arise because there is a financial cost involved in acquiring ISO 9001 and some firms may not be able to recover this cost in enhanced sales over time.

such as labour productivity, profitability, and employment growth. Other studies look at the correlation of international certification with different measures of business performance. Masakure *et al.* (2009) find export sales to be positively correlated with certification status among exporting firms in the textiles, leather, fisheries, and agro-food sectors in Pakistan. We may consider this study to be relevant as well since productivity is often associated with export success. Fatima (2014) reports a positive and statistically significant correlation of certification with financial performance among a sample of publicly listed firms in Pakistan. Raziq and Wiesner (2016) report a positive relationship between their measures of high-performance (human resource) management practices and financial and operational outcomes. The last two studies, however, are based on relatively small samples.

The role of business performance is directly related to the theoretical perspective prevailing in economics. Good management practices are adopted because they are thought to lead to gains in productivity and profitability. Whatever costs may be involved in changing management practices are expected to be more than offset by financial benefits over time.

As previously noted for firm size, the relationship between business performance and the adoption of formal management practices may also be endogenous. While the expectation of better performance may drive adoption, it may also be true that high-performing firms choose to adopt good management practices because they are better resourced. Indeed, for the ISO 9001 certification, some studies have found this to be the case (see Dick *et al.*, 2008). To our knowledge, no study has examined the empirical importance of this endogeneity issue for Pakistan.

Hypotheses

The above review yields the following five hypotheses that we propose to test in the next section of this paper:

- H1: Larger firms are more likely to adopt better management practices than smaller firms.
- H2: Firms operating in more competitive industries are more likely to adopt better management practices.
- H3: Firms with more concentrated forms of ownership, such as sole proprietorship, are less likely to adopt better management practices.
- H4: Firms featuring work environments conducive to access and dissemination of information are more likely to adopt better management practices.
- H5: Productivity is likely to be higher among firms with better management practices than among those without such practices.

(D) ANALYSIS AND RESULTS

Analytic Approach

Our analytic approach unfolds in three stages. First, we test a statistical model in which the dependent variables are the management practices listed in Table 1 and the independent variables are proxies for firm size, market structure, ownership characteristics, and the information

environment available to staff and managers (see Annex 3 for brief descriptions). Second, we investigate the role of firm size in more detail by creating two sub-samples, grouping large and medium firms in one category and small firms in the other, and testing our empirical model for each category separately. This allows us to comment on the link between firm size and management practices while reducing endogeneity concerns. Third, we run a model in which productivity is the dependent variable and management practices are independent variables; the results should help assess whether the expectation of higher productivity may be considered a significant determinant of the adoption of certain management practices.

Our dependent variable is different from that used in some of the literature cited above. Much of the empirical literature is based on the World Management Survey (WMS) dataset covering 11000 firms across 34 countries that has been conducted in waves since 2004 (see Scur *et al.*, 2021, for a recent overview). The WMS dataset contains 18 questions on management policies with responses recorded on a scale of 1-5. A composite management quality score is derived from these responses, giving each question equal weight.⁵ Our WBES dataset contains 11 questions whose response format is not uniform. Some have Yes/No formats while others have more than two response options. We have, therefore, defined six management practices from this set using the original Yes/No responses for three practices and re-coding the remaining three to also get binary outcomes (See Annex 2 for coding details). Our procedure imposes minimum researcher discretion on the coding of the responses. Since the management practices thus derived are binary in nature, taking the value 1 for what we consider “good” practice and the value 0 otherwise, the econometric procedure chosen for their analysis is a probit regression.⁶

We measure firm size as the number of permanent full-time workers as of the last fiscal year. While other measures have also been used in the literature (such as volume of sales or value of assets) the number of workers is more easily observable and is widely used in the literature. The WBES sample is also stratified by this measure and adequate observations are thus available for analysis. Since some very large firms are present in the sample, we use the log of the number of workers in the actual statistical analysis to moderate the effect of outliers.

To assess the role of market structure, we consider two variables. The first, Exporter, indicates whether the firm produces any amount of output for exports. Firms operating in export markets are likely to face more competition and are thus more likely to want to improve management practices to retain customers. Bloom and Van Reenen (2010) highlight the role of exporting in improving management quality in their review of initial findings based on the WMS database. A second option is a variable called Informal Competition which reports whether the establishment competes against unregistered or informal firms. If it does, the degree of competition is likely to be significant and we would expect the firm to adopt practices to give it a productive or reputational edge. The signs of the coefficients for both variables are expected to be positive.

The key ownership characteristic we use in our empirical analysis is whether the firm is owned by a sole proprietor. For reasons already noted in the previous section, sole proprietors are more likely to be wedded to a traditional “owner-knows-best” version of

⁵ Choudhary *et al.*, (2018) use a similar approach for PK-MOPS dataset.

⁶ When the dependent variable is binary, the popular Ordinary Least Squares estimator generates invalid standard errors. This is because its residuals violate common assumptions such as heteroskedasticity and normally distributed error terms. In such cases, probit or logistic regression techniques are preferred.

management and less likely to be open to experimentation with modern management practices. Based on this assumption and the findings of previous studies, we expect sole proprietorship status to be negatively correlated with good management practices.

Regarding the information environment, the literature suggests that the education level of staff and managers influences the adoption of formal management practices. Unfortunately, we have limited data on staff and manager education levels in our Pakistan sample. Accordingly, we use an alternative variable that offers indirect information about the skill level of staff. This is a variable called Training which records whether the firm offers training to its staff. We expect the average level of skills to be higher in such firms, leading to the same positive outcome for management practices as observed for education variables in previous studies.⁷ Another proxy is whether the establishment has its website and social media page. Firms with websites and social media presence are likely to feature more open information-sharing attitudes and environments. We expect managers and staff in such firms to be better informed about business practices outside their firms.

Finally, we use the log of sales per worker as our preferred measure of business performance. While the relevant literature has experimented with a variety of such measures, sales are relatively easy to measure and report and likely to be more reliable than other measures such as profits which firms might be inclined to under-report.

Unobserved industry and regional variations are accounted for by conducting all regressions with industry and region-fixed effects. This procedure does not identify why a particular industry or region may exhibit specific results, but it does assist in making the statistical estimates more precise for the other included variables.

Table 3 provides some basic information about the variables we have chosen for our analysis. Among independent variables, exporters are relatively few (at 15 percent) while sole proprietorships and owned websites are relatively numerous (at 58 percent and 56 percent of our sample). There is a clear pattern of variation across firm size: larger firms are more likely to be exporters, have a website, and offer training; they are also less likely to be sole proprietorships or face informal competition.

Table 3

Sample Means

	Full Sample	Larger Firms	Small Firms
<i>Independent Variables</i>			
Exporter	0.15	0.19	0.03
Sole Proprietorship	0.58	0.51	0.79
Website/Social Media	0.56	0.63	0.38
Informal Competition	0.36	0.33	0.44
Formal Training	0.1	0.14	0
Firm Size	137	182	11
Observations	814	600	214

⁷ Note that some of our independent variables could serve multiple roles. For example, exporting could also be thought of as an information conduit. Exporters are more likely to come across economic agents, such as buyers, equipment suppliers, and marketing professionals who are familiar with management practices in diverse global settings. Repeated dealings with such firms could influence management practices.

Empirical Results for Full Sample

Our empirical strategy for this part is to conduct an initial probit regression using all six management practices as dependent variables and a set of preferred proxies for the various categories of determinants as independent variables. This is followed by another regression in which some of the independent variables are replaced by alternative proxies to serve as a robustness check. The results are shown in Tables 4a and 4b.

The results of Table 4a provide strong confirmation that the four categories of independent variables we have considered (firm size, product market competition, ownership characteristics, and information environment) are statistically significant determinants of the adoption of good management practices. Of the twenty-four conditional correlations shown in Table 4a, seventeen have the correct sign and only one has the wrong sign. The rest are statistically insignificant.

Among management practices, Target Setting is best explained by our statistical model in that all independent variables are significant with the expected sign. Four other practices, Performance Monitoring, Problem Fixing, Bonus Awarding, and Staff Promotion, are also well explained in that they feature three significant determinants each. Only Underperformance Action is not well explained. Its only significant variable has the wrong sign.

Among determinants, firm size is the strongest, featuring as significant in five of our six models. The other three variables, exporter, sole proprietorship, and website are also strong, featuring as significant in at least four cases each.

Table 4a

Determinants of Selected Management Practices (Basic Model)

Variables	(1) Perf. Monitoring	(2) Target Setting	(3) Problem Fixing	(4) Bonus Awarding	(5) Staff Promotion	(6) Underperf. Action
Exporter	0.35*** (0.06)	0.23*** (0.06)	0.19*** (0.05)	-0.01 (0.07)	0.10* (0.05)	-0.13** (0.06)
Sole Proprietorship	-0.01 (0.04)	-0.07* (0.04)	-0.11*** (0.04)	-0.09** (0.04)	-0.14*** (0.04)	-0.04 (0.04)
Website	0.34*** (0.04)	0.28*** (0.04)	0.16*** (0.04)	0.33*** (0.04)	-0.03 (0.05)	0.02 (0.04)
Firm Size (ln)	0.04** (0.02)	0.04*** (0.02)	0.01 (0.02)	0.14*** (0.02)	0.10*** (0.02)	0.08*** (0.02)
Observations	815	814	801	809	735	761

Table 4b reports the results of choosing alternative proxies for product market competition and information environment. In place of Exporter, we introduce Informal Competition which records whether the firm faces significant competition from informal, unregistered businesses. In place of the Website, we introduce Training which records whether the firm offers formal training opportunities to staff.

The overall results remain strong: sixteen of the twenty-four conditional correlations obtained are statistically significant with the expected sign. As far as the new proxies are concerned, Training is significant in five of the six practices while Informal Competition is not a successful proxy for market structure because it has the right sign in only two cases

and the wrong sign in two. Firm Size and Sole Proprietorship remain significant in most cases. Target Setting remains the best-explained management practice while Underperformance Action remains the worst-explained.

Table 4b

Determinants of Selected Management Practices (Alternative Model)

Variables	(1) Perf. Monitoring	(2) Target Setting	(3) Problem Fixing	(4) Bonus Awarding	(5) Staff Promotion	(6) Underperf. Action
Informal Competition	0.29*** (0.04)	0.33*** (0.04)	-0.02 (0.04)	-0.05 (0.04)	-0.13*** (0.04)	-0.08** (0.04)
Sole Proprietorship	-0.06 (0.04)	-0.10** (0.04)	-0.11*** (0.04)	-0.10** (0.04)	-0.14*** (0.04)	-0.06 (0.04)
Formal Training	0.49*** (0.06)	0.44*** (0.07)	0.28*** (0.05)	0.16** (0.07)	0.12** (0.06)	-0.19*** (0.07)
Firm Size (ln)	0.11*** (0.02)	0.10*** (0.02)	0.02 (0.02)	0.17*** (0.02)	0.09*** (0.02)	0.07*** (0.02)
Observations	805	804	791	800	727	752

Notes: The probit regression technique is applied, and marginal effects are reported with robust standard errors in parentheses; Levels of statistical confidence are represented by asterisks as follows: ***p<0.01, **p<0.05, *p<0.1; Industry and region fixed effects are applied but their results are not shown in the tables to economize on space.

Judging a hypothesis to be substantially confirmed if the relevant independent variable in Table 4a or 4b is a significant determinant for at least five management practices and moderately confirmed if it is significant for at least four practices, we can summarise our findings for the first four hypotheses as follows:

- H1: The hypothesis that larger firms are more likely to adopt good management practices than smaller firms is substantially confirmed.
- H2: The hypothesis that firms operating in more competitive industries are more likely to adopt good management practices is moderately confirmed.
- H3: The hypothesis that firms with more concentrated forms of ownership are less likely to adopt better management practices is moderately confirmed.
- H4: The hypothesis that firms with information environments conducive to access and dissemination of information are more likely to adopt better management practices is substantially confirmed for Training and moderately for Website/social media.

Results Disaggregated by Firm Size

Using the basic model of Table 4a we now investigate the effect of firm size in more detail by running probit regressions for two sub-samples, large and medium firms (having 20 workers and above) and small firms (having fewer than 20 workers). Since we have grouped the sample by firm size, we drop the firm size variable from the list of independent variables. The results (see Table 5) reveal clear differences between the two groups. Overall, our statistical model explains the adoption of management practices better for larger firms than for small firms. Indeed, for small firms, only the information variable is significant as a determinant while market structure and ownership considerations are not.

Looking at our choice of proxies may help explain why this is so. According to Table 3, only 3 percent of small firms are exporters and as many as 79 percent are sole proprietors. In other words, small firms are overwhelmingly non-exporters and largely owned by sole proprietors. This lack of variation probably accounts for the failure of these characteristics to register as significant determinants of management practices among small firms. Among determinants, what is both surprising and encouraging is that operating a website and/or social media page, which we relate to the information environment available to staff, works well for both categories of firms.

Table 5

Determinants of Selected Management Practices (for Small and Large Firms)

Variables	(1) Perf. Monitoring	(2) Target Setting	(3) Problem Fixing	(4) Bonus Awarding	(5) Staff Promotion	(6) Underperf.
Large and Medium firms						
Exporter	0.37*** (0.06)	0.25*** (0.06)	0.17*** (0.05)	0.04 (0.07)	0.12** (0.05)	-0.11* (0.06)
Sole Proprietorship	-0.05 (0.05)	-0.07 (0.04)	-0.12*** (0.04)	-0.12*** (0.05)	-0.16*** (0.04)	-0.05 (0.05)
Website	0.38*** (0.05)	0.30*** (0.05)	0.18*** (0.05)	0.41*** (0.04)	0.02 (0.05)	0.01 (0.05)
Observations	591	598	582	594	560	567
Small firms						
Exporter	0.24 (0.22)	0.12 (0.20)	0.25 (0.20)	0.02 (0.18)	0.17 (0.21)	-0.24 (0.15)
Sole Proprietorship	0.05 (0.07)	-0.13 (0.10)	0.12 (0.11)	-0.09 (0.09)	-0.11 (0.10)	-0.00 (0.10)
Website	0.39*** (0.08)	0.37*** (0.09)	0.04 (0.10)	0.25*** (0.09)	-0.02 (0.09)	0.16* (0.09)
	213	197	206	213	173	189

Notes: The probit regression technique is applied, and marginal effects are reported with robust standard errors in parentheses; Levels of statistical confidence are represented by asterisks as follows: ***p<0.01, **p<0.05, *p<0.1; Industry and region fixed effects are applied but their results are not shown in the tables to economize on space.

Do Management Practices Affect Productivity?

We now proceed to an analysis of the relationship between management practices and business performance. We model this differently from the earlier regressions, treating business performance as the dependent variable and the six management practices as independent variables. We do this because our objective is to determine whether an expectation of higher productivity might induce the adoption of good management practices. This requires us to assess to what extent good management practices are

determinants of productivity. Our estimation strategy is based on the standard production model of economic theory in which output is a function of capital, labour, and factors that affect the efficiency of these two basic production inputs. We use management practices as one such efficiency-enhancing factor (following Bloom *et al.*, 2016) and the ownership of an electricity generator as a second such factor. The latter is introduced because Pakistani industry suffers from routine power outages and firms with access to a generator are likely to suffer fewer production losses consequently.

In the empirical analysis, we use (log) sales per worker as our measure of business performance and regress this with each of our six management practices in turn (see columns 1-6 in Table 6). Since we express productivity in terms of output per unit labour, we also divide the capital input by the number of workers to obtain a capital intensity (capital per worker) variable. This (in its logged form) and the generator are included in each regression. Industry and region-fixed effects are also used.

The results show weak support for management practices as a significant determinant of productivity. Two practices (Problem Fixing and Bonus Awarding) appear to increase productivity while another two (Performance Monitoring and Target Setting) appear to decrease it. The remaining two practices have a statistically insignificant relationship with productivity. Meanwhile, capital intensity and ownership of a generator are strongly significant in all cases. The strong effect of generator access testifies to the seriousness of the electricity availability problem for the Pakistani manufacturing sector. A study conducted on data from 2010-11 (Groinger and Zhong, 2019) found that the marginal impact of one additional hour of power shortage per day decreased value-added among Pakistani firms by close to 20 percent.

Our results do not conform with earlier studies. For example, Bloom *et al.*, (2016) report positive and significant correlations of management quality with measures of business performance. Choudhary *et al.*, (2018) obtained the same results for Pakistan. Agarwal *et al.*, (2013) get similar results for New Zealand with one difference: their management quality score is positively related to profit per worker, total sales, and total profit but not to sales per worker. Of course, the lack of conformance with past studies may be because we have entered each management practice as a distinct and separate variable while other studies have generated a single composite score to reflect the average of individual management practices.

Why might firms adopt some management practices even if they appear to have a negative impact on productivity, as shown for the practices of Performance Monitoring and Target Setting in Table 6? One possibility is that firms may perceive non-pecuniary advantages in such actions. They may wish to emulate peer firms or market leaders. If so, their actions would be consistent with institution-theoretic views where conformance with peer group standards is considered a prime motivating factor.

As noted earlier, it is possible that management practices are themselves determined by productivity: firms that have higher productivity to begin with may be the ones that choose to adopt certain management practices. Accommodating this endogeneity concern would require a different econometric procedure than the one used here or indeed in the prior studies we have cited.

We conclude as follows for our fifth hypothesis:

H5: Productivity is not affected uniformly by all management practices.

Table 6
Productivity and Selected Management Practices

Dep. Var: Sales per worker (ln)	(1)	(2)	(3)	(4)	(5)	(6)
Perf. Monitoring	-0.20** (0.09)					
Target Setting		-0.29*** (0.08)				
Problem Fixing			0.33*** (0.08)			
Bonus Awarding				0.25*** (0.08)		
Staff Promotion					-0.06 (0.08)	
Underperf. Action						0.13 (0.08)
Capital Intensity (ln)	0.19*** (0.03)	0.19*** (0.03)	0.17*** (0.03)	0.17*** (0.03)	0.16*** (0.03)	0.17*** (0.03)
Generator	0.45*** (0.08)	0.47*** (0.08)	0.37*** (0.08)	0.36*** (0.08)	0.44*** (0.08)	0.41*** (0.08)
Constant	8.13*** (0.24)	8.14*** (0.24)	8.16*** (0.28)	8.10*** (0.24)	8.45*** (0.28)	8.32*** (0.29)
Observations	814	814	807	812	731	762
R-squared	0.18	0.19	0.19	0.18	0.18	0.17

Notes: The Ordinary Least Squares regression technique is applied, and marginal effects are reported with robust standard errors in parentheses; Levels of statistical confidence are represented by asterisks as follows: ***p<0.01, **p<0.05, *p<0.1; Industry and region-fixed effects are applied but their results are not shown in the tables to economize on space.

(E) CONCLUDING SUMMARY

We show that a statistical model using characteristics that reflect firm size, market structure, ownership type, and the human capital and information environment is successful in explaining the adoption of selected management practices among manufacturing firms in Pakistan.

From a policy perspective, we find support for the notion that certain policies could encourage the adoption of good management practices. These include competition-enhancing policies such as anti-monopoly regulations in domestic markets or export promotion measures to incentivise firms to produce for overseas markets; ownership diffusion policies, such as differential tax treatment for different ownership structures; and information-enhancing policies, such as training for workers or having a website and social media presence.

Our statistical model is more relevant for large and medium firms and less for small firms. This is consistent with the general observation that small firms in Pakistan do not exhibit modern management practices. It is also consistent with our finding from the summary data (see Table 3) that small firms exhibit fewer of the

characteristics we have used as possible explanators, such as exporting and diversified ownership. Surprisingly, owning a website or social media page induces good management practices not just among large and medium firms but also among small firms.

Turning to business performance, we find weak support for a positive link between selected management practices and productivity. Our results suggest that the decision to adopt certain management practices may be dominated by considerations other than potential productivity and profit gains, such as the desire to emulate peers or market leaders regardless of pecuniary outcomes. However, weak support could also reflect the fact that the relationship may be endogenous, thereby requiring a different econometric procedure than the one we have used. This is a task left for further research.

Annex 1

Industries and Regions covered in World Bank Enterprise Survey for Pakistan

Industries are defined using ISIC Rev 3.1

Code	Description
15	Manufacture of food products and beverages
16	Manufacture of tobacco products
17	Manufacture of textiles
18	Manufacture of wearing apparel, except fur apparel
19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
21	Manufacture of paper and paper products
22	Publishing, printing and reproduction of recorded media
23	Manufacture of coke, refined petroleum products and nuclear fuel
24	Manufacture of chemicals and chemical products
25	Manufacture of rubber and plastics products
26	Manufacture of other non-metallic mineral products
27	Manufacture of basic metals
28	Manufacture of fabricated metal products, except machinery and equipment
29	Manufacture of machinery and equipment n.e.c.
30	Manufacture of office, accounting and computing machinery
31	Manufacture of electrical machinery and apparatus n.e.c.
32	Manufacture of radio, television and communication equipment and apparatus
33	Manufacture of medical, precision and optical instruments, watches and clocks
34	Manufacture of motor vehicles, trailers and semi-trailers
35	Manufacture of other transport equipment
36	Manufacture of furniture; manufacturing n.e.c.

Regions

-
1. Baluchistan
 2. Islamabad
 3. Khyber-Pakhtunkhwa
 4. Punjab
 5. Sindh
-

Source: World Bank (2023).

Annex 2

**Management practices in World Bank Enterprise Survey for Pakistan:
Questions, Responses, Coding**

Management Practice and Responses	Frequency
Performance Monitoring: Did this establishment monitor any performance indicators?	1: 320 0: 501
Yes coded as 1 and No coded as 0.	
Target Setting: Did this establishment have any production targets? Examples are production volume, quality, efficiency, waste, or on-time delivery.	1: 314 0: 506.
Yes coded as 1 and No coded as 0.	
Problem Fixing: What best describes what happened at this establishment when a problem arose in the production process?	1: 501 0: 312
(a) We fixed it and took action to make sure it did not happen again.	
(b) We fixed it and took action to make sure that it did not happen again and had a continuous improvement process to anticipate problems like these in advance.	
(c) We fixed it but did not take further action.	
(d) No action taken.	
Responses (a) and (b) were coded as 1 while (c) and (d) were coded 0.	
Bonus awarding: Did this establishment have performance bonuses for managers?	1: 402 0: 416
Yes coded as 1 and No coded as 0.	
Staff promotion: What was the primary way non-managers were promoted at this establishment?	1: 446 0: 290
(a) Based solely on performance and ability.	
(b) Based partly on performance and ability, and partly on other factors (for example, tenure or family connections)	
(c) Based mainly on factors other than performance and ability (for example, tenure or family connections)	
(d) Non-managers are normally not promoted.	
Response (a) was coded as 1 while (b), (c) and (d) were coded 0.	
Underperformance Action: When was an under-performing nonmanager reassigned or dismissed?	1: 413 0: 354
(a) Within 6 months of identifying under-performance	
(b) After 6 months of identifying under-performance	
(c) Rarely or never	
Responses (a) and (b) were coded as 1 while (c) was coded as 0.	

Source: World Bank (2023).

Annex 3

Determinants of management practices in World Bank Enterprise Survey for Pakistan: Questions and Responses

Exporter

Did this establishment export directly in the last fiscal year?

- (i) Yes (120 observations)
- (ii) No (705 observations)

Sole proprietorship

Is the firm legally a sole proprietorship?

- (i) Yes (481 observations)
- (ii) No (344 observations)

Formal training

Did this establishment have formal training programs for its permanent, full-time workers in the last fiscal year?

- (i) Yes (84 observations)
- (ii) No (737 observations)

Informal competition

Does this establishment compete against unregistered or informal establishments?

- (i) Yes (292 observations)
- (ii) No (526 observations)

Website

At the present time, does this establishment have its own website or social media page?

- (i) Yes (467 observations)
- (ii) No (357 observations)

Firm Size

Number of permanent full-time workers in the last fiscal year

Source: World Bank (2023).

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Public Cognizance of E-waste Effects on Human Health and Environment: Evidence from Punjab, Pakistan

MOHAMMAD ARMUGHAN and SAMEEN ZAFAR

The negative effects of electronic waste (e-waste) on the environment and human health are globally acknowledged. Across the world, developing countries in Asia are the most vulnerable countries in hosting e-waste. Informal recycling and crude processing of e-waste cause environmental degradation and harm human health. Therefore, the study analyzes public awareness about e-waste effects on human health and the environment using a logit model with a mean comparison of variables based on primary data of 312 respondents. Meanwhile, the study notifies the correlation of e-waste generation with gross domestic product (GDP), population, and electrical & electronic equipment (EEE) put in the Pakistani market. Moreover, the study discusses other pollutants putting a burden on human lives and the environment in Pakistan. Lastly, we provide a brief overview of the study's implications on both theory and practical applications while emphasizing key areas for future research work.

Keywords: E-waste, Human Health, Environment, Public awareness.

1. INTRODUCTION

Electrical and electronic equipment (EEE) includes all types of products that are used in business, transportation, household, health, security, and power generation systems. In short, *“any household or business item with circuitry or electrical components with power or battery supply is called EEE”* (Step Initiative, 2014). E-waste is the abbreviation of “electronic waste”. *“E-waste is a term used to cover items of all types of EEE and its parts that have been discarded by the owner as waste without the intention of re-use.”* (Step Initiative, 2014).

Globally, 40,634,930 still counting tons of e-waste thrown out in 2021 (The World Counts, 2021). In 2019, about 53.6 million metric tons (Mt) of e-waste was produced and it is expected to exceed 74Mt in 2030 (Forti et al., 2020). E-waste is slightly different from other wastes. E-waste carries harmful substances (lead, mercury, flame retardants, arsenic, etc.) and valuable metals (silver, copper, gold, etc.) that need special recycling techniques to protect the environment and human health (Sepúlveda et al., 2010). E-waste is composed of 30% organic material (flame retardants, polymers, and glass fiber), 40% inorganic materials (non-ferrous and ferrous), and 30% ceramics material (alumina, mica, and silica) (Rautela et al., 2021). Inorganic metals contain base metals (tin, aluminum, copper, and iron), valuable metals (palladium, gold, and silver), heavy metals (cadmium, nickel, zinc, chromium, mercury, lead, and beryllium), and earth metals (tantalum, gallium, and platinum groups) (Kaya and Martin, 2016).

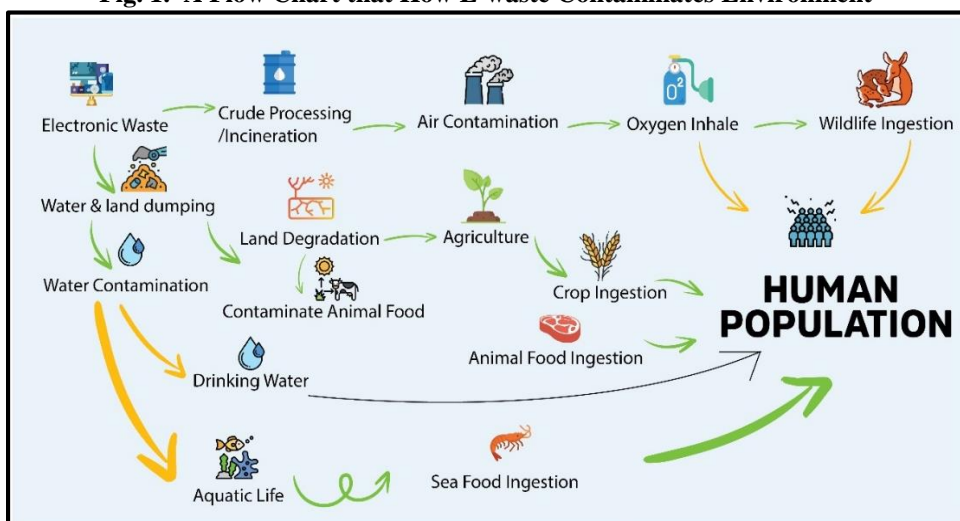
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Heavy metals contaminate the environment with low concentrations by biomagnification in animals and plants or chemical concentration in the food cycle (Fu et al., 2008; Luo et al., 2011). Plants absorb heavy metals through soil and water, whereas humans and animals intake heavy metals via air, water, and food ingestion (Zhao et al., 2010).

E-waste possesses many hazardous substances like brominated flame retardants, cadmium, polychlorinated biphenyls, lead, and mercury that pollute the environment and jeopardize human health without direct exposure to the environment (Wong et al., 2007). Normally, the processing of e-waste retrieves precious metals (copper, gold, and silver) by using simple techniques like open burning, acid leaching, melting, and incineration. These processes release a vast range of poisonous gases and heavy substances into the environment which pollutes the atmosphere, and terrestrial and aquatic ecosystems (Grant et al., 2013). Improper disposal and crude processing of e-waste, as highlighted by Patil and Ramakrishna, (2020), have been shown to result in chronic and life-threatening health issues, including kidney damage, lung cancer, liver damage, and eye and throat infections, among others. These health issues not only impact workers involved in the crude processing of e-waste (Caravanos et al., 2011) but also affect the general population coming into contact with environments contaminated by e-waste and its toxic components (Huo et al., 2007; Liu et al., 2018).

In developing and poor countries usually the opportunity cost of treating and recycling e-waste is human health and environment (UNEP, 2010). In comparison with other continents, Asia is at the top in generating e-waste with 24.9 Mt (Forti et al., 2020). E-waste recycling, crude processing, and dumping cause serious human health issues. E-waste incineration contaminates the air, e-waste land dumping causes soil pollution, and disposing of e-waste in rivers pollute water leading to overall environmental degradation. Resultantly, people inhale polluted air, drink adulterated water, eat compromised seafood and land grow tainted crops. Considering the process, heavy metals are included in our food chain through crop ingestion and seafood ingestion. A causal loop between e-waste and its effects on human health and the environment is shown in Figure 1.

Fig. 1. A Flow Chart that How E-waste Contaminates Environment



Source: Authors work*

* Flow chart is designed by Ms. Manhal Zainab (graphic designer at PIDE).

Pakistan generated 433 kilotons (Kt) of e-waste in 2019 (Forti et al., 2020). National Environment Policy (NEP) in Pakistan covers air, water, ozone, climate change, agriculture, and import/export of hazardous chemicals or waste products (NEP, 2005). On June 28, 2022, the National Hazardous Waste Management Policy (NHWMP) was approved by Pakistan's federal cabinet which caters to e-waste trade, generation, dumping, and discusses transboundary movement of hazardous wastes. With a great sigh, NHWMP fails to elaborate on e-waste management in the country (NHWMP, 2022). Regretfully, so far, no policy implementations have been observed on private or public levels.

Annually, Pakistan receives an average influx of 95,415 tons of electronic waste (Imran et al., 2017). It has come to light that within the sprawling urban landscape of Karachi, the nation's largest metropolis, informal e-waste recycling has emerged as a significant sources of organic flame retardant emissions (Iqbal et al., 2017). These emissions not only compound environmental degradation but also pose a consequential risk to the health and well-being of the labor force engaged in e-waste recycling activities (Iqbal et al., 2017).

Rapid technological advancement in consumer goods drives the demand for EEE, directly contributing to the escalation of e-waste volumes as consumers play a pivotal role in this process. Various studies have shown that public awareness is an essential element in reducing e-waste. (Borthakur and Govind, 2018; Safa'at et al., 2019; Islam et al., 2020; Zafar and Armughan, 2023). Therefore, based on primary data with a sample size of 312, the study aims to assess public awareness about e-waste effects on human health and the environment in Pakistan. Moreover, the study depicts e-waste generation in Pakistan. For better analysis, the study investigates e-waste correlation with the gross domestic product (GDP), population, and EEE put on the Pakistani market, which are strongly correlated. The study offers insights into the diseases caused by e-waste and its contribution to environmental degradation through an extensive literature review. Lastly, the study incorporates a slight overview of other pollutants that are causing harm to the environment and affecting human health.

2. LITERATURE REVIEW

2.1. E-waste in Global Context

The rapid growth of EEE industry with information technology, aid in generating e-waste globally and poses threat to human health and the environment (Duan et al., 2009; Song et al., 2013). In 2009, Robinson (2009) estimated that global e-waste production range from 20 - 25 million tons annually. The world generated around 44.7 Mt of e-waste in 2016 and it is estimated that it will surpass 53 Mt in 2021 (Baldé et al., 2017). Worldwide e-waste quantity is growing exponentially at the rate of about 2 Mt yearly (Forti et al., 2020).

2.2. E-waste in Asian context

In Asia, 24.9 Mt e-waste was generated of which 2.9 Mt e-waste was properly collected and recycled (Forti et al., 2020). Some of the largest e-waste-generating Asian countries are given in Table 1.

Table 1

Largest e-waste-generating Asian countries in 2019.

Sub Region	E-waste generated
Western Asia	2.6 Mt 6 kg per capita
Turkey	847 Kt
Saudi Arabia	595 Kt
Iraq	278 Kt
Central Asia	0.2 Mt 7.1 kg per capita
Kazakhstan	172 Kt
Turkmenistan	39 Kt
Kyrgyzstan	10 Kt
Eastern Asia	13.7 Mt 8.6 kg per capita
China	10129 Kt
Japan	2569 Kt
South Korea	818 Kt
South-Eastern Asia	3.5 Mt 5.4 kg per capita
Indonesia	1618 Kt
Thailand	621 Kt
Philippines	425 Kt
Southern Asia	4.8 Mt 2.6 kg per capita
India	3230 Kt
Iran	790 Kt
Pakistan	433 Kt

Source: Global E-waste Monitor 2020.

Despite the existence of the Basel Convention, E-waste is exported from the United States (US), Australia, Canada, European Union (EU) countries, Kuwait, Singapore, United Arab Emirates (UAE), Japan, and Korea to India, China and Pakistan (Cobbing, 2008; Li et al., 2013). Where Singapore and UAE play the role of intermediaries for distributing e-waste from US and EU countries to South Asian countries (Cobbing, 2008). Over 9 years (2005 – 2014), the quantity of generating e-waste is doubled in Southeast Asian countries (Iqbal et al., 2015).

Besides the world's largest manufacturing country, China is considered an e-waste dumping hub (Chi et al., 2011). Moreover, China receives e-waste in large quantities from developing countries (Shinkuma and Huong, 2009).

India is considered a highly polluted and populated country. The rapid industrialization in India has caused threats to the environment and human health (Parikh, 2012). India is trying to deal with its e-waste in an eco-friendly manner because e-waste is ruining the ecological system (Maheshwari et al., 2013).

Pakistan imports approximately all major EEE which means the entire EEE sector is dependent on importation (Bashar, 2000). The extensive growth in EEE imports elucidates the increasing trend of e-waste generation in the near future (Iqbal et al., 2015). In 2014, Pakistan's mobile phone subscriptions were 138 million, indicating the threat of increasing e-waste (PTA, 2014). In 2021, Pakistan's total mobile phone subscriptions increased from 138 to 185 million (PTA, 2021). Pakistan is considered one of the prime locations for e-waste dumping where e-waste is treated illegally and informally (Puckett, 2002; Iqbal et al., 2015).

2.3. E-waste and Public Cognizance

Public awareness regarding e-waste is a vital research area, especially among young consumers driving demand for electronic products. In the United States, a study revealed that consumer actions played a pivotal role in managing and reducing e-waste (Arain et al., 2020). A study conducted in Ghana by Edumadze et al. (2013) highlighted the significant challenge posed by low public awareness of e-waste, hindering the adoption of proactive eco-friendly practices. In Asian developing nations such as India and Bangladesh, e-waste recycling procedures prove inefficient due to the widespread lack of awareness among the majority of the population regarding the proper handling and disposal of e-waste (Sivathanu, 2016). Research conducted in northwest China found that young consumers exhibited limited awareness of recycling programs, policies, and e-waste laws, emphasizing the importance of law awareness for effective e-waste management (Ramzan et al., 2019). In a study conducted in India, Sivathanu (2016) found that there was a direct correlation between consumer awareness and the inclination to engage in e-waste recycling.

In essence, it is crucial to take into account consumers' awareness of EEE, as they are the primary generators of e-waste (Kwatra et al., 2014). Increasing e-waste awareness among consumers holds particular significance in areas characterized by larger and urban populations (Safa'at et al., 2019). Across different countries, numerous non-governmental organizations (NGOs) have made efforts to educate the public about the significance of e-waste management. For instance, they utilize social media as a platform to engage and disseminate information about e-waste to consumers (Hutami et al., 2020).

2.4. E-waste Impact on Human Health

E-waste recycling processes contain top 10 chemicals which have adverse effects on human health (WHO, 2021). The chemicals include heavy metals like cadmium, dioxins, mercury, lead, fine particles (particulate matter 2.5), and other air pollutants (WHO, 2021).

The studies have found crude processing, recycling, and disposal of e-waste are related to adverse health effects (Forti et al., 2020). These include effects on children's height (Zheng et al., 2008), thyroid stimulating hormone (TSH) (Yuan et al., 2008), increases oxidative stress biomarkers (Chung et al., 2008), unfavorable birth results (Zhang et al., 2017), affect neurodevelopment (Huo et al., 2019), affect cognitive skills (Soetrisno and Delgado-Saborit, 2020), damage DNA (Alabi et al., 2012), heart diseases (Cong et al., 2018), affect respiratory system (Amoabeng Nti et al., 2020), affect immune system (Huo et al., 2019), affect hormonal system (Maheshwari et al., 2013), skin diseases (Decharat and Kiddee, 2020), hearing loss (Xu et al., 2020), and cancer (Davis and Garb, 2018). For details see Table 2.

2.5. E-waste Impact on Environment

Disposing of e-waste by landfills contains hazardous metals that contaminate land, soil, and other biodegradable waste (Patil and Ramakrishna, 2020). Dumping e-waste fragments in rivers may leach harmful substances into groundwater, drinking water, and irrigation systems through which heavy metals enter the food chain (Patil and Ramakrishna, 2020). Toxic e-waste pollutants may enter the food chain by plant roots through contaminated groundwater and soil (Maheshwari et al., 2013).

Incineration of e-waste fragments like wires and cables containing polyvinyl chloride (PVC) for extracting valuable materials contains harmful chemicals like acid fumes and dioxins (Patil and Ramakrishna, 2020). The remaining fly ashes of burned e-waste in the vicinity are also very dangerous for the environment (Leung et al., 2008).

Table 2

E-waste Impacts on Human Health and the Environment.

Heavy Metals	Electrical and Electronic Equipment	Environment Exposure	Effects on Human Health
Lead (Grant et al., 2013; Huo et al., 2019)	Circuit boards, light bulbs, cathode ray tubes, batteries, televisions.	Soil, water, air	Renal, heart diseases, neurodevelopmental, reproductive system
Chromium (Grant et al., 2013)	Tapes, anticorrosion coatings, floppy disks	Soil, water, air	Allergy, cancer
Cadmium (Grant et al., 2013; Lin et al., 2017)	Switches, batteries, connectors, circuit boards, infrared detectors, semiconductor chip, mobile phones, cathode ray tubes, printer's ink/drum, toners, photocopying machines	Soil, water, air, food (vegetables and rice)	Bone, renal
Mercury (Grant et al., 2013; Lin et al., 2017)	Thermostats, switches, monitor, sensors, cells, circuit boards, LCD, screens, cold cathode, fluorescent lamps	Soil, water, air, food (seafood)	Ingestion, inhalation neurodevelopmental renal, dermal contact
Nickel and lithium (Grant et al., 2013; Lin et al., 2017)	Batteries, cathode ray tubes	Soil, water, air, food (plants)	Liver, allergy, inhalation, ingestion, transplacental, skin contact
Barium (Huang et al., 2014; WHO, 2021)	Vacuum tubes, fluorescent lamps, cathode ray tubes	Soil, water, air, food	Neurodegenerative disease
Beryllium (Grant et al., 2013; WHO, 2021)	ceramic components of electronics, computers, power supply boxes, X-ray machines	Water, air, food	Cancer, lung disease, skin diseases
Brominated flame retardants Polybrominated diphenyl ethers (PBDEs) (Yu et al., 2018; WHO, 2021)	Plastics (thermoplastic components) of computers	Soil, water, air, food	Reproductive system, endocrine disruption, neurodevelopmental
Polychlorinated biphenyls (PCBs) (He et al., 2015; WHO, 2021)	Dielectric fluid in electrical equipment (capacitors and transformers)	Soil, water, air, food (seafood)	Damage DNA, impact neurodevelopment and cognitive function, damage human peripheral lymphocytes

Globally, extensive research has been conducted on the impacts of e-waste on both human health and the environment. However, in the specific context of Pakistan, there is a noticeable dearth of research on this critical subject matter, resulting in a significant literature gap. This research study serves the pivotal purpose of bridging this gap by conducting an initial public awareness assessment of the effects of e-waste on human health and the environment. This assessment draws from a wide range of primary data, thereby establishing a valuable foundation of knowledge for future studies related to this critical topic within the Pakistani context.

3. METHODOLOGY

3.1. Primary Data

For primary data, a questionnaire was designed and distributed among metropolitan cities i.e., Islamabad[†], Lahore, Rawalpindi, Multan, and Faisalabad. Initially, 20 questionnaires were piloted in Lahore. After minor adjustments, the online questionnaire was distributed to the Pakistani public through formal (emails) and informal (social media) channels. We used a convenient sampling technique due to our target audience being the general public. Around 400 questionnaires were circulated, with a response rate of 78% the study included 312 responses for the analysis which were considered to be sufficient for population representation, as mentioned by Sekaran (2002) sample size greater than 30 is appropriate for research. For analysis, we used logistic regression because our predicted variable (public awareness) is dichotomous. Moreover, for further analysis mean comparison of variables was conducted to assess public awareness about e-waste effects on human health and the environment in STATA. All the quantitative data was collected from metropolitan cities of Punjab (a province in Pakistan).

Logit Model Explanation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Y = public awareness about e-waste's effect on human health and environment

β_0 = constant

χ_1 = household income

χ_2 = education

χ_3 = age

χ_4 = gender

χ_5 = city scaled according to the development

ε = error term

Logistic Regression

Logistic regression is a statistical technique used to explore and quantify the relationship between a binary dependent variable (in this case, public awareness, which can be either aware or not aware) and one or more independent variables. The goal is to understand how changes in the independent variables influence the likelihood of an individual being aware of e-waste issues.

[†]Islamabad is capital territory but for the study it is included in Punjab (province of Pakistan).

Mean Comparison

Mean comparison is an essential statistical technique that allows you to quantify and understand how variables differ or relate to each other. It provides valuable insights for research, decision-making, and hypothesis testing. Thus, we conducted a mean comparison analysis on data from 312 respondents to assess differences in variables and categories.

3.2. Secondary Data

For secondary data, a systematic literature review of e-waste effects on human health and the environment was conducted with a comprehensive search of existing literature from published journal articles, institutional reports, and official websites. Moreover, secondary data comprises time series data of Pakistan from 2015 to 2019. E-waste generated and EEE put on market data were collected from “The Global E-waste Statistics Partnership”, and gross domestic product (GDP) and population-related data were collected from “World Bank”. All secondary data was compiled in MS Excel and exported to STATA. As mentioned by Kusch-Brandt and Hills (2017) and Perkins (2014) GDP and population are associated with e-waste generation. Therefore, based on the data, the Pearson Correlation test was conducted to see the relationship between variables in the context of Pakistan. For the strength of Pearson correlation (refer to Table A1 in the appendix).

Explanation of variables for Pearson correlation

- E-waste generation
 - Overall e-waste produced in Pakistan
 - E-waste generated per capita in Pakistan
- EEE put on the market
 - Overall EEE put on the Pakistani market
 - EEE put on market per capita in Pakistan
- Population
 - Population living in Pakistan
- Gross domestic product (GDP)
 - GDP of Pakistan in terms of purchasing power parity (PPP) in United States dollar (USD)

4. RESULTS AND DISCUSSION

Pakistan is a developing country with weak and pliable laws leading to illegal import, informal recycling, crude processing, and dumping of e-waste (Iqbal et al., 2015; Sajid et al., 2018). E-waste generation in Pakistan is growing exponentially because it imports secondhand EEE and e-waste in large quantities. Over time Pakistan is becoming a prime location for e-waste recycling and dumping. The site areas of metropolitan cities (Karachi, Hyderabad, Peshawar, Lahore, Rawalpindi, Multan, Gujranwala, and Faisalabad) of Pakistan are dumping and recycling points for e-waste.

4.1. Results and discussion on primary data

4.1.1. Demographics

The primary data was collected from five metropolitan cities of Punjab. In the survey most participants were young from the age bracket of 18 to 32. Among participants 56% were male and 44% were female. Respondents were from diverse social classes of education, occupation, income, and residence. For details, please refer to Table 3.

Table 3

Demographic Characteristics of the Respondents

Demographics	Sample Size (N)	Sample Size (%)
Gender		
Male	175	56
Female	137	44
Age		
18 – 22	48	15
23 – 32	232	74
33 – 42	18	6
43 – 52	9	3
53 and above	5	2
Education		
Matriculation	9	3
Intermediate	19	6
Bachelors	130	42
Masters	143	46
Doctorate	11	4
Occupation		
Unemployed	19	6
Employed	112	36
Student	163	52
Entrepreneur	18	6
Household Income (Monthly in PKR)		
50,000 – 70,000	81	26
70,001 – 110,000	90	29
110,001 – 150,000	111	36
150,001 and above	30	10
City		
Islamabad	72	23
Lahore	109	35
Multan	59	19
Faisalabad	48	15
Rawalpindi	24	8

4.1.2. Public Cognizance

According to the survey, about 271 (87%) among 312 were concerned about the environment. Around 237 (76%) participants were aware that “*e-waste typically contains hazardous materials that can harm human health and the environment.*” Among 312

respondents 271 (87%) responded that everyone should contribute to a sustainable environment.

To obtain a clearer picture of the relationship between income and public awareness, it's essential to control potential confounding variables. These are variables that might also affect awareness and could create spurious or misleading results if not taken into account. In this study, education, age, gender, and city were identified as potential confounding variables and were included in the analysis (Table). To see the measure of the fitness of the logit model please (refer to Table A2 in the appendix).

Table 4
*Logistic Regression Results for Public Awareness about E-waste's
Effects on Human Health & Environment.*

Awareness ⁺	(1)	(2)	(3)	(4)	(5)
Income	0.552*** (0.159)	0.478** (0.165)	0.536** (0.172)	0.523** (0.173)	0.518** (0.172)
Education		0.629*** (0.185)	0.584** (0.187)	0.591** (0.188)	0.585** (0.188)
Age			-0.677*** (0.206)	-0.674** (0.205)	-0.657** (0.206)
Gender				-0.187 (0.313)	-0.180 (0.314)
City					-0.0342 (0.0521)
Constant	0.765*** (0.215)	-0.586 (0.445)	0.171 (0.501)	0.277 (0.532)	0.491 (0.624)
N	312	312	312	312	312

t statistics in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

⁺Public awareness about e-waste's effects on human health and the environment.

Income's Positive Significant Impact: In accordance with the findings of (Bhat and Patil, 2014), our study analysis revealed that in Pakistan (Punjab) income has a statistically significant positive impact on public awareness regarding e-waste. This means that as income levels increase, the likelihood of individuals being aware of e-waste issues also increases. Importantly, this positive impact holds true even when we control for education and age, indicating that income's effect is robust and not merely a result of these other variables.

Negative Net Impact of Gender and City: Conversely, gender and city had a negative net impact on public awareness, as suggested by the analysis. This means that, on average, individuals of a certain gender or residing in specific cities of Punjab tended to have lower levels of awareness regarding e-waste, all else being equal.

Continued Significance of Income: Even when we accounted for the influence of gender and city in the analysis, income's impact on awareness remained statistically significant. This reaffirms the importance of income in driving awareness and suggests that it's not solely influenced by gender or geographic location.

Based on the findings, we can conclude that income is positively related to public awareness of e-waste in Punjab. In other words, individuals with higher incomes are more likely to be aware of the negative effects of e-waste on human health and the environment. This could be attributed to various factors, such as greater access to information and resources. Furthermore, the study also observed a positive relationship between education and public awareness, indicating that individuals with higher levels of education tend to be more aware of e-waste issues in Punjab.

Table 5 displays a mean comparison of various variables, such as gender, income group, city of residence, and more. This analysis aims to uncover differences in public awareness levels regarding the effects of e-waste on human health and the environment across different demographic groups.

Gender Differences: Similar to (Fan et al., 2022), our study reveals that females tend to be more aware of the adverse effects of e-waste on human health and the environment compared to males of Punjab. This suggests that there may be gender-specific factors or information sources that contribute to this difference in awareness.

Age and Tech-Savviness: Consistent with the discoveries from (Agyei-Mensah and Oteng-Ababio, 2012), our study shows people in the age bracket of 18 to 32 in Punjab exhibit higher awareness levels regarding e-waste effects. This can be attributed to the fact that the younger generation, often referred to as "digital natives," is more tech-savvy and likely to engage with electronic devices and information about their environmental impact.

Income and Awareness: In Pakistan (Punjab), respondents with monthly incomes below 110,000 PKR are less aware of e-waste effects compared to those earning more than 110,000 PKR per month. This suggests that individuals with higher incomes may have more access to information or resources that enable them to be more aware of e-waste issues. However, likewise (Agyei-Mensah and Oteng-Ababio, 2012) it's interesting to note that in Punjab awareness slightly decreases when income surpasses 150,000 PKR per month, indicating a potential saturation point where income's influence on awareness plateaus.

Education Levels: In line with the findings of (Bhat and Patil, 2014; Liang and Sharp, 2017), our study indicates that public awareness of e-waste effects tends to increase with higher levels of education in Punjab. Respondents with master's and bachelor's degrees are more aware of these issues compared to those with lower educational qualifications. This observation suggests that education plays a crucial role in shaping awareness levels, possibly by enhancing individuals' understanding of environmental concerns.

Occupation Status: When considering occupational status in Punjab, the analysis reveals that employed individuals and students tend to be more aware of e-waste effects compared to the unemployed and entrepreneurs. This may be attributed to the fact that individuals in employment or academic settings are more exposed to information and discussions related to e-waste and its implications.

City-wise Awareness: Lastly, the study ranks metropolitan cities in Punjab based on their levels of awareness about e-waste effects, from least to most aware. In chronological order, the cities are Rawalpindi, Lahore, Multan, Islamabad, and Faisalabad.

Table 5
Mean Comparison of Different Classes.

Mean Comparison	Mean	SD	Freq
Gender			
Female	0.825	0.382	137
Male	0.783	0.413	175
Total	0.801	0.4	312
Age			
18-22	0.75	0.438	48
23-32	0.862	0.346	232
33-42	0.444	0.511	18
43-52	0.444	0.527	9
Above 52	0.4	0.548	5
Total	0.801	0.4	312
Income			
0-70,000	0.679	0.47	81
70,001-110,000	0.778	0.418	90
110001-150,000	0.892	0.312	111
Above 150,000	0.867	0.346	30
Total	0.801	0.4	312
Education			
Matric	0.333	0.5	9
Intermediate	0.474	0.513	19
Bachelor	0.8	0.402	130
Master	0.895	0.307	143
PhD	0.545	0.522	11
Total	0.801	0.4	312
Occupation			
Unemployed	0.421	0.507	19
Employed	0.848	0.36	112
Student	0.834	0.373	163
Entrepreneur	0.611	0.502	18
Total	0.801	0.4	312
City			
Rawalpindi	0.542	0.509	24
Multan	0.814	0.393	59
Faisalabad	0.917	0.279	48
Lahore	0.789	0.41	109
Islamabad	0.819	0.387	72
Total	0.801	0.4	312

This ranking provides valuable insights into geographical variations in awareness levels, which could be influenced by factors such as access to information, environmental initiatives, or local educational resources.

Mean comparison analysis uncovers several important findings regarding the factors influencing public awareness of e-waste effects. These insights can be valuable for designing targeted awareness campaigns, educational programs, and policy interventions to improve awareness and environmental consciousness among different demographic groups.

4.2. Results and Discussion on Secondary Data

4.2.1. Pearson Correlation

According to Kusch-Brandt and Hills (2017), e-waste generation is linked with GDP. Likewise, our study confirms that e-waste generation is strongly correlated with GDP see Table.

Table 6

The Pearson Correlation Test Results of E-waste with Other Variables

Variables	Correlation	
	Coefficient (r)	Interpretation
E-waste generated with GDP	0.9872	Very strong correlation
E-waste generated per capita with GDP per capita	0.8955	Strong correlation
E-waste generated with population	0.9988	Very strong correlation
E-waste generated with EEE put on the market	0.9362	Very strong correlation
E-waste generated per capita with EEE put on the market per capita	0.9224	Very strong correlation

GDP serves as a standard and widely accepted measure of a country's economic development. It provides valuable insights into the overall economic performance of a nation. In the context of Pakistan, like in many countries, GDP plays a pivotal role in assessing the country's economic health.

GDP and Standard of Living: Pakistan's economic growth is intricately linked to the standard of living of its population. As the economy expands, people often experience improvements in their income levels and overall financial well-being. This economic progress often leads to significant lifestyle changes.

Changing Lifestyle and Electronics Preferences: As individuals experience economic growth, their preferences and priorities regarding spending also evolve. People tend to allocate more of their resources towards acquiring advanced EEE. This shift in preferences is driven by a desire for improved quality of life, convenience, and access to modern technology.

Economic Development and E-Waste Generation: The connection between economic development and e-waste generation is notable (Kusch-Brandt and Hills, 2017). Likewise, in Pakistan, an increase in the economic well-being of a population typically translates into a higher demand for electronic devices, contributing to the generation of e-waste. This is because individuals and households with higher incomes tend to invest more in electronic gadgets, from smartphones to computers and other consumer electronics.

Globalization and Tech-Savvy Culture: In the era of globalization, the concept of purchasing power parity comes into play. As individuals' purchasing power increases, they

are more inclined to spend on electronic items (Baldé et al., 2017). This phenomenon is often driven by a desire to stay tech-savvy and keep up with the latest advancements in technology. Hence, there is a strong correlation between e-waste generation per capita and GDP per capita in Pakistan. The more economically empowered a population is, the more they spend on electronic devices.

Changing Trends in Electronic Consumption: Broadly speaking, trends in electronic consumption have shown that people are spending comparatively more on EEE due to a combination of professional and personal requirements (Forti et al., 2020). Similarly, in Pakistan electronic devices have become integral to daily life, facilitating communication, work, entertainment, and education. This growing reliance on electronics further fuels the demand for such products in Pakistan.

Population Growth and E-Waste Generation: As indicated by research, such as the study conducted by Perkins et al (2014), there is a pronounced association between population growth and the generation of e-waste. This relationship is not unique and is echoed in various parts of the world. Our study supports this association, reinforcing the notion that e-waste is strongly correlated with the growth of Pakistan's population.

Demand for Affordable Electronics: In Pakistan, where employment opportunities may be insufficient, and many individuals face low-income levels and affordability challenges, there is a considerable demand for cheap electronic products. People often seek affordable options for acquiring necessary electronic devices, such as smartphones and laptops, which have become integral to modern life.

Importation of Used EEE: To meet this demand for affordable electronics, Pakistan imports electronic waste in the form of used EEE for resale and recycling (Iqbal et al., 2015; Sajid et al., 2018). This practice, while addressing the affordability concern, carries significant implications. Importing e-waste, particularly in an unregulated manner, can result in economic gains for some but comes at a considerable cost to human health and the environment.

Economic Benefit versus Human and Environmental Costs: In developed countries, discarded EEEs are categorized as 'waste' with no salvage value, while in developing countries, such 'waste' is treated as valuable (Borthakur and Govind, 2017). The importation of e-waste in Pakistan for selling and recycling may provide economic benefits in the short term. However, it also entails a high cost in terms of human life and environmental degradation. The improper handling and disposal of e-waste can expose workers and communities to hazardous materials and pollutants, leading to health risks and environmental pollution. This underscores the ethical and environmental dilemmas associated with this practice.

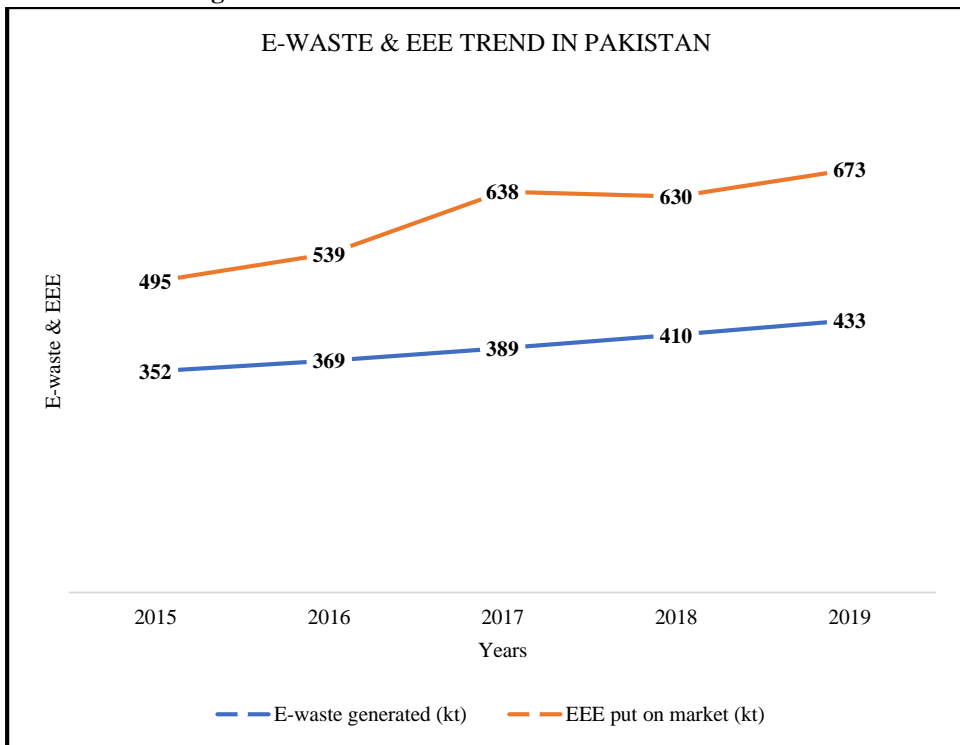
A shift in Consumer Demographics: Additionally, there is a noticeable shift in consumer demographics contributing to the demand for electronic items. In Pakistan, nowadays, even infants, toddlers, and preschool children are increasingly drawn to electronic gadgets, often more so than traditional toys. This evolving trend emphasizes how population growth and changing consumer preferences are generating increased demand for electronic devices from a very early age. Moreover, in recent years, a significant portion of the population, especially the youth, now prefers electronic indoor games over physical activities. This shift has given rise to the e-entertainment industry, driving an increased demand for new electronic gadgets in Pakistan.

Correlation Between E-Waste and Electronics Market: There is a strong and direct correlation between e-waste generation and the electronic products introduced to the Pakistani market. This correlation can be understood in the following ways:

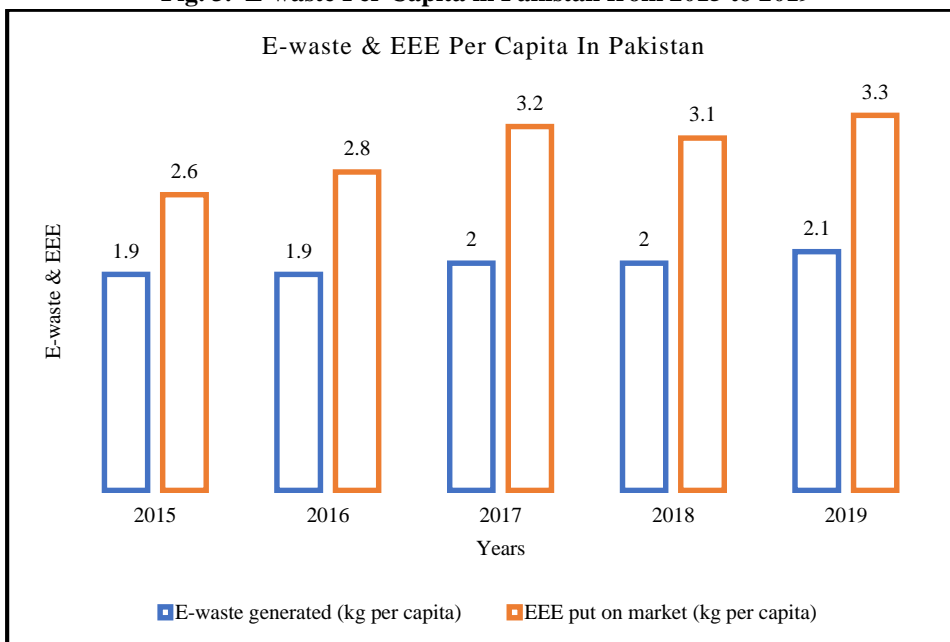
- **Branded Products:** Branded electronic products, when introduced into the Pakistani market, are often perceived as new. This perception leads consumers to treat them as fresh and reliable purchases.
- **Secondhand Electronics:** Secondhand electronic items, upon import, are typically repaired and refurbished. These refurbished devices are then placed back into the market for resale. They provide a more affordable alternative for consumers but may have a shorter lifespan compared to new electronics.
- **Wasted EEE:** Wasted EEE, on the other hand, serves a different purpose. Instead of being used as functional devices, they are primarily sought after for their valuable materials, such as copper, silver, and gold. The extraction process, often carried out under the guise of recycling, involves methods like incineration and crude processing these extraction methods release harmful toxins and pollutants into the environment, endangering the health of workers involved and contaminating local ecosystems.

To understand the scale of e-waste generation in Pakistan, Fig. 2. and Fig. 3. provide visual representations of e-waste trends over time.

Fig. 2. E-waste Trend in Pakistan from 2015 to 2019



Source: The Global E-waste Statistics Partnership.

Fig. 3. E-waste Per Capita in Pakistan from 2015 to 2019

Source: The Global E-waste Statistics Partnership.

4.3. Other Contributing Factors

Along with e-waste, industrial waste, plastic waste, solid waste, and household waste are other contributing factors to environmental degradation and human health hazards. Globally, air pollution is one of the biggest health hazards to human life. According to the World Air Quality Report air pollution causes 7 million premature deaths yearly (IQAir, 2020). Nowadays, one of the most prevailing issues is Smog (smoke fog). In industrialized countries and cities, smog is a type of intense air pollution; it consists of nitrogen oxides and other air pollutants to form ground-level ozone (not the ozone which protects the earth from ultraviolet radiation) when in contact with sunlight. The major sources of smog are emissions from vehicles, power plants, factories, construction, wood burning, burning fossil fuels, chemical solvents, plastic products, and charcoal starter fluid (GoC, 2020; West, 2021). Smog causes serious human health issues like eye, nose, and throat irritation, heart diseases, emphysema, asthma, lung infection, chronic bronchitis, and other respiratory infections. Moreover, it impacts the environment by inhibiting plant growth and causing damage to forests and crops (GoC, 2020; West, 2021).

Globally, Asian countries are the most polluted countries in the world, especially China, India, Pakistan, and Bangladesh (IQAir, 2020). As discussed above, all types of wastes emit harmful gases either in their production, usage, or recycling. E-waste seems to have a small portion of other wastes, but it has significant effects on human health and the environment.

Pakistan is the second highest country with particulate matter (PM) 2.5 concentration in its air (IQAir, 2020). In 2020, Lahore (a city in Punjab) was ranked as the 18th most polluted city in the world (IQAir, 2020). During the winter season Lahore

experiences the highest level of air pollution due to temperature/thermal inversion (a reversal of the normal behavior of temperature in the troposphere), biomass burning, and agriculture burning in Pakistan and India.

4.4. Limitations and Future Work

Punjab a province of Pakistan is a highly populated province among other provinces (PES, 2018). Therefore, the study includes the respondents (survey) from metropolitan cities of Punjab. The primary results are specific to Punjab and there is a broad scope of similar research to be conducted in other provinces of Pakistan.

5. POLICY IMPLICATIONS

Our study has yielded several significant policy recommendations for Punjab (Pakistan).

1. Awareness Programs:

Policy: Develop and implement awareness campaigns targeted at individuals with lower-incomes and education levels.

Rationale: Recognizing that education positively influences e-waste awareness, efforts should focus on reaching out to less-educated populations to bridge the awareness gap.

2. Information Dissemination:

Policy: Promote the widespread dissemination of information related to e-waste management and its environmental impact through accessible channels.

Rationale: Individuals with higher incomes tend to have better access to information. Ensuring that comprehensive e-waste information is available through various mediums, including digital platforms and community initiatives, can help raise awareness among all income groups.

3. Affordable Recycling Programs:

Policy: Under the E-waste Management Plan (GOP, 2021), establish and implement affordable and accessible e-waste recycling programs and facilities for the disposal of electronic devices

Rationale: Affordable recycling options can encourage responsible e-waste disposal, particularly among lower-income groups, while also creating job opportunities in the recycling and waste management sectors.

4. E-Waste Legislation and Enforcement:

Policy: The NEP and NHWMP should be revised to incorporate comprehensive e-waste laws that encompass responsible disposal, recycling, and EEE management measures. Furthermore, enforcement agencies should prioritize rigorous enforcement and compliance.

Rationale: Effective e-waste legislation can provide a framework for the safe handling of e-waste and promote sustainable practices, benefiting both public health and the environment.

5. Public-Private Partnerships:

Policy: Encourage partnerships between the government, private sector, and civil society organizations to jointly address e-waste challenges. Moreover, develop an Extended Producer Responsibility (EPR) model for EEE manufacturers and encourage producers to comply with EPR policies.

Rationale: Collaboration among different stakeholders can leverage resources, knowledge, and expertise to create effective e-waste management programs and awareness campaigns.

6. Environmental Considerations in Economic Growth:

Policy: Integrate environmental considerations into economic growth policies and plans, ensuring that development efforts account for e-waste challenges.

Rationale: With 87% of respondents concerned about the environment, embracing a balanced approach to economic development, one that prioritizes environmental sustainability, can mitigate e-waste's adverse effects.

7. Regulating E-Waste Imports:

Policy: Strengthen regulations on the importation of electronic items, especially secondhand and wasted electronics, to ensure safe disposal and responsible recycling.

Rationale: Strict controls on imports can minimize health and environmental hazards associated with improper e-waste processing.

8. Holistic Approach:

Policy: Adopt a holistic approach that addresses the complex interplay between economic development, population growth, and e-waste generation.

Rationale: Considering economic, social, and environmental dimensions is crucial for developing effective policies that mitigate the negative impacts of e-waste while promoting sustainable development.

6. CONCLUSION

The study attempts to investigate public cognizance of e-waste effects on human health and the environment, which is significant, and the public is willing to contribute towards sustainable practices to protect the environment. There is a relationship between GDP, economic development, lifestyle changes, and e-waste generation. Economic growth and improved living standards drive higher demand for electronic devices, resulting in increased e-waste.

Additionally, the interplay between population growth, e-waste generation, and the associated socioeconomic and environmental challenges is complex. While population growth is a natural phenomenon, its consequences on employment, income levels, and affordability can drive the demand for cheap electronic products. Importing and managing e-waste, although economically appealing, raises critical concerns about human well-being and environmental sustainability. Furthermore, the evolving consumer landscape, where youngsters are captivated by electronic gadgets, adds another layer to the multifaceted relationship between population dynamics and electronic waste.

generation. Lastly, e-waste is not only a factor contributing to environmental degradation, but there are other influencing factors like solid waste, industrial waste, organic waste, plastic waste, and so on.

Addressing the challenges related to e-waste requires a comprehensive approach, including efforts to regulate imports, promote responsible recycling, strict e-waste policy implementation, and increase awareness about the environmental and health risks associated with improper e-waste disposal. This, in turn, contributes to the development of a circular economy.

APPENDIX

Table A1

Strength of Pearson Correlation

Correlation coefficient (r)	Interpretation
0.00 – 0.29	No/little correlation
0.30 – 0.49	Weak correlation
0.50 – 0.69	Moderate correlation
0.70 – 0.89	Strong correlation
0.90 – 1.00	Very strong correlation

Source: (Zady., 2000; Garcia Asuero et al., 2006).

Table A2

Logit Model Measures of Fitness

Log-Lik Intercept Only	-155.569	Log-Lik Full Model:	-137.321
D(306):	274.641	LR(5):	36.497
		Prob > LR:	0
McFadden's R ² :	0.117	McFadden's Adj R ² :	0.079
Maximum Likelihood R ² :	0.11	Cragg & Uhler's R ² :	0.175
McKelvey and Zavoina's R ² :	0.186	Efron's R ² :	0.125
Variance of y*:	4.042	Variance of error:	3.29
Count R ² :	0.814	Adj Count R ² :	0.065
AIC:	0.919	AIC*n:	286.641
BIC:	-1482.717	BIC':	-7.782

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Macroeconomic Policy, Institutional Quality and Inclusive growth in Nigeria

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The inability of macroeconomic policy in influencing macroeconomic indicators in Nigeria has been attributed to weak institutional quality which has consequences for the achievement of inclusive growth. Thus, this study investigates the link between macroeconomic policy, inclusive growth, and institutional quality in Nigeria. The period of this study spanned 1996 to 2021. The study utilised fully modified ordinary least square and the results showed that macroeconomic policy variables and institutional quality contributed significantly in enhancing inclusive growth in Nigeria. More so, it was observed that the interactive terms between macroeconomic policy variables and institutional quality enhanced inclusive growth. Therefore, the study concludes that macroeconomic policy and institutional quality are important drivers of inclusive growth in Nigeria. This study recommends that institutional quality should be improved using appropriate anti-corruption policies through institutions like the Economic and Financial Crime Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Commission (ICPC).

JEL Classification: E52, E62, O43

Keywords: Macroeconomic Variables, Institutional Quality, Inclusive Growth, FMOLS, Nigeria.

1. INTRODUCTION

Since the great economic depression of the 1930 macroeconomic policy has been accorded an indispensable role and a vital tool in the achievement of sustainable growth. This is premised on the notion that sustained growth creates employment opportunities, and reduces inequality and poverty among others (Camdessus, 2005). While some countries have experienced sustained growth due to appropriate macroeconomic policy, the level of inequality, poverty, unemployment, and the percentage of the working poor have been on the rise. For instance, the Nigerian economy experienced an average growth rate of 6.3 per cent between 2000 and 2010 while within the same period, the unemployment rate rose from 13.1 per cent to 21.1 per cent. The simultaneous increase in the level of poverty and the worsening state of unemployment and inequality, clearly showed that the recorded economic growth has not been inclusive by not enhancing the quality of life nor abridged the income inequalities gap (Eurasian Economic Commission (EEC) & United Nation Conference on Trade and Development (UNCTAD, 2019).

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Besides, the inability of macroeconomic policy to influence socio-economic indicators has been attributed to weak institutional quality. Poor institutional quality weakens the ability of the state to address the problem of inclusive growth due to uneven distribution of the gains of economic growth and lack of equal employment/income earning opportunities. Such weak institution is characterised by corruption, nepotism, red-tape, bureaucracy, and selective/injustice among others. More worrisome is the fact that, despite the launching of institutional reforms (such as ICPC (Independent Corrupt Practices and other related Crime) and EFCC (Economic and Financial Crime Commission (EFCC)), inequality, poverty, and unemployment have worsened. The failure of macroeconomic policy and institutions in addressing issues of inequality, despite the recorded economic growth, resulted in a new line of economic thought—inclusive growth.

Inclusive growth emphasises the complementary relationship between economic growth and equity in addressing socio-economic issues such as rising poverty and the unemployment rate. Addressing the issue of inclusive growth is pertinent because inequality affects the innovation and investment potentiality of the poor and consequently hampers gross investment and economic growth (ECC & UNCTAD, 2018). More so, rising inequality propagates poverty levels, weakens the democratic process, and creates agitations for civic and social unrest, thereby discouraging macroeconomic activities and reducing the potential of the country to attract foreign investors (Dabla-Norris *et al.*, 2015).

Despite the important role of institutional quality and macroeconomic policy in promoting inclusive growth, there has been less emphasis on the relationship among these variables with respect to empirical literature. Previous indigenous literature has largely focused on the link between inclusive growth and monetary policy (Olakenmi & Olagaju, 2020) while other studies analysed the fiscal policy–inclusive growth relationship (Estrada *et al.*, 2014). The outcomes of these studies are incomprehensive because they focused only on one aspect of macroeconomic (either monetary or fiscal) policy. Similarly, the literature is silent on the link between institutional quality and inclusive growth. However, emphasis has only been placed on the relationship between institutional quality and economic growth (Garba, Abdullahi, & Abubakar, 2016) and among institutional quality, macroeconomic policy, and economic development (Ifere, Okoi & Christian, 2015). Furthermore, the issue of the interactive influence of institutional quality and macroeconomic policy on inclusive growth has equally been neglected in the literature. Therefore, drawing from the weakness in the reviewed empirical literature, the under-listed research questions are raised for investigation.

- (i) To what extent does institutional quality and macroeconomic policy influence inclusive growth? and
- (ii) Does the interaction of institutional quality and macroeconomic policy influence inclusive growth?

Analysing the link between institutional quality, macroeconomic policy and inclusive growth is vital because the inferences from the study will enable policymakers to assess the relative effectiveness of both institutional quality and macroeconomic policy in influencing inclusive growth. More so, evaluating the interactive influence of institutional quality and macroeconomic policy on inclusive growth would provide remarkable evidence on whether the adjustment of these policy variables (institutional quality and macroeconomic policy) simultaneously would enhance or hamper the attainment of inclusive growth in Nigeria. Consequently, the findings from this study would enable

policymakers to apply the appropriate policy dose in achieving sustainable inclusive growth. More so, the policy reference resonating from this study will assist policymakers on the matters of actualising inclusive growth as contained in the Sustainable Development Goals (EEC & UNCTAD, 2019).

2. LITERATURE REVIEW

2.1. Conceptual Review

Inclusive growth has been described by the Eurasian Economic Commission (EEC) as the convergence of the welfare of different groups of persons in a country, which is accomplished not only by the appropriate redistribution of the benefits of economic growth but through the creation of impartial and favourable economic environments, which allows every member of the country to achieve the desired quality of life. The Asian Development Bank (ADB) described inclusive growth as the rise in earnings through equal participation in economic activities and the simultaneous decrease in inequalities as described by “non-financial” aspects of human welfare. The European Commission (EC) described inclusive growth as a strategy supporting the actualization of the reduction in the level of unemployment in the country. More so, it involves investment in skills acquisition, combating poverty, and the reformation of the labour markets.

According to the Organisation for Economic Cooperation and Development (OECD), inclusive growth is referred to as an improvement in the multidimensional living status of a typical (average) household. The World Economic Forum (WEF) refers to inclusive growth as the transformation of real economic growth into the enhancement of human welfare through the provision of relevant opportunities (EEC-UNCTAD, 2019).

For institutional quality, it has been described by Citizendum (2012) as the extent to which a country’s institutional framework fosters multinational transactions and provides safety and certainty of investment decisions. Institutional quality according to Bruinshoofd (2016) refers to a broad notion that captures government regulations and individual rights. Heywood (2002) defined an institution as “a well-established body with a formal role and status. According to North (1990) institution is described as man-made regulations and factors which structure social, economic, and political interactions.

2.2. Empirical Review

With respect to empirical literature, studies on inclusive growth are very few. Using panel data for 33 countries with sub-Saharan African (SSA) countries, Hussen (2023) analysed the impact of institutional quality on economic growth for the period 1991 to 2015. Utilising a two-step system generalised method of moment estimation method, the results of the study demonstrated that regulatory institutions, investment-promoting institutions and democratic institutions significantly contributed to growth enhancement in the SSA region while conflict-preventing institutions were irrelevant to promoting growth in the SSA region.

Using data on emerging markets and middle-income countries, Bayraktar et al. (2023) analysed the role of institutional quality in the link between financial development and economic growth. Using the Dumitrescu–Hurlin causality technique, the estimate revealed the presence of causality between indicators of financial development and

economic growth. More so, the GMM estimate displayed that in the presence of institutional quality, the indicators of financial development significantly enhanced growth. Nevertheless, in the absence of institutional quality, financial development is not significant in promoting economic growth.

With a focus on 20 Sub-Saharan African countries, Mohammed, Kassem and Ali (2023) analysed the extent to which economic growth is influenced by financial inclusion and institutional quality. The outcomes of the system generalised method of moment estimate displayed that financial inclusion significantly enhanced economic growth while the effect of institutional quality on economic growth depends on the measurement of institutional quality.

Using panel data on 44 developing countries, Chala (2022) analysed the role of institutional quality and economic freedom in the link between foreign aid and economic growth. The study spanned from 2002 – 2019 and utilised the dynamic panel threshold estimation approaches. The results of the study showed that institutional quality and economic freedom played a vital role in the impact of foreign aid on economic growth in developing countries.

Using data on 46 Muslim countries for the period covering 2005-2018, Wibowo, Kusuma, and Qizam (2022) examined the role of institutional quality on the relationship between macroeconomic policy mix and economic growth. The panel estimate displayed a direct significance of macroeconomic policy and institutional quality on economic growth. However, the findings showed that institutional quality played an insignificant moderating effect in the relationship between macroeconomic policy mix and economic growth in sampled Muslim countries.

Olakanmi and Olagunju (2020) examined the relationship between monetary policy and inclusive growth. The study spanned from 1991 to 2018 and focused on Nigeria. The study used the ordinary least square method, and the results showed that money supply had a significant and positive impact on inclusive growth while exchange rate and interest rate were insignificant in influencing inclusive growth.

Using data for the period 1985 to 2017 for the Nigerian economy, Bassey and Ugwu (2019) analysed the effects of institutional quality and fiscal policy on inclusive growth in Nigeria. In the study, the dependent variable (inclusive growth) was captured by the per capita Gross Domestic Product (PGDP) and human development index (HDI). The ordinary least squares technique was utilised and the results showed that fiscal policy contributed significantly to enhancing inclusive growth whereas institutional quality had an insignificant impact on inclusive growth. More so, using data from 1980 to 2015, Ayinde and Adekunle (2017) explored the effectiveness of monetary policy in Nigeria. Using data envelop analysis (DEA) the results showed that the effectiveness of monetary policy actions in Nigeria involves tolerable adjustments to achieve inclusive growth. Findings from the Structural Vector Auto-regressive technique showed that inclusive growth responded substantially to monetary policy shocks from financial openness and money supply.

More so, applying data spanning 1981 to 2013 for the Nigerian economy, Arodoye and Adegboye (2015) investigated the effects of tax base and tax structure on inclusive growth. Using the multiple regression method, the study observed that company income taxes had the most effect on government spending while the value-added tax had the least effect on government spending. Furthermore, the study observed that productive

government spending provides optimality for tax in terms of productivity growth. The study equally noted that in terms of tax structure, indirect taxes enhance economic growth than direct taxes. Therefore, they conclude that to achieve sustained inclusive growth, which involves growth and employment generation emphasis should be placed on indirect taxes while policy should be made to stimulate direct taxes.

Using Rosenstein-Rodan's thesis of Big-push theory, Adeola (2015) investigated the nexus between inclusive growth, fiscal policy, and social welfare. The findings of the study indicated that changes in tax rates and government spending resulted in a substantial decline in government debt with respect to social welfare costs. Using the Vector Error Correction Mechanism (VECM) and Auto-Regressive Distributed Lag (ARDL) techniques, Kolawole (2015) analysed the link between institutional quality, public spending, and inclusive growth. The study covered the period 1995-2013 and focused on Nigeria. The estimates showed that economic growth, health expenditure, and economic freedom contributed to the enhancement of inclusive growth. With data spanning 1986 to 2013, Richard (2015) investigated the link between optimal fiscal policy and inclusive growth in Nigeria. The study employed Dynamic Stochastic General Equilibrium (DSGE) and the results observed that optimal fiscal policy was insignificant in influencing inclusive growth in Nigeria.

Using data spanning 1995 to 2013 for the Nigerian economy, Ifere et al. (2015) examined the impact of institutional quality and macroeconomic variables on economic development. Applying the ordinary least squares estimation technique, the results of the study displayed that institutional quality and macroeconomic policy (proxy by interest rate) were insignificant in influencing economic development while macroeconomic policy (proxy by government expenditure) had a significant influence on economic development in Nigeria.

Also, focusing on Nigeria, Adenaike (2015) used data from 1970 - 2014 to analyse the link between fiscal policy and inclusive growth. Using the error correction method, the results showed that fiscal and monetary policy had a positive effect on economic growth. Gafaar and Osinubi (2005) examined the link between macroeconomic policies and pro-poor growth. The study focused on Nigeria and used data which spanned from 1960 to 2000. Using descriptive statistical methods, the study observed that the influence of economic growth on the poor is positive but very little.

The review of previous literature showed that the focus had largely been the fiscal policy, institutional quality, and inclusive growth (Bassey & Ugwu, 2019; Adeola, 2015; Kolawole, 2015) while Olakanmi and Olagunju (2020) and Ayinde and Adekunle (2017) focused on the monetary policy and inclusive growth. These studies are largely lopsided by considering only one aspect of macroeconomic policy either monetary or fiscal policy. Such neglect would have limited the policy reference by only considering either fiscal or monetary. Although Ifere et al. (2015) used both fiscal (government expenditure) and monetary (interest rate) policy variables, the focus of the study was on economic development and not inclusive growth. More so, the study by Ifere et al. (2015) used the ordinary least squares estimation methods but failed to conduct the preliminary tests (such as unit root and co-integration). In addition, the study did not conduct any diagnostic tests. This neglect weakens the policy references of the study. In light of the above, this study seeks to fill the lacuna in the literature by conducting comprehensive empirical work on macroeconomic policy, institutional quality, and inclusive growth in Nigeria.

3. DATA AND METHODOLOGY

The study adapts the analytical framework of Afonso and Jalles (2016), which is in line with endogenous growth model of Barro (1990). The endogenous growth theory emphasized the importance of endogenous variables (like institutional quality and macroeconomic policy) in influencing growth in an economy (Afonso & Jalles, 2016). Thus, the model of Afonso and Jalles (2016) incorporates institutional quality and government spending in the endogenous growth model as specified below:

$$\ln grt = A_o + (1 - \delta - \theta)\gamma_i t + (1 - \delta - \theta)\tau_i INSTQ_i + \rho \ln(k)_i + \sigma \ln MAP_i \quad \dots \quad (1)$$

The equation highlights how the workers' output reacts to the institutional quality (INSTQ), capita, and policy direction (MAP). This equation serves as the framework for the model specification of macroeconomic policy, institutional quality, and inclusive growth. It is assumed that institutional quality is the fulcrum of the economic model because it enhances productivity and ensures a robust trickle-down effect of policy.

Therefore, from the equation (1),

$$\ln grt = \phi_0 + \phi_1 \gamma_t + \phi_2 INSTQ_t + \phi_3 K_t + \phi_4 \ln MAP_i \quad \dots \quad \dots \quad \dots \quad (2)$$

Where the dependent variable is inclusive growth, INSTQ is the institutional quality, K is the capital needed to achieve inclusive growth and MAP is other macroeconomic variables needed to achieve inclusive growth. Capital in this case is a collection of government expenditure and money supply which serves as the proxy for both fiscal and monetary policy sub-policy instruments of macroeconomic policy. The exchange rate and inflation rate are the other macroeconomic variables (control variables) included in the equation. The γ_t is the interactive term of the policy and institutional quality.

Specifically,

$$\begin{aligned} RGDP_CAP_t = \phi_0 + \phi_1 (M_2 * INSTQ)_t + \phi_2 (GOVE * INSTQ)_t + \phi_3 INSTQ_t \\ + \phi_4 M2_t + \phi_5 GOVE_t + \phi_6 EXR_t + \phi_7 INFL_t + \mu_t \quad \dots \quad \dots \quad (3) \end{aligned}$$

Inclusive growth was proxied by per capita real gross domestic product (RGDP_CAP), M2 is the broad money supply, GOVE is the government expenditure, INSTQ is the institutional quality, EXR is the exchange rate and INFL is the inflation rate. The institutional quality index was obtained through the application of the principal component analysis (PCA) technique. The six measures of institutional quality namely: political stability and absence of violence/ terrorism, rule of law, control of corruption, voice, and accountability government effectiveness, and regulatory quality were subjected to PCA, and index scores were obtained which serve as a proxy for aggregate institutional quality. Broad money supply, government expenditure, exchange rate, and inflation rate were obtained from the statistical bulletin of the Central Bank of Nigeria 2021 edition, while per capita real gross domestic product was sourced from the WDI.

The study adopted the Fully Modified Ordinary Least Square (FMOLS) technique. The estimation technique is capable of obtaining an efficient and consistent estimate when the sample size is small. It estimates direct long-run effects and possesses the ability to correct for endogeneity problems. It eliminates the incidence of reverse causality and the problem of autocorrelation.

Table 1

Variable Measurement and Sources

S/N	Variable	Description	Data Source
1	RGDP_CAP	Per capita real gross domestic product. It is used to proxy for inclusive growth. It is measured as the ratio of real gross domestic product to population growth.	World Development Indicator (WDI), 2021.
2	M2	This is a broad money supply. It is used to proxy monetary policy aspect of macroeconomic policy.	Central Bank of Nigeria Statistical Bulletin, 2021.
3	INSTQ	Institutional quality is measured institutional quality index obtained through the application of the principal component analysis (PCA) technique. The six measures of institutional quality namely: political stability and absence of violence/ terrorism, rule of law, control of corruption, voice and accountability government effectiveness, and regulatory quality were subjected to PCA and the index obtained.	World Governance Indicator (WGI), 2021.
4	GOVE	Government expenditure is measured by the sum of both the capital and recurrent expenditures	Central Bank of Nigeria Statistical Bulletin, 2021.
5	EXR	The exchange rate is measured by the real official exchange rate of Naira to the United States of America Dollar (₦/\$).	Central Bank of Nigeria Statistical Bulletin, 2021.
6	INFL	This is measured by the annual inflation rate.	Central Bank of Nigeria Statistical Bulletin, 2021.

Source: Authors' 2023.

4. DATA ANALYSIS AND DISCUSSION

4.1. Unit Root / Stationary Estimate

The study carried out unit root tests to ascertain the order of integration of the variables. The study applied the Augmented Dickey Fuller (ADF) test to ascertain the degree of the stationarity of the variables. The null hypothesis of the test is that there is the presence of a unit root, while the alternate hypothesis is there is no unit root at the specified level. The test was conducted at both level and first difference. Also, three different

conditions were examined namely: with constant, with constant and trend, and without constant and trend. The estimate presented in Table 2 below showed that at three different conditions, all the variables or series were not stationary at level. However, at the first difference RGDP_CAP, INSTQ, GOVE, INFL were stationary at all the conditions, while M2 was integrated with constant and also with constant and trend. Also, EXR was integrated with constant and, with constant and trend. The outcome of the stationarity estimates implied that the co-integration test is paramount to confirm the variables' degree of long-run relationship and number of co-integrating questions.

Table 2

Unit Root / Stationary Test Results

At Level							
		RGDP_CAP	INSTQ	GOVE	M2	INFL	EXR
With Constant	t-Statistic	-1.4984	-1.9902	3.0664	2.4161	-2.1821	0.4372
	Prob.	0.5156	0.2886	1.0000	0.9999	0.2176	0.9799
With Constant & Trend	t-Statistic	0.2090	-1.5863	0.7350	-1.2219	-2.4326	-0.7526
	Prob.	0.9965	0.4688	0.9993	0.8816	0.3544	0.9565
Without Constant & Trend	t-Statistic	0.8369	0.4541	3.4861	4.7876	-1.7519	2.2322
	Prob.	0.8847	0.8028	0.9994	1.0000	0.0758	0.9915
At First Difference							
		d(RGDP_CAP)	d(INSTQ)	d(GOVE)	d(M2)	d(INFL)	d(EXR)
With Constant	t-Statistic	-6.2815	-4.1500	-3.7514	-4.0760	-7.2433	-3.5498
	Prob.	0.0000	0.0051	0.0409	0.0051	0.0000	0.0157
With Constant & Trend	t-Statistic	-6.0181	-4.1908	-3.9560	-5.9686	-6.8693	-3.3344
	Prob.	0.0003	0.0192	0.0311	0.0004	0.0001	0.0868
Without Constant & Trend	t-Statistic	-2.1837	-3.0734	-2.1394	1.0160	-7.4835	-2.6164
	Prob.	0.0307	0.0038	0.0339	0.9116	0.0000	0.0114

Source: Authors', 2023.

Note: Total number of observations is 26 (1996-2021).

4.2. Co-integrating Test

Having discovered the order of integration of the variables, it is important to explore their long-run convergence because the adopted model works efficiently in a co-integrated model. Johansen co-integration test was adopted to examine the long-run relationship. The test was conducted using trace and maximum eigenvalue. The result of trace statistics in Table 3, showed that three co-integrating equations exist among the variables, while the result of Maximum Eigenvalue showed the existence of two co-integrating equations among the six variables. The result of the test informed the decision of adopting a fully modified ordinary least square model by taking into consideration the first order of integration of the variables.

Table 3

Johansen Co-integration Estimate

Hypothesised No. of CE(s)	Trace Statistic	Prob.	Max-Eigen Statistic	Prob.
None	146.1607*	0.0000	55.32623*	0.0005
At most 1	90.83442*	0.0004	40.40863*	0.0072
At most 2	50.42579	0.0281	25.56038	0.0888
At most 3	24.86541	0.1663	15.17789	0.2766

Source: Authors', 2023.

Note: * implies significance level at 1 percent.

The estimated model in Table 4 comprised both the impacts of institutional quality and macroeconomic policy on inclusive growth and the interactive effect of macroeconomic policy and institutional quality on inclusive growth in Nigeria. Government expenditure captures the fiscal policy part, broad money supply serves as a proxy of monetary policy, and exchange rate and inflation rate are major variables that serve as control variables. It is expected that for a country to achieve inclusive growth, government effectiveness, political stability, and absence of violence/terrorism, the rule of law, regulatory quality, and, voice and accountability should be well enshrined in the system of government. An economy can have sound macroeconomic policies but weak institutions can be its Achilles heel why it cannot achieve a reasonable trickledown effect.

The result obtained through FMOLS technique indicated that the index of institutional quality can aid the inclusive growth in Nigeria in the long run, especially if the country's system of governance is reformed and the people embrace comprehensive sociological change. Institutional quality exhibited a positive relationship with inclusive growth as captured by the per capita real gross domestic product. It was observed that institutional quality enhanced inclusive growth by 1.39 units in the long run growth with t-value of 5.7845 and p-value less than 0.05. This finding is in contrast with Bassey and Ugwu (2019)

However, government expenditure which serves as a proxy for fiscal policy reduced inclusive growth in the country in the long run. This result is in line with Adeola (2015) but in contrast with Kolawole (2015). The negative relationship between fiscal policy and inclusive growth can be attributed to the fact that capital expenditure in Nigeria is less than 30 percent of the total government expenditure. A larger share of the expenditures is being directed toward projects that seem to be unnecessary, while little is being done in the area of human capital development expenditure like health and education that can exhibit serious trickle-down effects on the populace. Government expenditure decreased inclusive growth with a coefficient of -0.0665, ($t=-4.9438$, $p<0.05$). In the case of broad money supply, the variable significantly influenced inclusive growth with a coefficient of 0.2488. This result is in line with Olakanmi and Olagunju (2020). It implies that in the long run, the country may achieve inclusive growth if the monetary policy system is targeted at the real sector, especially by supporting the activities of small and medium-scale enterprises in the agricultural and manufacturing sector. Thus, Nigeria may achieve the SDGs goals of inclusive growth by having a sound monetary framework that is pro-poor, unlike the present pro-rich monetary system.

The result in Table 4 showed that exchange exhibited a negative relationship with inclusive growth in Nigeria (-0.0175 , $t=-3.2479$, $p<0.05$). Exchange rate depreciation adversely influences the economic prosperity of a nation like Nigeria, because firms in the country's real sectors depend on imported inputs. The depreciation of the exchange rate has resulted in the rising cost of doing business and has aided the rise in prices of foods and other necessities. This has reduced the quality of the welfare of the poor. More so, the rise in the inflation rate in Nigeria impairs the achievement of inclusive growth in Nigeria. Those who bear the brunt of the rise in the cost of living are the poor and the middle class, who majorly depend on their small income for sustainability. Access to good healthcare, qualitative education, good nutrition, and good things in life are mostly affected when the price level is unbearable.

The interaction between fiscal policy and institutional quality showed that a good institutional framework would ensure a positive trickle-down effect of government expenditure in Nigeria. The interactive term of fiscal policy and institutional quality has a report coefficient of 0.087 with a t -value of 4.5450 . Also, the interaction between monetary policy and institutional quality indicated that sound institutional quality will enhance the robust performance of monetary policy in Nigeria. It depicts the fact that monetary policy would contribute to a rise in inclusive growth.

Table 4

Fully Modified Ordinary Least Square Model

Variable	Coefficient	t-Statistic	Prob.
INSTQ	1.392585	5.784597	0.0000
LOG(GOVE)	-0.065040	-4.943876	0.0002
LOG(M2)	0.248894	32.74735	0.0000
EXR	-0.017586	-3.247949	0.0054
INFL	-0.052417	-8.805679	0.0000
C	1.005908	7.408861	0.0000
LOG(M2)*INSTQ	0.073579	5.544116	0.0001
LOG(GOVE)*INSTQ	0.087786	4.545066	0.0004
R-squared: 0.967169			Adjusted R-squared:
0.951848			
F-statistics: 305.9984 ($p < 0.05$)			

Source: Authors', 2023.

Note: Total number of observations is 26 (1996-2021).

5. CONCLUSIONS AND POLICY RECOMMENDATIONS

The study explored the relationship among institutional quality, macroeconomic policy, and inclusive growth in Nigeria for the period 1996-2021. Fully Modified Ordinary Least Square was adopted and the study observed that institutional quality aided the process of achieving inclusive growth in the country. More so, macroeconomic policy variables - government expenditure, broad money supply, and exchange rate - contributed to the attainment of inclusive growth. Although their contributions were conditioned on the institutional framework of the country. The study observed that Nigeria may attain a sustainable growth position that reflects in the well-being of the populace if the structure

of governance is reformed. Ineffectiveness in governance, political instability, poor regulatory quality, and lack of accountability within the Nigerian institutions would retard the trickle-down effect of government policy. No matter the robustness of either fiscal or monetary policy, when the platform of implementation is weak and characterised by ineffectiveness, it will remain a paper policy that cannot achieve its expected result. Having discovered that macroeconomics policy in Nigeria can be more effective in achieving inclusive growth when the country's institutions are strengthened, the study recommends that institutional quality should be improved using appropriate anti-corruption policies through the strengthening of institutions like the Economic and Financial Crime Commission (EFCC) and the Independent Corrupt Practices and Other Related Offences Commission (ICPC). More so, government spending should be geared toward improving the performance of the education and health sectors which constitute major determinants of human capital development. This would enhance the participation of workers in the overall economic activities.

5.1. Limitations of the Study

This study focused on the relationship between macroeconomic policy, institutional quality, and inclusive growth in Nigeria. The findings of this research work provided important contributions to knowledge as identified above. However, the study is constrained by the non-availability of data on a quarterly basis which reduced the number of observations used for the regression estimate. High-frequency (quarterly, monthly, daily) data are known to produce better estimates compared to lower-frequency (yearly) data.

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Policy

Manifestoes without Substance

NADEEM UL HAQUE and SADDAM HUSSEIN

WHAT IS A MANIFESTO?

The word “manifesto” is derived from the Latin word “manifestum,” meaning clear or evident. It serves as a comprehensive and detailed document that outlines a political party’s vision for society, its proposed solutions to various issues, and its commitments to the electorate if they are elected to govern. Manifestos are also a means for political parties to establish credibility and demonstrate their understanding of the challenges faced by society. They serve as a roadmap to convince voters that the party’s vision aligns with the aspirations and needs of the public. A typical political manifesto includes several key components:

- Presents the party’s overarching vision for the country or region it aims to represent and highlights the core values that guide its decisions and actions.
- Outlines specific policy proposals on a wide range of subjects such as the economy, education, healthcare, environment, foreign affairs, defense, social welfare, and more. These proposals detail the party’s stance on each issue and how they plan to address them.
- Promises made by the party to the electorate, aimed at winning their support and trust. These promises can vary from tax cuts, job creation, and infrastructure development, to improvements in various sectors.
- A critique of the policies and ideas put forward by competing political parties. This is to highlight the differences and contrast their approach with that of the opponents.
- Historical context, explaining how certain societal or economic issues have evolved and how the party’s proposed policies can address those issues effectively.

OBJECTIVE

The primary objective of a manifesto of a political party is to present a clear and persuasive case to the voters about why they should support the party in an upcoming election. It aims to showcase the party’s ideology, principles, and policy priorities, providing a blueprint for governance if the party is elected to power.

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SIGNIFICANCE

The significance of a manifesto of a political party cannot be overstated. It plays a crucial role in shaping public opinion and informing voters about a party's platform. Voters often use manifestos as a basis for assessing whether a party's proposed policies and ideas align with their own values and interests. A well-crafted manifesto can have a significant impact on an election campaign. It can rally party supporters, attract swing voters, and sway undecided individuals. Additionally, once a party is elected, its manifesto serves as a benchmark against which its performance and progress can be measured. However, it is essential to note that not all parties adhere strictly to their manifesto once in power due to practical challenges, changing circumstances, and compromises during coalition governments.

PIDE'S THOUGHTS ON A MANIFESTO

In the grand theatre of democracy, a manifesto is the opening act that captivates minds, fuels discussions, and rallies support. It stands as a testament to a party's integrity and ability to forge a path forward. The significance of a political party's manifesto is akin to the foundational blueprint of a grand architectural masterpiece. It embodies the very essence of a party's ideals, aspirations, and commitment to its constituents. Just as a skilled architect meticulously plans each detail before constructing a magnificent edifice, a manifesto outlines the principles, policies, and proposed pathways that guide a political party's journey. Everything in the realm of politics starts with a manifesto. Much like the first brushstroke on a canvas, a manifesto shapes the contours of a party's narrative and sets the tone for its engagement with the electorate. Moreover, a manifesto is a covenant of accountability. By pledging specific courses of action, a party makes a solemn promise to its people. This binding commitment holds a party answerable to its stated goals and, in turn, empowers the electorate to demand transparency and efficacy in the realisation of those promises. Thus, everything, from the shaping of policies to the forging of a nation's destiny, starts with the resolute words etched within a manifesto.

PAKISTAN'S CASE

Political manifestos of political parties in Pakistan vary in nature and quality. Some manifestos are well-crafted documents that outline a party's vision, policy goals, and plans for governance. However, these manifestos seldom include detailed proposals, which provide a clear roadmap for how the party intends to address these issues if elected to power. This is why political manifestos are often criticised as being mere promises without a concrete plan for implementation. Manifestos of almost all political parties in Pakistan lack specificity, feasibility, or practicality, leading to skepticism about the party's intentions and ability to deliver on its commitments.

So, for this reason, we have attempted to draw a comparison of 2018 manifestos amongst three mainstream political parties that are front-runners in formulating governments during last three tenures, against the benchmark of "What PIDE proposes" in parallel.

HOW DID WE CALCULATE?

PIDE has been proposing reforms in various dimensions for quite a long now. These targeted reform proposals are based on years of research, evidence and are in

line with the global best practices. So, we have picked some key issues/sectors which we at PIDE think are fundamental in nature. This means that if we are to kick-start the reform process, addressing these primary issues comes first, acting as a bedrock for further comprehensive reforms. We summarised PIDE proposals in four points for each theme, having equal weightage for each point i.e. 25 percent, making it 100 percent for all four points. We then compared it with what each political party is proposing against the same theme. If their manifestoes proposed one of the points that PIDE proposes, then the score will be 25/100 and if their proposals included all that PIDE proposes, then that manifesto will get full marks i.e. 100/100. It is pertinent to note that, manifestoes are being evaluated on actual reform intervention, not mere promises, slogans and sweeping statements. For instance, strengthening local government is merely a promise and scored as zero. In contrast, allowing the property tax regime to serve as the primary revenue generator for local government is a concrete point. Thus, this point had been given a 25 score.

Scorecard* Political Parties' Manifestoes

Key Reform Areas	PPP	PMLN	PTI
Local Government			
Parliament			
Elections			
Cabinet			
Police			
Bureaucracy			
Budget Making			
Debt Management			
PSDP			
Real Estate			
Agriculture			
Energy			
Taxation			
Tariff			
Trade			
Internet			
Cities Reforms			
SOEs			

0/100
 25/100
 50/100
 75/100
 100/100

Note: Here the latest manifestos of 2018 are being analysed.

*For the detailed comparison, please see the Appendix.

ANALYSIS

As evident from the scorecard, all three political parties do not do any homework, except for a couple of themes - in those too, the score is not remarkable. One can only find big slogans, sweeping statements, and hollow promises. There is no clear road map, no concrete intervention proposals, no blueprint for reform implementation.

As shown in the scorecard, PPP scored zero in 17 indicators, PTI in 13 and PML-N in 12. Overall, the three major political parties scored less than 20 percent, which means that they talk about or have some solid ideas about only 20 percent of the key economic and policy issues of Pakistan. Further dissecting the figure 20 percent tells us out of the country's key issues, only 12 percent of these find space in the PML-N manifesto, 7 percent in the PTI manifesto and 1.5 percent in PPP.

One wonders, how and on what these political parties compete with one another. A look at the above scorecards would imply that more or less all three parties are the same, as far as the manifestoes are concerned. It is a point to ponder, why the public is divided over more or less alike political parties, as reflected from the manifestoes. It is time to take manifestoes seriously, and compel our representatives to focus on manifestoes and add issues of concern to common people, along with proposing comprehensive proposals and clear-cut implementation strategies. This would allow the public to compare the manifestoes in a better way and consequently would do better in voting most deserved political party – the one having done proper homework, knowing what to do if they come into power and if they do, the implementation can start immediately. This would also save time from making misfit task forces to propose reforms that usually mean nothing but optics – only bureaucratic and administrative shuffling, whereas reform means setting the fundamentals right.

CONCLUSION

The superficiality of Pakistani political parties' manifestoes, particularly the economic side of it, is a technical shortcoming that has far-reaching implications for the country's economic development. The absence of quantitative targets, shallow policy proposals, and neglect of structural reforms, trade, and investment strategies, as well as human capital and innovation, signify an alarming lack of technical rigor. A more evidence-based, quantifiable, and technically detailed approach is imperative to tackle Pakistan's intricate policy challenges effectively and drive sustainable economic growth.

PIDE hopes that insights from this knowledge brief will make political parties ponder over the upcoming manifestoes. Thus, anticipating that latest manifestoes will be not be just hollow ones, but having concrete and targeted blueprints for reforms to put Pakistan on the right track.

APPENDIX

**PIDE Reform Agenda and Manifestoes of Major Political
Parties of Pakistan—A Comparison**

	What PIDE suggests	PPP	PMLN	PTI
Local Government	Ensure the existence and continuity of local governments. LGs imply local administration, not just local politics/elections. Devolve power to the LGs and empower them financially and operationally. LGs also means empowered city governments in metropolitan cities with an elected Mayor as the Chief Executive of the City.	Legislation for enhancing the role of local government.	Strong legal framework to ensure continuity and empowerment of LG; devolving functions to give LG a meaningful role in areas such as healthcare, education, policing; strengthening the LG capacity by introducing specialised sub-cadres, and encourage PAS and PMS officers to work in the LG; provide financial autonomy and allowing property tax regime to serve as the primary revenue generator for the LG.	Steps to further improve the local government system, bringing in the city government model of having a directly elected Mayor.
Parliament	Term and family limits for parliamentarians must be introduced. The focus of parliamentarians must be on policy and decision-making through legislation. No development funds are to be expended through a member of parliament. Parliament must not be taken as a way to ministership.	NIL	Building consensus on constitutional amendments to strengthen the role of Parliament for good governance and oversight, along with establishing an Ethics Committee under the parliament pertaining to the role and conduct of the members of parliament.	Constitutional amendment to give Parliament the authority to rectify all international treaties after being presented for debate.
Elections	Introduce staggered elections. Direct elections for the Senate. Reduce Assembly limit to 03 years. Consider compulsory voting, internet/e-voting procedures, proportional representation, ranked choice, second-round voting and NOTA (None of the above).	NIL	NIL	NIL
Cabinet	Limit cabinet members from parliament to 10. Experts should be inducted into the cabinet. Total cabinet members must not cross 25. The cabinet must focus on Monitoring and Evaluation (M & E) of the policy decided through parliament and implemented through relevant institutions.	NIL	Inclusion of more women in Cabinet.	NIL

Continued—

Appendix—(Continued)

Police	Police force must be brought under the local government and delinked from the centralised control. Federal Investigation Agency (FIA), Rangers and other such law enforcement and investigative agencies can rest with the federal government. Police Order 2002 must be implemented as an immediate reform measure. Investigations should be separated from other functions of the police, i.e. law and order, patrolling etc. Police should be given operational independence.	Comprising police records and supporting close interaction of the police with institutions such as NADRA to aid crime prevention and detection.	Reforming the police service through Smart Policing and Community Policing, in order to make the police force citizen friendly and an efficient crime-fighting agent.	Creating specialised training institutions. Investing in new policing systems and processes by tracking
Bureaucracy	The generalist colonial examination to recruit for a lifetime should be scrapped. Lifetime career guarantees to be replaced with continuous recruitment at all levels. No transfers across government to allow any single group to control all activities, especially given the costs incurred. Compensation to be market-competitive but monetised. Discontinuation of perks, plots, privileges, ex-officio appointments, and arbitrary allowances. The pension should be fully funded and invested. Moreover, pensions should be portable, even across the public and private sectors, to allow and encourage mobility.	Establishing a task force with equal representation from all political parties in parliament as well as other stakeholders and experts to recommend reforms.	Transforming civil service into a highly capable service provider by promoting a merit-based system at all levels through improvements in recruitment, postings, promotion, training and incentives.	Transforming the civil service into a merit-based, depoliticised cadre of professionals.
Budget Making	Establishment of a Parliamentary Budget Office to advise and support the parliament in the budgetary process. The budget proposed by the parliamentary budget office and the final budget passed must be publicly available. Implementation of the budget in its full essence must be ensured. Mid-term budgets through supplementary finance bills must be avoided. Five-year plans must again be introduced to ensure consistency of budgetary and policy direction.	NIL	NIL	NIL

Continued—

Appendix—(Continued)

Debt Management	<p>Establish an autonomous debt agency (consolidating all debt functions and at par with the central bank and the independent planning commission) with the mandate to oversee and manage Pakistan's long-term debt profile.</p> <p>Debt management reports must be submitted to the parliament for a quarterly review, followed by a mandatory debate and discussion with possible directions for the future by the parliamentarians. The report must also be made open to public hearings for the inclusion of diverse views.</p> <p>All proceedings of the parliament and public hearings must be made part of the public record.</p>	NIL	<p>Eradicating circular debt and reducing losses by enhancing transmission/distribution infrastructure, smart, reverse and prepaid meters.</p>	NIL
PSDP	<p>The focus must be diverted from hardware to the software of the economy, such as investment in research and development (R & D), developing human capital, universal internet access, and procedural and administrative reforms in all aspects of government.</p> <p>There must be limited national development projects at the federal level, while most of the effort and focus must be on reforms.</p> <p>Ensure timely completion of the projects funded through public investment schemes, followed by full review and feedback on the effectiveness of the completed projects.</p> <p>Parliament must develop and monitor complete transparency in this process through regular reporting.</p>	NIL	NIL	NIL
Real Estate	<p>Abolish multiple price administration practices, i.e. Federal Board of Revenue (FBR) rate and District Collector (DC) Rate.</p> <p>Online multiple listing model must be followed with an auction mechanism embedded into the market.</p> <p>Review and update rental laws to promote the rental investment industry.</p> <p>Encourage Real Estate Investment Trust (REIT)</p> <p>The focus must be diverted from urban sprawl to vertical expansion of the cities.</p>	NIL	NIL	Electronic mapping of property, linking it to the owner's CNIC.

Continued—

Appendix—(Continued)

Agriculture	<p>The government footprint must be reduced in the input markets such as fertiliser and water markets and allow private sector to enter the procurement and transportation business.</p> <p>No fixing of minimum support price. Approval for new seed varieties must be processed quickly and swiftly.</p> <p>Water used for irrigation must be fairly priced to encourage efficient cropping pattern.</p>	<p>Introducing Zarai Inqilab Strategy which would include registration of farmers and agricultural workers under the Benazir Kissan Card scheme.</p> <p>Overhauling of the price support system. Crop insurance scheme for small farmers. One window operation for accessing government facilities, market linkages and subsidies. Legal recognition and registration of women agricultural workers under the registration of women agricultural workers under the Benazir Women Agricultural Workers Programme. Deploying drip/sprinkler irrigation systems on 4 million plus hectares of agriculture farmlands.</p>	<p>Transitioning of the agriculture sector towards value-addition and yield productivity. For farmers, this will translate into generating more income from the same area of land and quantum of water.</p>	<p>Promise to transform and expand the Agri-extension programme to provide effective on-farm technical support.</p> <p>Incentivising farmers to conserve water, a</p>
Energy	<p>Restructuring focus must be on renewable energy for electricity generation.</p> <p>Renewable sources for electricity generation shall be used to develop a retail supply market for off-grid areas</p> <p>Prepaid billing must be introduced. Distribution Companies (DISCOs) must be decentralised.</p> <p>A uniform tariff system must be eliminated.</p>	<p>Pledge to complete all affordable and feasible projects related to hydro-electricity. Complete Bhasha Dam soon. We will ensure that the Bhasha Dam project.</p> <p>Resume work on the Pak-Iran pipeline. Facilitate provinces to have their own grid systems for the transmission and distribution of power.</p> <p>Promotion of clean energy (micro-hydel, solar and wind energy) at different scales through provision of financing and 'one window' approvals.</p>	<p>Promoting off-grid solar and cluster-based mini-grid solutions supported by innovative concessional financing in remote areas, especially for tube wells.</p> <p>Extending the grid through rural electrification plan. Opening of distribution market to the private sector to break monopolies and enhance competition. Building a hub for regional energy trade.</p> <p>Doubling transmission capacity through a South-North and Gwadar-Nawabshah pipelines, replacing petroleum trucking with pipelines, reducing Unaccounted For Gas (UFG) through smart metering and improving collection rates to reduce the economic cost of energy.</p>	<p>Shifting away from rent-seeking models to increase system efficiency. Completion rural electrification through renewable and off-grid solutions.</p> <p>Transitioning towards "power exchange", allowing more efficient technologies to get precedence in dispatch.</p> <p>Incentivising the adoption of energy-efficient initiatives on demand side and reducing transmission losses.</p>
Taxation	<p>The tax system must be made more progressive while eliminating tax breaks.</p> <p>Instead, universal income tax treatment must be followed.</p> <p>The tax system must be more straightforward and user-friendly and have increased transparency and fairness.</p> <p>A revenue-yielding buoyant tax regime must be formulated, with a focus on expanding the tax net and not raising revenue from only the existing taxpayers.</p> <p>Mechanisms to monitor and catch tax evasion and corruption must be developed and implemented.</p>	<p>Free installation of Point of Sale (POS) system will be offered by the government for the retail sector to economy, along with soliciting track and trace software to prevent tax evasion.</p>	<p>Double the tax revenue.</p> <p>Operationalise National Single Window, reducing time and trade costs and bringing over 20 government departments under one window.</p> <p>Establish Directorate for immovable property to stop under-declaration of immovable assets.</p> <p>Establish online connectivity within provinces for automatic business registration for taxpayers.</p> <p>Introduce electronic real-time data exchange to check mis-declaration and under-invoicing for imports.</p>	<p>Integrating tax registration with associated processes to reduce the transaction cost of paying taxes.</p> <p>Incentivising businesses to become a part of the formal economy, thus adding larger sources of tax income to the national exchequer.</p>

Continued—

Appendix—(Continued)

Tariff	Tariff lines must be rationalised. Tariff lines must be reduced. A clear perspective is required regarding the extent of openness. Broader guidelines for policy directives must be present.	NIL	Rationalising tariff structure to remove anti-export bias.	Introducing cascading tariffs on raw materials, intermediates and finished goods to move production toward value-added exports.
Trade	Trade policy focus must be on increased production for export promotion purposes. A comprehensive long-term export policy must be introduced, supported by a well-chalked-out industrial policy. A 15-year Export Policy - owned and monitored by an "Export Cell" at the Independent Planning Commission. It is pertinent to note that the policy should be targeted to enhance competitiveness rather than spoon-feeding.	Trading arrangements involving currency swaps will be pursued to reduce dependence on foreign currencies.	The market would be deregulated in favour of innovation-driven FDI and investment-friendly regimes. Complete the Integrated Transit Trade Management System (ITTMS) at Torkham, Wagha and Chamman borders with modern trade facilities to reduce dwell times and enhance regional economic integration.	Ensuring cohesiveness between revenue policy, trade policy & national industrial policies. Making sure that our foreign exchange rate is based on economic fundamentals. Implement a technical and vocational education reform programme for upskilling our labour force in demand-driven trades.
Internet	Universal internet access at affordable rates is the need of the hour and must be considered a fundamental right of citizens. Greater internet access will help facilitate and remotely provide services, including education, health, and legal services. Consider fully funding fast internet access across the country till the end of 2025. Spectrum auctioning must be considered as a way of providing internet access to all areas of the country and not be taken as a revenue generation activity. Consider fully funding fast internet access across the country till the end of 2025. Spectrum auctioning must be considered as a way of providing internet access to all areas of the country and not be taken as a revenue generation activity.		Improve access to IT services such as high speed internet for citizens with the aim of facilitating knowledge acquisition as well as encouraging innovation.	
Cities	Commerce and entrepreneurship must be the driving force behind designing and planning cities. Rigid master plans must be let go immediately and replaced with loose guidelines. Zoning should only differentiate between city centers and suburbs. City management must be handed over to a single authority, i.e. Local Government (LG). Vertical expansion must be encouraged by relaxing the floor area ratio. All cities must have well-developed and dense downtowns. Cities must be developed on the lines and idea of 15-minute cities. Unlocking the dead capital must be a priority. Street vending zones must be created in all cities. The rental housing market must be developed through necessary facilitating regulations. A modern urban transport policy must be adopted.	NIL	NIL	NIL

Continued—

Appendix—(Continued)

SOEs	SOEs must have a budget constraint and not be bailed out by the government repeatedly. SOEs must be run through a corporate set-up, including an independent Board of Governors (BOG) and not be under the influence of bureaucracy or ministries. All PSEs must be answerable to the cabinet and parliament against pre-defined objectives and KPIs. Unchecked hiring, primarily politically motivated, must be immediately eliminated. Hiring must be against only the number of positions sanctioned by the SOE's BOG. Inefficient and unnecessary SOEs must be privatised entirely through management transfer to the private sector or even closed down.	Launching of a People's Reform Programme in the loss-making and investment-starved SOEs, in partnership with their workers and relevant provincial governments. A duly empowered task force consisting of independent and reputable experts as well as workers' representatives will be set up with the first three months of government to prepare, execute and oversee the People's Reform Programme, which will be comprehensive, consultative and time bound.	Decrease the loss incurred by SOEs to zero. Developing an IT	Corporatisation all SOEs and transferring ownership to a wealth fund, modelled along the lines of Khazanah in Malaysia. Appointing and empowering non-political and autonomous boards. Signing performance contracts with boards and agreeing on KPIs.
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Pre-Afghan Taliban Refugee Exodus and the Complexities of Returning Home

MUHAMMAD AJMAL KHAN

OVERVIEW

This study is designed to address some key questions regarding Afghan refugee's exodus. Such as, when did Afghan refugees migrate to Pakistan? What are the prominent factors which compelled Afghan Refugees to flee Afghanistan? What they deem about the future destination? Are they willing to repatriate to Afghanistan? why/why not? In the first step, this study has discussed the recent Afghan repatriation policy of the caretaker government, and identified either the Afghan refugee's migration was voluntary or involuntary, similarly is the repatriation forced or voluntary? Moreover, this study provides a brief history of Afghan refugee's migration. In the second part, this study has empirically, addressed the eminent questions. And finally, suggest policy proposal regarding sustainable repatriation of Afghans to Afghanistan.

DEPORTATION OF AFGHAN CITIZENS

Pakistan is among the largest refugees hosting-countries, hosting Afghan refugees since four decades. In fact, the second and third generation of Afghans are living in Pakistan. According to UNHCR's recent report there are around 3 million Afghan refugees living in Pakistan and additional 0.7 million sought refuge since the fall of Kabul and Taliban takeover. The Afghans have different legal status including Proof of Registration (PoR) cardholders, Afghan Citizen Card (ACC) holders, undocumented, in irregular status, or holding an ordinary visa (student, work, medical, marriage etc.) (ADSO, 2023). However, the government of Pakistan has categorised the recent arrivals in three different categories such as,

- Temporary migrants (those residing in border towns, with extended families, or camps).
- Transit refugees (those arrived based on the reasons of being settled in other countries).
- Resident Card Holders.

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Policy Section

The caretaker government of Pakistan, through Ministry of Interior, on 26 September 2023 issued the 'Illegal Foreigners Repatriation Plan'. According to the proposed plan, the intension is to regulate the presence of foreigners in Pakistan, and to deport the illegal ones to their country of origin. In fact, the deportation plan of foreigners was implemented by the caretaker government, which speculated that illegal immigrants were involved in suicide attacks and contributed to lamentable economic situation. Although there is a considerable number of immigrants living in Pakistan, the Illegal Foreigners Repatriation Plan primarily targets Afghan nationals. In fact, the government is committed to deport all the refugees/foreigners irrespective of their legal status. The planned repatriation would be in three different waves (ADSP, 2023), which are as follows:

- In the first phase all illegal or unregistered foreigner and those and those who have overstayed their visa validity periods would be deported
- In the second phase, Afghans holding Afghan Citizen Cards (ACC) will be repatriated to Afghanistan.
- And, finally, Proof of Registration (PoR) card holders will be deported to their country of origin

Consequently, Afghans have voluntarily or involuntarily responded by returning to Afghanistan. In fact, the rate of Afghans return is above the average return rate. Between 15 September and 21 October this year, 83,268 Afghans returned through the Torkham and Chaman border crossing points to Afghanistan. (UNHCR-IOM, 2023).

DILEMMA OF INVOLUNTARY MIGRATION AND REPATRIATION

The word Migration is taken from the Latin word “migrata”, which mean to change one's place of residence. Migration is generally defined, as the temporary or permanent change in residence, a movement of people from one place (the place of origin) to another (place of destination) for a better life, more income, good food supply and additionally to get refuge from instability, conflict and natural disasters (Vargas-Lundius et al., 2008).

There are two forms of migration, voluntary and involuntary or forced migration. The voluntary migration refers to the movement of people from one place (place of origin) to another (place of destination) by their will. On the other hand, forced migration refers to the migration when people move from their countries (place of origin) to escape from persecution, conflicts, repression, natural or man-made disasters, ecological degradation or other situation that endanger their lives and freedom or livelihood ((Wickramasekera, 2002; IOM: United Nations 2000). In fact, the 1951 Convention of UNHCR defines a Refugee as “Someone who is impotent or reluctant to return to their home- land because of well-founded fear of being ill-treated owing to his/her race, religion, nationality, or owing to any affiliation with social or political groups”. The Afghan refugees mainly migrated involuntarily from Afghanistan to the neighbouring countries to escape from war, persecution, religious extremism and ongoing conflicts in Afghanistan.

There are two types of repatriations, voluntary and involuntary. The voluntary repatriation refers to a free and unhampered decision of refugees to return to their country of origin. On the other hand, involuntary repatriation refers to the return of refugees to their country of origin without their free consent or choice. This study and existing literature show

that likewise the Afghans migration, repatriation of Afghan nationals is also involuntary due to the reluctance of majority to return to Afghanistan. This study shows that majority (67.3 percent) of the Afghan national are not willing to return to Afghanistan. Moreover, evidence suggests that many refugees have been pressured to leave Pakistan despite the unsafe and unfavourable conditions in Afghanistan (Hiegemann, 2014). Recent reports from returnees highlight that a significant 87 percent cited the fear of arrest as the primary motivation for returning to Afghanistan (UNHCR-IOM, 2023). Just as they initially fled to escape persecution, the persisting fear of persecution now coerces them to return to their home country.

BRIEF HISTORY OF AFGHAN REFUGEES EXODUS

Historically, there has always been movement of individuals and groups across Pak-Afghan border, primarily owing to presence of same ethno-linguistic groups on both sides of border. It remained a “buffer zone” under British rule, an area demarcated as the territory under British influence in order to deter Afghan and Russian invasion. And, it remained outside of full grip of Pakistani Constitution and laws until March 2018 when the former FATA agencies were merged into the province of Khyber Pakhtunkhwa (KP) under the 25th Amendment. The movement across the border proved difficult to regulate. Yet the inflow and outflow across the border was limited between 1947-1970. In fact, influx of Afghan refugees picked up pace since 1970s when her political situations changed. Since then, Afghans have experienced different phase of massive displacement. Majority of them migrated to Pakistan and Iran in order to escape from war, persecution, religious extremism and conflicts. We can categorise the refugees’ massive inflow in four waves and four major developments in Afghanistan, which compelled the Afghans to flee Afghanistan.

First Wave; (End of Daoud’s Government and Soviet Union Invasion) The first major wave of Afghan refugees began between 1978-1981, when Marxists Peoples Democratic Part of Afghanistan (PDPA) overthrown government of Muhammad Daoud, and later accelerated with Soviet Union invasion in 1979 (Kakar, 1997). Consequently, by the beginning of 1981, some 3.7 million refugees had fled to Iran and Pakistan (Turton & Marsden, 2002).

Second Wave; (Withdrawal of Soviet Union and Re-emergence of Mujahedeen) The second wave was with the withdrawal of Soviet Union and re-emergence of Taliban, which gave birth to civil war in Afghanistan. And, Mujahedeen forced PDPA out of power in 1992, and persecuted PDAP civil servants (Rashid, 2010). The result was a new wave of immigrants to Pakistan.

Third Wave; (The 9/11 attack and US-led Invasion) The third wave of refugees numbering 200,000 to 300,000 left Afghanistan during the U.S.-led invasion of October 2001, (Margesson, 2007).

Fourth Wave; (withdrawal of US and the fall of Kabul to Taliban) A final wave of refugees began on August 15, 2021, when the Taliban overthrew Ashraf Ghani's government and seized power in Afghanistan

DATA AND DEMOGRAPHIC CHARACTERISTICS

For this study we are using data collected from 300 Afghan household residing in three major districts of Balochistan, (Quetta, Pishin and Loralahi), through household survey. In fact, it covers different areas where the refugees are living. And, in district

Pishin the data was collected from refugee camp (Surkhab Afghan Refugees camp). More- over, in district Loralahi we have conducted household survey in two different refugees’ camps (Karaz camp 1 and Karaz camp 2). In district Quetta, different areas were visited where Afghan refugees resides. The locale of the study is depicted in the flowchart given below.

Table 1 shows the demographic characteristics of Afghan refugees.

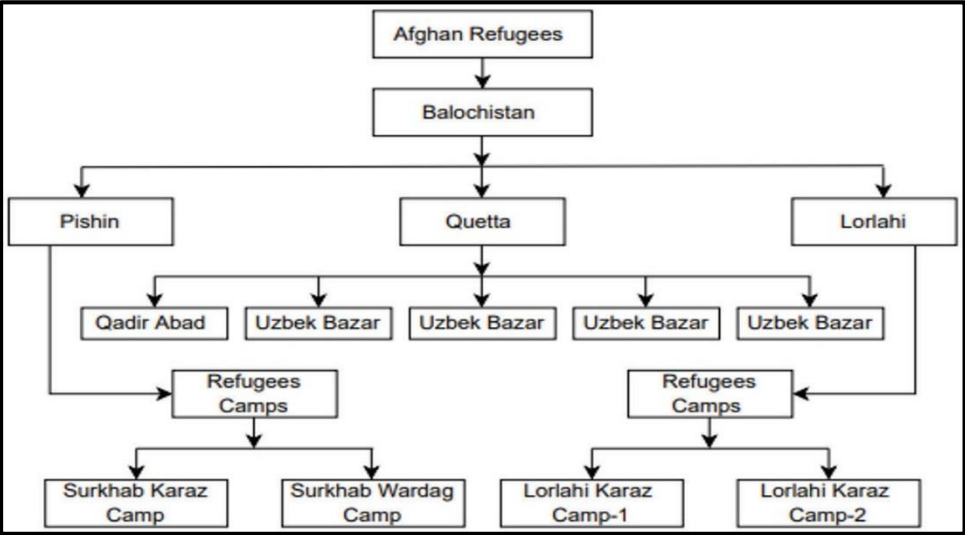
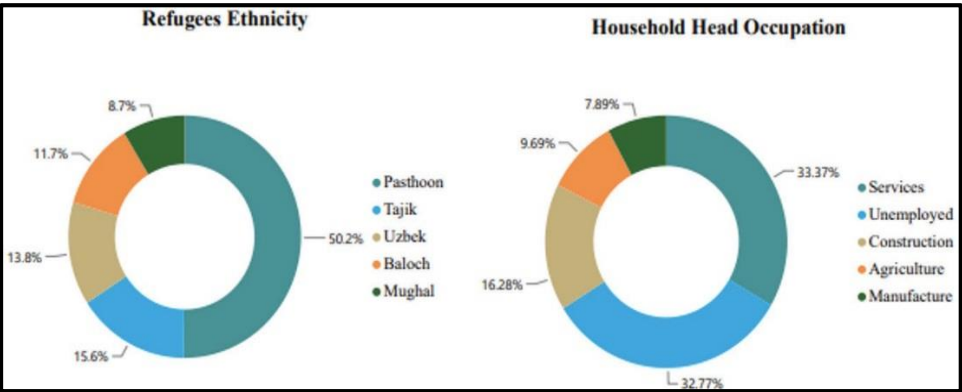


Table 1

Demographic Characteristics of Afghan Refugees		
Afghan Refugees Demographics Characteristics		
Household Head Birth Place	Pakistan	18.3
	Afghanistan	81.8
Afghan Card		74%
Household Head Age		50.4
Family size		14
Household Monthly Income		PKR 35596

Source: Author’s estimation using field survey.



STUDY FINDINGS

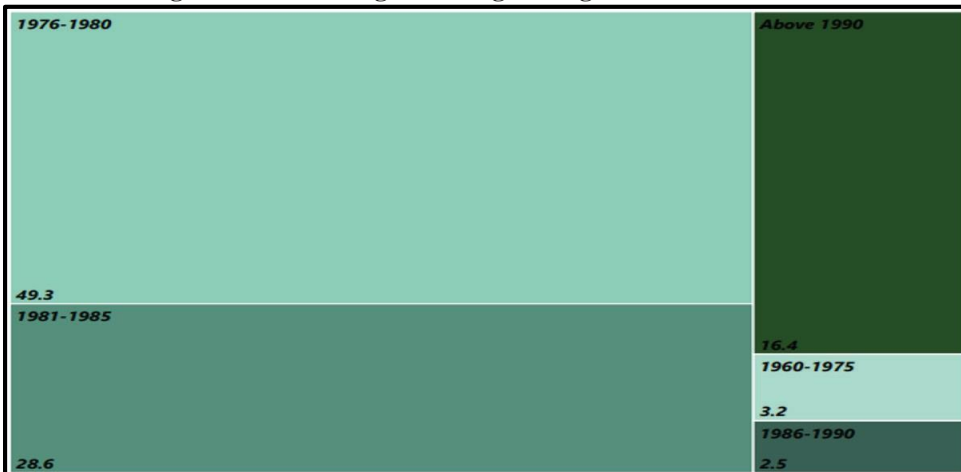
This section of the study elaborates the survey findings such as the Afghan refugees' years of migration, the factors which compelled them to flee Afghanistan, their future destination and highlights the primary reason for not returning to Afghanistan. and, finally suggest some policy proposal for a sustainable repatriation of Afghans.

Afghan Refugees Migration Waves

The Figure 1 shows the Afghan refugees' years of migration to Pakistan. Data reveals that

- Afghans began fleeing their country in 1960. In fact, 3.2 percent of Afghans reported that they came to Pakistan between 1960-1975
- Almost half of the Afghan refugees living in Balochistan reported that they fled Afghanistan between 1976-1980. This reflects the first massive wave of Afghan refugees.
- Moreover, the data shows that the second largest exodus was recorded between 1981 and 1985, (28.6 percent) followed by the migration since 1991 (16.4 percent).
- To sum up, we can categories the pre-Afghan Taliban regime exodus in three waves, which has close link with major developments in Afghanistan. Such as the first wave in 1979, when Soviet Union invaded Afghanistan, the second wave was the end of Soviet Union and emergence of civil war in the country (re-emergence of Mujahedeen) and, finally third wave of Afghan refugees during U.S-led invasion after the 9/11 attack. These findings are in line with (Turton & Marsden, n.d.2002) and (Margesson, 2007).

Fig. 1. When Did Afghan Refugees Migrate to Pakistan? %



Source: Author's estimation.

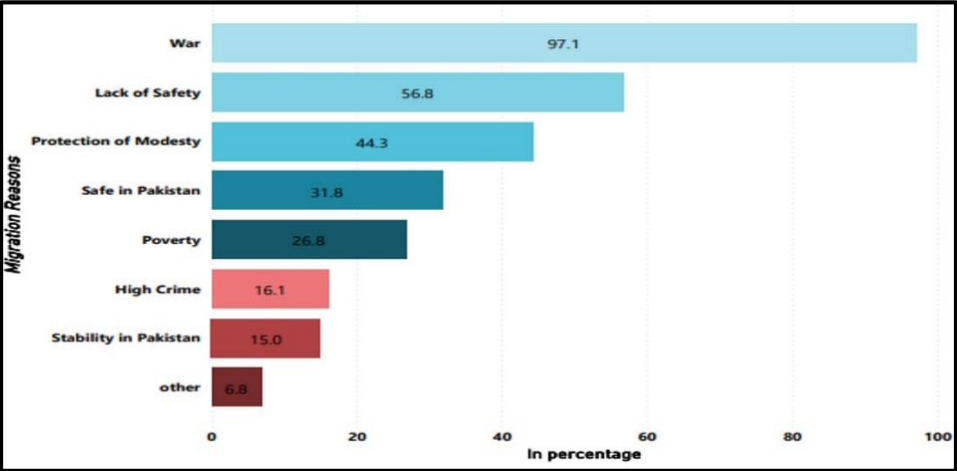
KEY FACTORS THAT FORCED AFGHANS TO FLEE AFGHANISTAN

The first question that come to one's mind while investigating the refugees or Internally Displaced Persons (IDPs) is that, why do individuals move from one place to

another place? In fact, this section seeks to answer the primary question that, what are the prominent factors which lead Afghan to flee their country? In fact, the respondents have revelled both the push and pull factors of migration. The responses are depicted in Figure 2, and shows that

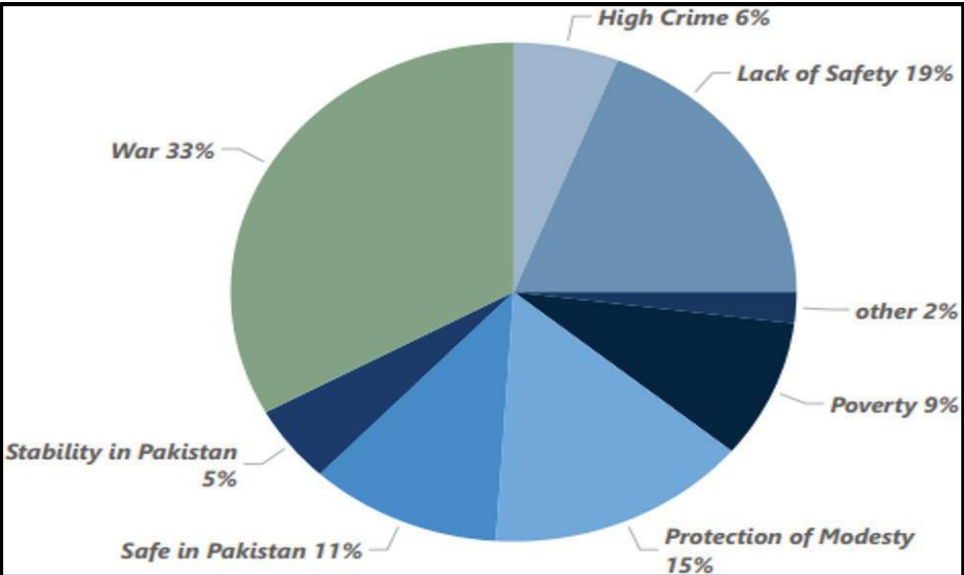
- Among the push factors, 97.1 percent of the respondents cited war, lack of safety (56.8 percent), protection of modesty (44.3 percent) and the poverty (26.8 percent) which compiled them to flee their country.
- And, among the pull factors, 31.8 percent reported the feeling of safety in Pakistan followed by stability in Pakistan (15 percent).

Fig. 2. Major Reasons of Afghan Refugees Migration



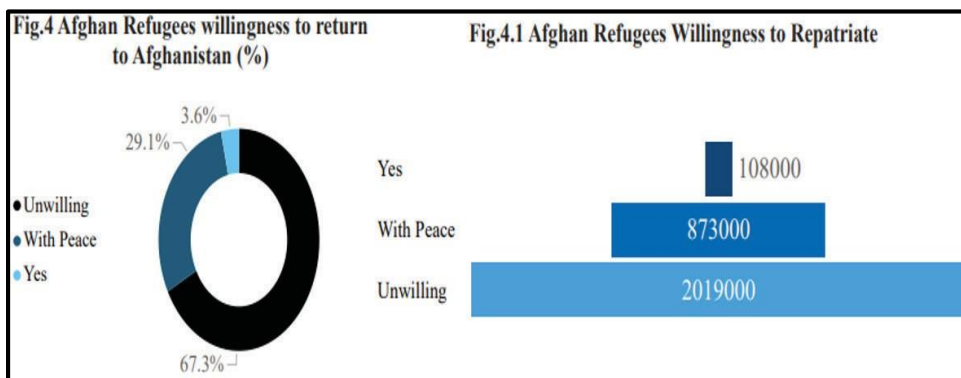
Source: Author's Estimation.

Fig. 3. Aggregating the Major Reasons of Afghan Refugees Migration (%)



WHAT AFGHANS DEEM ABOUT THE FUTURE DESTINATION?

Figure 4 shows the Afghan refugees' willingness to repatriate to their country of origin (Afghanistan). In fact, the findings show that majority of Afghan refugees are not willing to repatriate. As per the recent UNHCR report there are around 3.7 million Afghans in Pakistan, among them some 700,000 Afghans who fled to Pakistan after the Taliban takeover on August 15, 2021. However, this study includes the perceptions of Afghans who fled to Pakistan before the Taliban takeover. Thus, the figure 4 reveals Afghans' willingness to return to their country of origin in percentage. And, on the other hand, figure 4.1 shows the estimated number of Afghan refugees' willingness to repatriate to Afghanistan based on the findings of this study, assuming the total population of 3 million Afghans. Thus, we can summarise their willingness as follows.



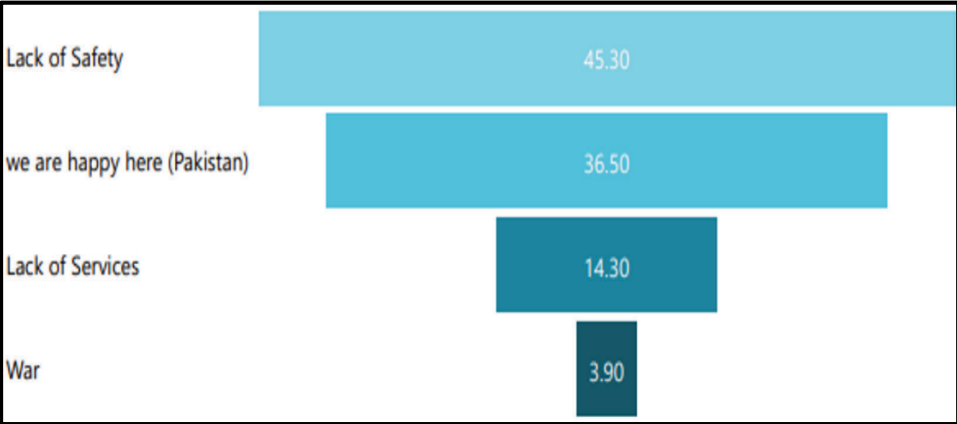
Source: Author's estimation.

- Majority (67.3 percent) of Afghan refugees are not willing to return to Afghanistan.
- On the other hand, approximately 4 percent were willing to repatriate to Afghanistan.
- However, around 29 percent cited that “yes we are willing to move to country of origin (Afghanistan), but with (condition) return of peace and security in Afghanistan”.
- To sum up, majority of the refugees are settled in Pakistan are not willing to repatriate and major portion has associated their return with peace and stability in home town. Thus, stability in Afghanistan is indispensable for the Afghans voluntary repatriation process.

AFGHAN REFUGEES' RELUCTANCE TO REPATRIATE

The majority of Afghan citizens are reluctant to repatriate to Afghanistan. They have also reported the reasons behind this behaviour. Figure 5 shows the primary reasons Afghans are not returning to their country of origin. The findings reveal that:

Fig. 5. Refugees Primary Reasons for not Returning to Afghanistan



Source: Author’s estimation using field survey.

- Majority of Afghan refugees reported the lack of safety as primary reason for not returning to their home country (Afghanistan).
- And, around 36.5 percent of Afghan refugees residing in Balochistan, reported that they are happy in Pakistan, therefore they are not willing to move back to their hometown.
- Moreover, 14.3 percent of refugees reported the lack of services in Afghanistan, and approximately 4 percent reported the persistence of war as main reason for their stay in Pakistan.

RECOMMENDATIONS

This study shows, only 4 percent of Afghan refugees are voluntarily willing to repatriate to Afghanistan, while 29.1 percent are willing to return to their country of origin with condition of peace in home country (Afghanistan). The remaining 67.3 percent are not willing to move to Afghanistan at all! Although Afghanistan is comparatively in a state of peace since Taliban takeover, refugees don’t feel comfortable returning to Afghanistan under their rule. This implies that the repatriation of Afghan refugees would be involuntary which is against the customs of international law, principle of non-refoulement, despite Pakistan neither ratifying the 1951 Convention nor 1967 Protocol related to the status of refugees.

The government of Pakistan on the other hand is committed to force out all Afghans and other foreign nationals living unlawfully in the country. In fact, Pakistan’s Interior Minister stated that all undocumented Afghans must leave the country by 1 November 2023. Those who fail to do so will face deportation. “If they do not go...then all the law enforcement agencies in the provinces or federal government will be utilised to deport them”. Sources claim that the stringent policy owing to the involvement of Afghan individuals in acts of the terror in the country (14 out of 24). Additionally, entertaining around 3.7 million refugees is proving to be an additional burden on the state and the resources. But the question is, will the Afghan refugees return to their home country? And, what is the probability of their voluntary repatriation? And, would it be possible for the refugees to return

immediately? Is the deadline for return appropriate for their return? Will the refugees be in a position to liquidate their assets within a short time period? And, what would be the response of local political parties? Would the Taliban government welcome them? Moreover, are they in position to facilitate these returnees considering the difficult situation of the Afghan economy? Has the caretaker government considered the costs and benefits of hosting and repatriating Afghans?

Based on the findings of this study and considering the dynamics of Afghan refugees requires a comprehensive and sensitive approach that takes into account their concerns and ensures their voluntary repatriation, in compliance with international laws and standards. Here is a suggested strategy for Afghan refugees' sustainable repatriation policy to be consider by the government and relevant stake holders in Pakistan for their repatriation to Afghanistan.

COST BENEFIT ANALYSIS

Unfortunately, there is no research on the cost and benefits associated with hosting Afghan refugees in Pakistan, except for a few minor attempts that shows the social and political cost of Afghan refugees (Borthakur, 2017). In reality, these refugees have both costs and benefits in all aspect of life be it social, economic or political, although, the common perception is that Afghans are burden on the economy of Pakistan and, it's that it's difficult for Pakistan to accommodate the impoverished population.

The Afghans living for more than 4 decades have benefits as well, which are not realised yet. In fact, the influx of Afghan refugees has made a significant impact on the agricultural sector at the provincial level. They have not only transformed the agricultural landscape in Balochistan and Khyber Pakhtunkhwa (KPK) but have also served as a vital labour force in the challenging field of mining, a job many local residents tend to avoid. Additionally, their investments in the country have led to the establishment of businesses, directly contributing to economic growth. Moreover, as consumers, they play a role in stimulating various sectors of the economy. Aid to refugees creates significant positive income spillovers to host-country businesses and households (Taylor et al., 2016). Recognising these contributions, the government should consider the benefits brought by these refugees and acknowledge their positive influence on the nation's development. Thus, the government should take a well inform decision based on the cost and benefits associated both with the presence and repatriation of Afghan refugees considering the all aspects such as, social, political, economic. And, considering these factors become more relevant when the returnees home country is neighbouring country.

REPATRIATION DEADLINE

The deadline set by the caretaker government is insufficient for the refugees to return to their home country, even if they are all willing to repatriate voluntarily. In fact, a large number of these refugees have been residing in Pakistan for more than four decades. They are fully settled here and are entitled to various assets. Thus, the

one-month ultimatum is inadequate for the refugees to liquidate their assets. Therefore, the government should provide ample time for the refugees to sell their valuable or immovable assets. We recommend a period of at least 1 to 2 years if the government is committed to repatriating out all Afghans.

REPATRIATION IN PHASES/WAVES

The Afghans influx was in four major flows at different time and developments in their home country. Similarly, their repatriation should also be in form of gradual waves rather than a single ultimatum. The disaggregation, in turn, might be based on the area zones, such as, targeting urban setting followed by the refugees' camps. Or might initiate a repatriation process at districts levels for the smooth transition to Afghanistan.

ENSURE VOLUNTARY REPATRIATION

As the influx of refugees to Pakistan was involuntary, and it seems the outflow would also be involuntary, which goes against customary international law and the principle of non-refoulement. Therefore, the government should ensure the voluntary migration of Afghan refugees rather than a forceful one.

COMPLIANCE WITH INTERNATIONAL STANDARDS HUMANITARIAN ASPECT

Additionally, the government should come up with comprehensive strategy which ensures their voluntary repatriation, in compliance with international laws and standards. And, considering the humanitarian aspect of their repatriation

COLLABORATION WITH STAKEHOLDERS

The caretaker government should have initiated the Afghan repatriation policy in collaboration with stakeholders, including political parties, social activists, humanitarian agencies, NGOs, the caretaker Afghan government, and refugee representatives

BORDER MANAGEMENT AND REGISTRATION

Finally, we recommend border management and registration of individuals crossing the border from both sides. Additionally, since border management might cause joblessness among local residents, the provincial government should have an alternative plan for those affected

CONCLUSION

Based on the finding of this study, we can categorize the pre-Afghan Taliban regimes, exodus in three waves, which have close link with major developments in

Afghanistan. Such as the first wave in 1979, when Soviet Union invaded Afghanistan, the second wave was outcome of the end of Soviet Union and emergence of civil war in the country (re-emergence of Mujahedeen) and, finally third wave of Afghan refugees during U.S-led invasion after the 9/11 attack. Both the push and pull factors compelled Afghans to flee Afghanistan. Among push factors, the prominent factors include war (97.1 percent), lack of safety (56.8 percent), protection of modesty (44.3 percent) and the poverty (26.8 percent). On the other hand, pull factors include the feeling of safety in Pakistan (31.8 percent) followed by stability in Pakistan (15 percent). Moreover, this study reveals that majority (67 percent) of pre-Afghan Taliban regime refugees are not willing to repatriate to Afghanistan, owing to, the lack of safety, services and their desire of being happy in Pakistan. The motivational force behind Afghan refugee's exodus to Pakistan is political rather than economic in nature, they escaped the unstable Afghanistan and majority of the refugees feels that they are safe in Pakistan. Moreover, they are not willing to repatriate to Afghanistan in presence of political instability. Additionally, the findings indicates that both the Afghan national's migration and repatriation is involuntary. Thus, based on the findings of this study and considering the dynamics of Afghan refugees in Pakistan, requires a comprehensive and sensitive approach that takes into account their concerns and ensures their voluntary repatriation, in compliance with international laws and standards.

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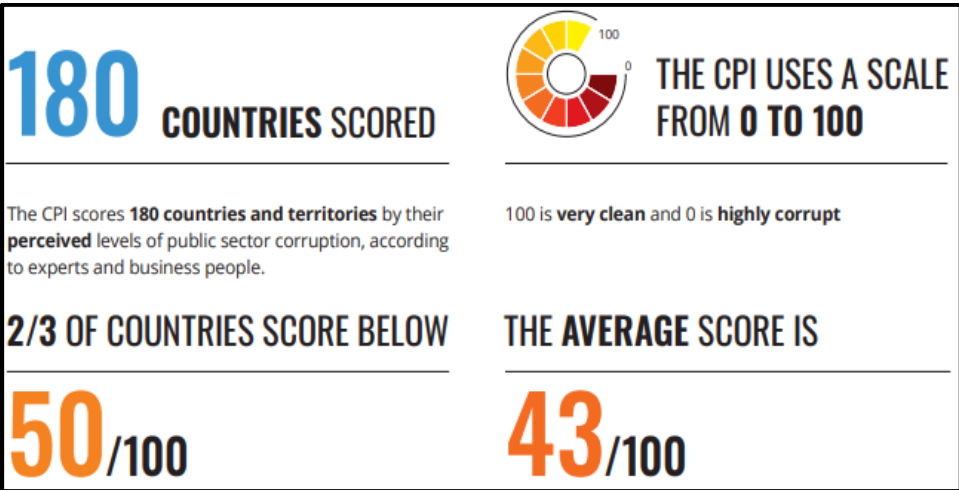
Is Corruption Perception Index Biased? An Ethnicity Based Analysis

ABIDA NAURIN

1. INTRODUCTION

Corruption is a widespread problem that affects many countries across the world. The broad definition of it is the misuse of public authority for personal benefit, which results in an allocation of resources that is less efficient than would occur in a corruption-free environment. Corruption has a negative impact on economic growth, investment, and social development in several ways. First, corruption reduces the efficiency of public institutions and distorts resource allocation. Second, it discourages foreign investment and can lead to capital flight. Third, corruption undermines the rule of law, which is essential for economic growth.

Ethnicity and economic growth are two important factors influencing corruption levels in a country. Therefore, understanding the factors contributing to corruption is essential for policymakers to develop effective measures to combat it. This research report investigates the relationship between economic growth, ethnicity, and panel-country corruption levels. Specifically, it seeks to answer the question: do economic growth and ethnicity explain the differences in panel-country corruption levels?

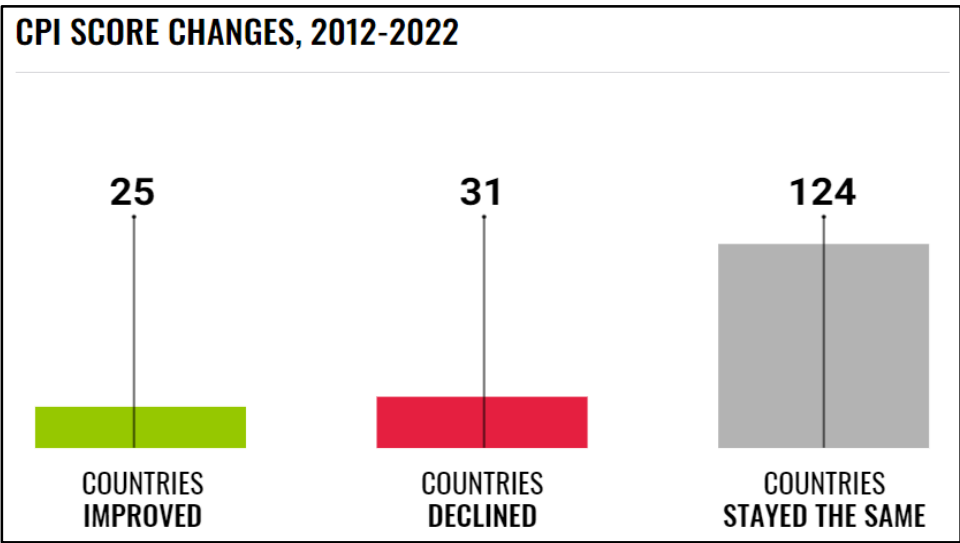


Source: Transparency International, CPI 2022 Report.

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1.1. Corruption Perception Index (CPI)

Transparency International published the first-ever Corruption Perception Index (CPI) in its history in 1995; since then, Governments, Politicians, Civil Society, and Institutions anxiously wait for the new issue every year. Transparency International divides countries into six regions, Americas (AME), Asia Pacific (AP), Eastern Europe & Central Asia (ECA), Western Europe & European Union (WE-EU), Middle Eastern & North Africa (MENA) and Sub-Saharan Africa (SSA). This year about 2/3 of countries scored below 50, and only 33 percent scored 50 and above. The CPI uses opinion polls of businesses and professionals to assess perceptions of public sector corruption in 180 nations and territories. Due to the fact that the CPI is a composite index that incorporates information from 16 various surveys and evaluations from 13 independent organisations, including the African Development Bank, the Economist Intelligence Unit, the World Economic Forum, and the Political and Economic Risk Consultancy; we prefer CPI data over other indices.



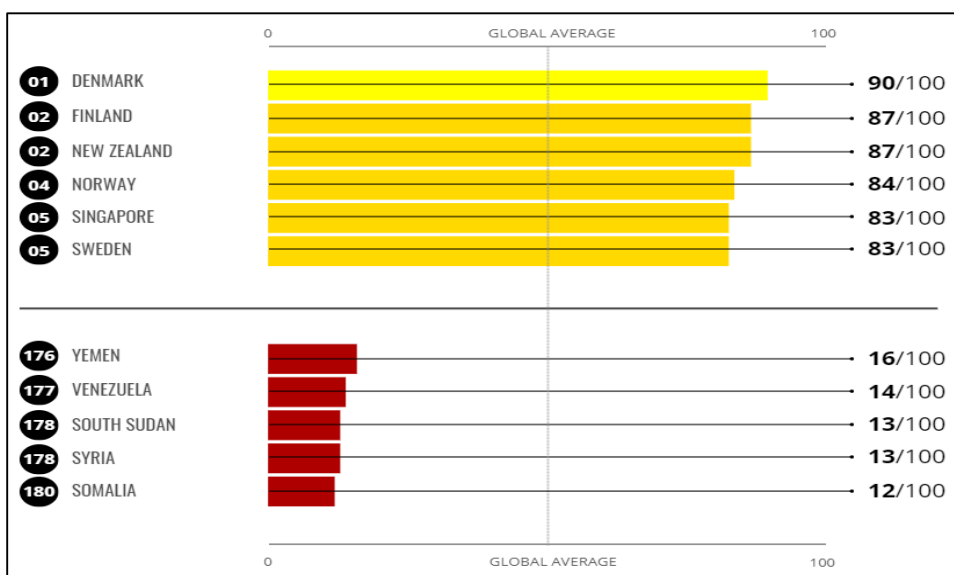
Source: Transparency International, CPI 2022 Report.

Transparency International has released the Corruption Perception Index (CPI) database each year since 1995 (Transparency International, 2022). It rates corruption from zero to one hundred, with one hundred being the cleanest possible. The average worldwide Score, which has remained constant at 43, is below 50 for more than two-thirds of the world’s nations (68 percent). Twenty-five countries have seen a substantial improvement in their rankings since 2012, while 23 significantly decreased. (Transparency International, 2022).

1.1.2. Best and Worst Performers by Transparency International, 2022

The top of the Index is frequently occupied by countries with sound institutions and functioning democracies. Denmark is ranked first overall with a score of 90. With scores of 87, Finland and New Zealand are close behind. The top 10 this year is completed by

Norway (84), Singapore (83), Sweden (83), Switzerland (82), the Netherlands (80), Germany (79), Ireland (77), and Luxembourg (77).



Source: Transparency International, CPI 2022 Report.

On the other hand, conflict-ridden countries, or those whose fundamental political and personal liberties have been severely restricted, tend to get the lowest ratings. South Sudan (13), Syria (13), and Somalia (12) are the three countries at the bottom of the ranking in 2022. The lowest 10 countries are Burundi (17), Venezuela (14), Yemen (16), Libya (17), North Korea (17), Haiti (17), Equatorial Guinea (17), and North Korea (17).

2. CORRUPTION AND ECONOMIC GROWTH

A substantial body of literature has examined the relationship between economic growth and corruption. Overall, the literature on corruption and economic growth suggests that corruption has a negative impact on economic growth, particularly in developing countries with weak institutions. However, the relationship between corruption and economic growth may be more complex than previously thought. Some studies suggest that corruption can have a positive effect on economic growth in certain circumstances, such as in countries with a high level of institutional development. Several theories suggest that corruption can impede economic growth by reducing foreign investment, hindering the functioning of the legal and regulatory systems, and increasing transaction costs.

In contrast, few studies have explored the relationship between ethnicity and corruption. Some scholars argue that ethnicity can affect corruption levels, as it can create a sense of social identity and reduce the willingness to cooperate with people from different ethnic backgrounds. However, other studies suggest that ethnic diversity can foster accountability and transparency in the political and economic systems. Further research is needed to better understand the complex relationship between corruption and economic growth and to develop effective anti-corruption policies.

CPI has been used by the international agencies (who remain outside the CPI system) as well as the moralistic advanced countries most of which are white to beat on the poor corrupt countries. Most recently the IMF in its conditionality has used the CPI to put conditions that are non-economic on Pakistan. This is why we will attempt to understand the biases in the CPI and its meaning.?

We are particularly curious about whether race matters. Is there a racial bias in the CPI? In addition, CPI measures anything other than underdevelopment. Is that rich countries always show up as clean and poor not?

Box 1: Literature Review on “Corruption and Economic Growth”

- ❖ Corruption has a negative effect on economic growth, with each unit increase in corruption reducing the rate of economic growth by 0.5 percent and this effect is particularly strong in developing countries by Mauro (1995).
- ❖ Similarly, Tanzi and Davoodi (1997) found that corruption reduces economic growth and investment, particularly in countries with weak institutions.
- ❖ Bardhan (1997) argued that corruption can have a positive effect on economic growth by facilitating transactions in countries with weak institutions.
- ❖ Ades and Di Tella (1997) argued that corruption can be a rational response to inefficient government regulations, and in such cases, corruption can enhance economic efficiency and growth.
- ❖ Similarly, Wei (2000) found that corruption can have a positive effect on economic growth in countries with a high level of institutional development.
- ❖ A study by Gupta, Davoodi, and Alonso-Terme (2002) found that corruption has no direct effect on economic growth, but it does indirectly affect growth by reducing investment and human capital accumulation.
- ❖ Lambsdorff (2006) found that corruption had a negative impact on the efficiency of public procurement, which in turn had a negative impact on economic growth.
- ❖ Campos and Pradhan (2007) found that corruption had a negative impact on the efficiency of public investment in infrastructure, which in turn had a negative impact on economic growth.
- ❖ Awan et al. (2018) highlighted the importance of good governance in promoting economic growth and suggests that reducing corruption can have significant benefits.
- ❖ The findings suggested that globalisation has a positive effect on economic development, which in turn has a negative effect on corruption by Aïssaoui, R., & Fabian, F. (2021).

3. THEORETICAL FRAMEWORK

The perception of corruption in a nation's public sector is measured by the Corruption Perception Index (CPI), a tool that is frequently used. On the other hand, economic growth describes an increase in a nation's real GDP over time. In academic literature, there has been discussion on the link between the CPI and economic growth. We will examine the numerous theories and empirical research that look at the relationship between CPI and economic growth within this theoretical framework.

3.1. Agency Theory

According to the agency theory, corruption occurs when people work for a company or a government and put their personal interests ahead of those of the company or the public. In this situation, corruption may be perceived as an opportunity for people to earn the most for themselves. This behaviour may cause public institutions to function less effectively, which will slow economic growth. Therefore, it is predicted that high levels of corruption will have a negative effect on economic growth.

The agency theory is supported by several research that shows a negative correlation between corruption and economic growth. For instance, corruption, according to Mauro (1995), has a negative effect on investment, which lowers the growth of the economy. Similarly, to this, Wei (2000) discovered that a 1.7 percent increase in economic growth is connected to a CPI score increase of one point.

3.2. Political Economic Theory

According to political economics theory, the absence of checks and balances in the political and economic system causes corruption to develop. Rent-seeking behaviour, in which people or organisations utilise their political authority to collect economic rents, can result from a lack of accountability. This conduct may result in inefficient resource allocation, less investment, and slower growth in the economy.

The political hypothesis is supported by empirical research that show a negative correlation between corruption and economic growth. Ades and Di Tella (1997) discovered, for instance, that corruption has a detrimental effect on investment and growth in the economy. Similarly, Mauro (1998) discovered that an increase in corruption of one standard deviation lowers economic growth by 0.5 to 0.9 percentage points annually.

3.3. Institutional Theory

According to institutional theory, an important factor influencing economic growth is the efficiency of institutions. The legitimacy and efficacy of institutions are undermined by corruption, which results in a breakdown of the rule of law, a slowdown in economic growth, and other negative effects. Therefore, it is expected that nations with strong institutions and low levels of corruption will experience faster economic growth.

The institutional hypothesis is supported by empirical research that shows a negative correlation between corruption and economic growth. For instance, Knack and Keefer (1995) observed that nations with greater levels of corruption also had lower rates of investment and economic expansion. Similar findings were made by Kaufmann and Wei (1999), who discovered that a one-point rise in the CPI score is linked to a 35 percent rise in foreign direct investment.

In conclusion, both theoretical and empirical data point to the fact that corruption hinders economic progress. Economic growth rates are predicted to be greater in nations with solid institutions, efficient government, and low levels of corruption. Further study is required to fully comprehend the underlying mechanisms, as the relationship between corruption and economic growth may be more complex.

4. DATA AND VARIABLES

This research is based on panel data using 169 countries (available data for the variables) considered by Transparency International (TI) for the Corruption Perception Index (CPI) Score. These 169 countries are the only ones with sufficient data on the corruption perception index (CPI) score and GDP per capita (constant 2015 US dollars) over the period 2012–2022. The corruption perception index (CPI) is used as a measure of corruption levels. GDP per capita income for the abovementioned countries, which was obtained from the data bank of the World Bank’s World Development Indicators (WDI) online database. Further, this analysis used a binary dummy for white-race countries, while the rest of the countries were kept as a reference attribute.

The data is analysed using panel data regression analysis, which allows for the examination of the relationship between corruption, GDP per capita, and ethnicity while controlling for other factors that may affect corruption levels.

Table 4.1

<i>Descriptive Statistics</i>					
Variable	Obs.	Mean	Std. dev.	Min	Max
CPI_Score	1671	44.10	18.95	8	92
LnGDP_PC	1690	8.62	1.40	5.56	11.59
White Race Dummy	1690	.2840	.4510	0	1
Lngdp~d	1690	2.82	4.49	0	11.59

Annual data for the period 2012–2021; sample, 169 countries. GDP per capita is expressed in logarithmic form.

Table 4.1 displays the descriptive statistics of variables under study, which contains the observation, mean, minimum, maximum, and standard deviation of CPI, GDP per capita, and white race dummy. Our data sample has 28 percent white race countries that lie at the highest level in the Score of CPI, and the remaining are non-white countries that lie at the bottom level in the CPI Scores. Further, we can investigate and quantify it with multiple regression analysis.

First, we applied pooled OLS regression and random effect model¹ in this paper and then applied the LM test that decides which of the two models is the best fit for this data. The LM test concludes that the random effect model is appropriate. Furthermore, to test whether the residuals are correlated across entities applied the Pesaran cross-sectional dependence (CD) test as a diagnostic tool. Pesaran CD test concludes that there is a problem of cross-sectional dependence and serial correlation in the model. To address these issues, we examined the Panel corrected standard error (PCSE) model.

¹ To save on space, we do not report the results of Pooled regression, random effect model, LM Test, and Pesaran CD test in the main text which are available in the Appendix. For this see Appendix 1.

Table 4.2

Panel Corrected Standard Error (PCSE) Model

CPI-Score	Coefficients	Robust Std. errs.	z-stat	P> z	[95% conf. Interval]
Lngdp_pc	8.74***	(.2795)	31.27	0.000	8.19 9.29
White Race Dummy	7.42***	(.8840)	8.40	0.000	5.69 9.15
Cons_	-33.07	(2.0940)	-15.79	0.000	-37.17 - 28.96
	Number of obs.	1671	Number of groups	169	
	R-Squared	0.7778			

Notes: *, **, *** denote significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Robust standard errors are in parentheses.

5. RESULTS AND DISCUSSION

The analysis is carried out by Panel Corrected Standard Error (PCSE) regression to establish a relationship explaining better scores in CPI by race (White Countries) and GDP per capita income. Table 4.2 presented the full results of PCSE model for our interest variables including dummy depending upon white race countries.

The results of PCSE model indicate a positive statistically significant impact of GDP per capita and white race dummy on CPI score at the 1 percent significance level. It is found that if there is a 1 percent increase in GDP per capita, it leads to raise significantly difference from zero in the score of CPI by 8.74. This can be explained by the fact that income per capita leads to greater transparency, accountability, and more efficient governance. Further, it concludes that a white race country can get 7.42 more points in the CPI score than a non-white country at the 1 percent level of significance. It means being white race and rich, a country can get 7.42 score more transparent in the corruption perception index.

The regression's reported R^2 is .7778, which is excellent it means 78 percent of the variations in CPI score is explained by only two variables i.e., white race dummy and per capita income. Consequently, when all other unknown variables are held constant, approximately 78 percent of fluctuations of GDP per capita and the white race explain the effects of corruption.

This is generally typically the case with micro econometric models, the time dimension T of our panel is less than its cross-sectional dimension N. Therefore, PCSE model is appropriate for this case. Further, the PCSE model itself tackles the problem of heteroscedasticity, cross sectional dependence and serial correlation of AR (1). This thing confirms the model's validity to ensure homoscedastic and normally distributed residuals. To adjust a possible un-equal variance problem, we employed robust (Heteroscedasticity Consistent) Standard Errors to calculate t-stats and corresponding p-values. The residuals are Normal and identically distributed, confirming the model's validity and reliability.

6. CONCLUSION

Our analysis provides PCSE regression of income per capita and race on CPI Scores. The study employed a contemporaneous econometric technique to tackle the problem of outliers and the misspecification of the error term. This analysis uses a binary dummy for white-race countries, while the rest are kept as reference attributes.

In conclusion, this report shows that economic growth and ethnicity both have a positive and significant impact on corruption levels in panel-country analysis. Countries with higher per capita income and white race tend to have lower corruption levels at the 1 percent significance level.

It was found that white race countries (West Europe/EU) have scored higher (above median) in CPI than other regions. Another connotation is observed between CPI score and per capita income; the countries with good per capita income also scored well in CPI. We call a country “Best Performer”, having a good score and higher per capita income. Most European countries (white race) fall in the “Best Performing Group.” It is also observed that USA and Canada (from the Region Americas) and Australia & New Zealand (from the region Asia and Pacific) also fall in the best-performing group.

Surprisingly, it is observed that better CPI scores and good per capita income have a strong positive relationship with white-race countries in empirical analysis. The results suggest that economic growth can be an effective tool for reducing corruption in countries with diverse ethnic populations. However, other factors such as political stability, rule of law, and government effectiveness should also be considered when developing anti-corruption strategies.

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Book Review

Qadeer, M. A. (2023). *Lahore in the 21st Century: The functioning and development of a megacity in the global south.* Routledge.

In the world of urban studies and history, it is not uncommon for researchers and writers to draw from established frameworks as points of inquiry. However, in “Lahore in the 21st Century,” Qadeer presents a refreshing departure from this norm. What sets this book apart is its original analytical framework, one specifically tailored to the vibrant city of Lahore. Qadeer’s work is an exploration of the internal dynamics of urban development in Lahore, and it offers readers a unique perspective on how the city functions.

At the core of Qadeer’s argument is the notion that Lahore’s social and physical development can be attributed to its internal dynamics. He uses the metaphors of software and hardware to convey this concept. He argues that the indigenous society played a pivotal role in adapting, resisting, and reshaping the initiatives brought by the external forces and dynamics. Qadeer supports his claims with examples of physical and social transformations in Lahore. Qadeer also emphasises the intricate interplay between the city’s internal dynamics and national-scale circumstances. He links Lahore’s evolution to Pakistan’s shifting political landscape and international relations.

One of the book’s strengths is the author’s personal connection to the city. As someone who experienced Lahore’s transitions in the aftermath of significant out-migration by Hindu and Sikh communities in 1947, Qadeer combines his lived experiences with scholarly analysis. His memoirs are seamlessly woven into the book and meticulously corroborated with cited works. This blending of personal history and academic endeavor adds depth and authenticity to the narrative.

Part of the book also serves as a historical account of Lahore. What distinguishes it from previous works is a fresh perspective on the city’s history, showing how it influences the city’s form and function. A distinctive feature of the book is Qadeer’s limited reliance on other scholars to develop an argument. While this might make it less appealing to those seeking an exhaustive review of literature on Lahore, the author’s diversity of sources is truly impressive. He offers key sources in notes, allowing interested readers to explore them independently. This approach not only keeps the book accessible but also underscores that most of the ideas presented are the author’s own, derived from his thoughtful analysis of the city.

While the author does not categorically limit the audience, I think the book caters to two types of readers. First, it offers a valuable overview of contemporary Lahore to readers who are not familiar with Lahore or Pakistan, providing essential information about the city’s history and development. Second, it appeals to Lahore residents and Pakistanis already well-acquainted with the city, offering a fresh and original perspective on why Lahore functions the way it does. Qadeer’s explanations can serve as a springboard for future scholarly debates, as his arguments often raise thought-provoking questions.

My review of this book is not affected by my assistance to the author in preparing two maps for this book.

Qadeer's perspective is interesting and at times it amazed me. For example, I have lived in Lahore for many years myself and I have been a part of ordain Lahori life. But Qadeer's analysis made me re-think the part of my personality that emanates from my Lahori experiences. While I appreciated the originality of Qadeer's perspectives in this book, there is, however, one caveat to Qadeer's explanations. These are more of his opinions, though often supported by other sources and facts to support his point of view. But these still feel like opinions because he often suggests an analytical perspective or a possible solution to a problem (for example in the last chapter) without providing evidence or a process of forming that opinion.

In terms of writing style, Qadeer's prose is exceptionally accessible. The text flows smoothly, keeping the reader engaged throughout. It has a natural, unobtrusive quality that makes it a pleasure to read. It is worth noting that Qadeer occasionally touches on complex ideas such as "enlightened moderation" by Musharraf or Max Weber's "protestant ethic" without delving deeply into them. This choice likely stems from the author's intention to keep the book accessible to entry-level readers while offering tantalising mentions for those interested in exploring these topics further in other sources.

In conclusion, "Lahore in the 21st Century" is an original exploration of Lahore's internal dynamics and its connection to the broader context of Pakistan's history and global relations. It offers a unique lens through which to view the city and is a valuable addition to the fields of anthropology, social economy, political economy, and urban planning.

M. S. Nawaz

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