ADMINISTRATION, PUBLIC MANAGEMENT, INTERNATIONAL POLICY, MACROECONOMICS, INVESTMENTS, APPLIED TECHNLOGY DATA SCIENCE

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Author's commitment

I, Marco Antonio do Nascimento, declare that:

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Marco Antonio do Nascimento

Dedication

I dedicate my work to God and to the love he made me have for my children to be normal or disabled and to make me a widower at the age of 36 and the responsibility to raise them alone

Hoping to start work globally and globally in changing the treatment, respect and human dignity of the mentally handicapped, parents and mentally handicapped breeders.

I dedicate it to God, my mother. My father, and my children by order that commands us to honor our fathers, "God almighty there of him who trusts in man."

Thanks

I thank God for giving me more than I deserve and for giving my children mother and father and making me love and honor them by obeying his divine words.

God leads me to do my work with him by my side taking care of my health and renewing my strength.

Summary

The present work addresses from the outside in the factors that influence the international policy of the United States of America and Israel and the Palestinian nation. About the focus of the administration of Sua. Excellency. President Biden and the Israeli Premier. We will address macroeconomics and, in turn, investments and, consequently, with the practice of administrative theories, business administration is always linked to the exponentiality generated by covid 19 in terms of data, information, data science and the application of logarithms in capital market finance .

In particular with a chapter focused on artificial intelligence applied to business and corporate finance and business administration and corporate governance.

1. Whats is international politics?

- International Politics is about understanding and explaining global challenges and developing ideas for change at the international, state and sub-state levels.
- International Politics is fundamentally an interdisciplinary subject that draws on several subjects, including: poltiics, history, economics, geography, philosophy, law and sociology.
- International Politics is about the world we live in, the challenges we face, power and struggles, and the opportunities and the obstacles for relations among peoples, societies, states, organsiations.
- International Politics is about the different ways in how we can think about this world and, therefore, the different ways in how we might understand and tackle the challenges and realise the opportunities.
- International Politics is about ideas, practices, histories, peoples, and places.
- International Politics is about the increasingly complex and intertwined nature of local, national, regional, international and global problems.
- International Politics is about the multitude of actors that shape our world such as states, formal and informal international organisations like the IMF and the G20, non-governmental organisations like Amnesty International, non-state actors like terrorists, multinational corporations or influential billionaires like Bill Gates.

1.1. Biden and the Netanyahu Government: An Inevitable Clash?

United States President Joe Biden and American Secretary of State Anthony Blinken congratulated Benjamin (Bibi) Netanyahu on the occasion of the formation of his new government. The general elections were held on 1 November 2022, where the incumbent coalition of Prime Minister Lapid saw an overwhelming defeat. Yet, it took Netanyahu almost two months to reach agreements with other parties, namely religious and center-right ones. The new government was only sworn in on 29 December 2022. Biden and Blinken promised to preserve the good relations between the United States and Israel, but they are very suspicious of the coalition that was established. They emphasized the need to maintain established common values and interests, and have already criticized moves that they see as harming American interests directly, as well as those seen as provocative in the Muslim world.

At the fore of this provocation is the new Minister of National Security Itamar Ben Gvir. He is a member of a smaller coalition party – Otzma Yehudit (Jewish Power), without which Netanyahu couldn’t have attained a majority in the Knesset. Hence, he possesses a disproportionate power in the Cabinet as a Minister relative to the number of Knesset seats his party holds, and the number of people who voted for them. He ascended to visit the Temple Mount in Jerusalem that is home to the Al-Aqsa mosque a few days after taking office. He claimed to have done so as an exercise of Jewish rights, as he claims, but others might see it as a move to change the status quo of Muslim control on the Temple Mount, a move that could set the region on fire.

In the United States, Ben Gvir is seen as the ideological successor of Rabbi Meir Kahane and the Jewish Defense League he founded in the United States – classified as a terrorist organization by the FBI. The fact that only about two months ago he spoke at a memorial dedicated Kahane indicates his adherence to the racist ideology of the rabbi. He is not the only member of Netanyahu's coalition that has caught the attention of American top officials. Knesset members Orit Struck and Simcha Rothman of the Religious Zionism party (known as Tkuma, a far-right, ultra-nationalist, and religious Zionist coalition partner) have proposed a new controversial legislation. Its content looks similar to what the United States would expect from a violent racist organization such as the Ku Klux Klan, or the blacklistings and persecutory stances akin to those endorsed by infamous US Senator Joseph McCarthy. This would also widen the rift that has opened between the Jewry of the United States and the new government in Israel.

Blinken, and US National Security Advisor Jake Sullivan, will arrive in Israel with the stated objective to confer on the new government's policies. Israeli media prefers to suggest that this will also include a joint stance on the Iran nuclear threat, its supply of deadly drones to Russia for use in the Ukraine and its regional involvement in Syria and Yemen through proxy terrorist groups. However, given the nature of Netanyahu's coalition partners the visit will also serve to warn Netanyahu against far-reaching changes in the Israeli democratic regime and in relations with the Palestinians.

American administrations examine regimes in the world according to democratic values and human rights records. Promoting and preserving democracy globally has always been one of the most important values in American foreign policy. Since its independence in 1948, Israel has also stressed that it strives to promote and adhere to values in the fields of democracy and human rights, and the country is often seen as the bastion of democracy in a region saturated with autocratic regimes.

Another Israeli Cabinet Minister (from the Netanyahu's Likud Party), Minister of Justice Yariv Levin, has announced an overhaul of Israel's legal system. This is planned to neutralize any criticism of governmental appointments, policies and challenges to laws debated and passed. If he succeeds to implement the reform, the balance between the authorities of executive, legislative and judiciary powers will be destabilized. Additionally, Aryeh Deri, who covers both the Ministries of Health and the Interior, has past criminal convictions (including one less than 12 months ago), and the Supreme Court of 11 Judges is debating whether this should bar him from office. However, Netanyahu couldn't have attained a majority in the Knesset without his participation in the coalition, and if Levin succeeds in reforming the legal system, ongoing court cases against Bibi might be affected.

Although many American administrations have already tried to broker a solution to the Israeli-Palestinian conflict, the Biden cabinet may well assume that Netanyahu's coalition leaves no chance for negotiations at all with even the most moderate of Palestinian leaderships. Biden's government, like all American administrations since 1967, supports the two-state solution. However, the new Israel Minister of Finance Bezalel Smotrich (from the Religious Zionist Party) and Ben-Gvir have stated that that would lay the groundwork in Israel for annexation of many parts if not all of the West Bank (Judea and Samaria). This will start with the expansion of Jewish settlements there, whitewashing the illegality of any temporary outposts, and repealing the law of secession, that would harm the 1994 Oslo Accords together with the governance of the Palestinian Authority. All of these guarantee a head-on collision between Biden and Netanyahu.

The effects of such a collision will not be confined to Israel's domestic politics, but will also extend to foreign policy areas. For example, shortly after taking office on 29 December 2022 Netanyahu spoke on the phone with Russian leader Vladimir Putin. The new Minister of Foreign Affairs, Eli Cohen from the Likud Party, also spoke with Russian Foreign Minister Sergey Lavrov. They agreed to reduce public references to the war in Ukraine and so criticism of Russia. Moreover, Israel has security interests in Syria and coordinates military moves with Russia. To American eyes, conversations with Putin or Lavrov are seen as legitimizing Russia's military ambitions, while Democrats and Republicans alike see Putin, Lavrov and the Russian government and military as war criminals. Republican Senator Lindsey Graham, one of Israel's biggest supporters, harshly criticized Cohen by saying:

I hope Mr. Cohen understands that when he talks to (Russian Foreign Minister Sergey Lavrov), he is talking to a representative of a criminal regime that commits war crimes every day.

Netanyahu's new coalition, arguably the most right-wing in Israel's history, with many of its members who have been elected for the first time to the Knesset, may well see the need to show their supporters that they are fulfilling their electoral promises. At the same time, those in thhe coalition, who are extremists, tend to ignore Israel's dependence on the United States. It is fair to assume that, when negotiating the coalition, Netanyahu thought he could manage to curb extremism by pointing out that democratic values and the international community are more important than stirring up turmoil. Bibi gave an interview in English to American media and said that he will hold the helm of his government and they have nothing to worry about.

However, there are gaps between what Netanyahu said in English and what he said in Hebrew – and between what he can and cannot do. Ben Gvir's ascent to the Temple Mount may be a challenge for Netanyahu both domestically and internationally, leading to reduced credibility in him and in the Likud Party. The bottom line is, if the extremists take control of Netanyahu and not the other way around, then it will lead to clashes with Biden that could harm annual American aid to Israel, the supply of arms and the protection of Israel's positions in UN organizations such as the Security Council, the Human Rights Council and the International Courts in The Hague. Without such protection, which has been always consistent, Israel could become a pariah state in the international community, and potentially see the termination of the Abraham Accords. Netanyahu is the only one who can decide between isolation and a well sustained "special relationship".

1.1.2. Israel-Palestine Policy Under Biden

Joe Biden's election has generated optimism that the United States will meaningfully reengage in the Israeli-Palestinian peace process. President-elect Biden will undoubtedly take a more equitable and multilateral approach to the conflict than his predecessor, but his tenure is unlikely to usher in a significant change in the US policy. As a longtime ally to Israel who has spent more than forty years as a Democratic senator and vice president, his views on the conflict firmly reflect those of his party's mainstream. We can thus expect Biden's approach to Israel and Palestine to be a return to the status quo that was maintained by previous Democratic presidents.

President Donald Trump has pursued a staunchly pro-Israeli agenda that included recognising Israeli settlements in the West Bank, moving the US embassy to Jerusalem, and cutting diplomatic ties to the Palestinians by closing the US consulate general in East Jerusalem and the Palestine Liberation Organisation (PLO) mission in Washington, DC. These policies have weakened the Palestinian position and all but destroyed the US's credibility as a mediator for the two parties.

Biden is unlikely to give Prime Minister Benjamin Netanyahu and the Israeli right the same level of unreserved support that they enjoyed under Trump. However, there will be marked continuity between the administrations on some key issues. Biden criticised Trump's decision to move the US embassy to Jerusalem but has stated that he will not move it back to Tel Aviv. Like Trump, Biden is also a staunch proponent of the US security guarantee to Israel and does not support leveraging US aid to temper Israeli settlement activity. He is also firmly opposed to the Boycott, Divestment and Sanctions movement. His nominee for Secretary of State, Antony Blinken, insisted that the Biden administration would push back against the movement and make efforts to denounce Israel at the United Nations.

There will, however, be notable changes in Biden's policies. He plans to reengage with the Palestinians by reopening the US consulate in East Jerusalem and the PLO mission in Washington, DC. He is also committed to restoring aid that supports 'Israeli-Palestinian security cooperation, economic development, and humanitarian aid for the Palestinian people in the West Bank and Gaza Strip' (Biden n.d). However, that aid is conditioned on the Palestinian National Authority stopping payments to the families of Palestinian prisoners and accused Palestinian attackers who were killed by Israeli military and security. The president-elect has also indicated that he will return to the US's long-standing position of opposing unilateral annexation of territory and settlement activity that may damage the prospects of a two-state solution. From the Palestinian perspective, this will be a welcome shift away from the Trump administration's legitimisation of these activities, but in practice it will likely amount to little more than a rhetorical shift.

With a number of pressing domestic and foreign policy issues, from the COVID-19 pandemic to the rise of China vying for his attention, the Israel-Palestine conflict is unlikely to feature prominently in Biden's foreign policy agenda during his first years in office. Unlike many previous presidents-elect, he has not announced any initiatives to address the conflict. Blinken noted that the two parties are not ready to negotiate and predicted that the administration will initially take a "do no harm" approach. While this reserved policy will do little to resolve the region's endemic security and humanitarian issues, it will at least restore some balance to the American position, a prerequisite if the US is to serve as a mediator to the conflict in the future.

A return to disengaged stability is a modest but nevertheless important improvement to the prospects for peace. With the recent collapse of Netanyahu's government, Israel will have its fourth election in two years in March. While the political right will likely remain dominant, Netanyahu's position is in question. Should he fail to retain power, perhaps fresh Israeli and American leadership would provide an opening to consider returning to negotiations in the future. Under Netanyahu and Palestinian Authority President Mahmoud Abbas's tenures, there has been little hope of meaningful progress with the peace process.

Instead of the Israel-Palestine conflict, Biden wants his Middle East agenda to focus on reviving the Iran nuclear agreement and further winding down US military commitments in the region. The Joint Comprehensive Plan of Action (JCPOA) was a hallmark accomplishment of the Obama-Biden administration, and the president-elect is committed to rejoining the agreement if Iran returns to compliance. However, returning to the agreement may prove to be nearly as difficult as it was to negotiate the first time. America's regional allies, including Israel, Saudi Arabia and the United Arab Emirates (UAE), are opposed to the deal. Fear of growing Iranian regional influence under the terms of the JCPOA played no small part in convincing the UAE to sign a peace deal with Israel.

The current pragmatist Iranian regime, under the leadership of President Hassan Rouhani and Foreign Minister Mohammad Javad Zarif, has signalled that it is open to rejoining the deal if the US lifts sanctions, but Rouhani is facing an election in June. Hardliners won by a comfortable margin during parliamentary elections in February 2020, and there are calls for reparations for US sanctions. Finally, Biden faces significant domestic opposition to the deal with those from both parties wanting more robust security guarantees included in the agreement. The combination of these circumstances will mean that the nuclear agreement will occupy a sizeable portion of Biden's initial Middle East policy, leaving little political capital to spend on the Israeli-Palestinian peace process.

While Biden is set to spend much of his early months in office reversing Trump-era policies, from rejoining the Paris Agreement and the World Health Organisation to reengaging with European allies, Israel-Palestine policy is one area where change is likely to be more measured. Biden's tenure will not foster the policy shift needed to promote the peace process or change Palestinian fortunes, but after four years of neglect by the Trump administration it will nonetheless be a welcome reprieve for the Palestinians and may provide the equanimity the region needs to avoid conflict.

1.1.3. The Challenges Facing Joe Biden in the Middle East

Joe Biden's presidency will likely have important consequences for U.S. foreign policy in the Middle East. Biden comes into the job with a lot on his plate. For sure, his priorities will be to contain the COVID-19 pandemic, heal domestic wounds and rebuild America's relationship with its European allies. However, the Middle East is never low on U.S. priorities. Biden previously four spent decades in Congress focusing on foreign affairs and then served as Vice President under Barack Obama, holding a significant foreign policy portfolio. As a consequence, it is almost guaranteed that he will bring that expertise to bear, and apply much of it to the Middle East.

The challenges the Biden administration faces in the Middle East stem from the legacies left over from the Bush, Obama and Trump administrations. In the aftermath of the George W. Bush administration's disastrous forays into Iraq and Afghanistan post 9/11, Barack Obama came to power in 2009 with a pledge to extricate the United States from Iraq and to rejuvenate U.S. efforts in Afghanistan. He was able to significantly reduce U.S. military presence in Iraq to around 4,000 troops while having some limited success in the War Against Terror, including the assassination of Osama Bin Laden in Pakistan.

Obama generally supported Arab Spring movements in Tunisia, Egypt, and Libya. Whether the downfall of the three regimes that controlled those countries was a desirable outcome or not is open for debate, as only Tunisia ended up in a somewhat better situation. Nevertheless, it can be argued that the Obama administration tried to improve conditions in those countries through financial aid and symbolic support. For example, the U.S. promised to raise Tunisia's status to that of a key non-NATO ally and offered $500 million in loan guarantees to the Tunisian government in 2015.

As far as the conflicts in Syria, Iraq, Bahrain and Yemen, the Obama administration's approach was problematic and contradictory. For example, the U.S. supported a number of Sunni rebels against the Iranian-backed Assad regime in Syria, but was generally friendly with the Shi'ite-led government in Iraq and led a rapprochement with Syria's main Middle Eastern ally, Iran. While critical of the Syrian government's harsh tactics in Syria, the Obama administration not only tolerated but weaponized the war in Yemen and did not do much to restrain the Bahraini government during its crackdown on protesters in Manama.

In regards to the Israeli-Palestinian conflict, Obama continued to exert some effort to further the cause of peace generally with little success. To his credit, he abstained from vetoing a UN Security Council resolution condemning Israeli settlement activity. However, the fact that this act occurred at the end of Obama's presidency meant it was a purely symbolic gesture lacking concrete ramifications.

Perhaps Obama's greatest success toward the Middle East was embodied in the kind of language and diplomatic approach that he used. Unlike the preceding Bush administration and the succeeding Trump administration, Obama and his spokespersons used diplomatic language which went some way toward creating goodwill.

Donald Trump did the exact opposite. He started by imposing a so-called Muslim travel ban and decried the immigration of people from what he called ‘shithole countries’ to the United States. Trump also did great harm to the potential resolution of the Israeli-Palestinian conflict. The so-called ‘Deal of the Century’ that son-in-law Jared Kushner spearheaded did nothing to address the cause of tensions between Israelis and Palestinians. The Trump administration also gave in to Israeli Prime Minister Benjamin Netanyahu’s every demand, no matter how outrageous or unilateral, including acknowledging Jerusalem as Israel’s capital, approving Israeli annexation of the Golan Heights, and cutting funds from key organizations like UNWRA and the Palestinian Authority. In Syria, Trump generally avoided getting entangled in the Syrian conflict and was wary of dealing with the Syrian opposition. Although he may have been correct as far as the extremist nature of some of the Syrian opposition groups was concerned, his deferral to Russia and Turkey left Kurdish communities in northern Syria with little protection. Other Syrian communities in key cities were left vulnerable to the whims of the Assad regime. As a symbolic gesture, Trump did fire rockets at a Syrian airbase on April 6th 2017 after Syria purportedly crossed a red line and allegedly used chemical weapons.

Similarly, the Trump administration did little to stop Saudi Arabia’s excesses in Yemen and protected Crown Prince Mohamad Bin Salman after the murder of journalist Jamal Khashoggi. Trump and Kushner played a key role in creating a Saudi-Israeli alliance against Iran. This has had the effect of drawing attention away from the Palestinian cause, which is still arguably the central destabilizing issue in the Middle East. Furthermore, Trump’s assassination of Iranian general Qassem Soleimani in January 2020 could have triggered a war, but the Iranians refused to aggravate tensions further and launched a symbolic retaliation only.

This context is vitally important to consider for the Biden administration. President Biden will certainly face the legacies of his past with Obama while navigating the turbulent waters set by Trump. The Biden administration has talked big, believing itself up to the challenge.

Broadly speaking, Biden has talked about a reduction in overall U.S. troop presence in the region, but he has been against a total withdrawal. The Biden administration will likely seek to continue providing some military support to key U.S. allies. Commenting on Trump’s hasty withdrawal of U.S. forces from Syria, Biden explained in a speech in 2019 that Trump’s actions ‘have had devastating clarity on just how dangerous he is to our national security, to our leadership around the world.’ Rather than a total withdrawal, there are hints that Biden will switch the modus operandi of U.S. forces to largely advisory roles, particularly in the area of counterterrorism.

These moves are certainly an attempt at appeasing the American domestic audience, who have mostly decried the endless wars that have spanned nearly two decades. This strategy directly contradicts Biden’s focus on supporting democracies, which may necessitate a continued military presence in countries like Iraq. Biden may be remembering his tenure under Obama and how the pull-back of troops resulted in the strengthening of the Islamic State. In this light, the shift in tactical operations should help Biden satisfy the demands of his constituents while continuing his obligations to his Middle Eastern allies.

Furthermore, by maintaining a nominal troop presence, Biden may be looking for ways to re-assert an American role in Syria and Iraq to check Russian designs. This will be welcome news to Kurdish communities that bore the brunt of Trump's disengagement from Syria. Biden should be wary though of repeating the mistakes of the Obama administration in Syria: he should at all costs avoid supporting extremist groups or allowing Saudi Arabia and Qatar to fund another Salafi-style rebellion.

Although Biden has demonstrated a more pro-Israeli position than some fellow Democrats during his career in the U.S. Senate, he will likely want to repair the damaged relationship between the United States and the Palestinian Authority. Whether Biden will take this a step further and pressure Israel to make meaningful concessions to the Palestinians is unlikely. it is fairly safe to say that Biden will seek to re-engage the Palestinians and try to relaunch peace talks. He may also seek to re-empower Jordan's monarchy, which presides over an important stabilizing country in the region, one that Trump largely ignored.

Biden will likely encourage further peace efforts between Israel and other Arab nations, but probably not at the expense of progress on the Israeli-Palestinian track. During the

UAE-Israeli and Bahrain-Israeli peace negotiations, Biden congratulated all countries involved for what he called a 'historic step to bridge the deep divides of the Middle East.' But he also reiterated the 'right of the Palestinians to a state of their own.'

When Obama crafted the JCPOA agreement with Iran, Biden was there working directly with officials and crafting policies. Biden himself made remarks saying that he was ready to speak to Iranian leadership. He has since defended the deal. While nobody can predict the future with total certainty, it is likely that Biden will want to re-establish some sort of dialogue with Iran.

There are some complications. While the Biden team may already have started discussions with Iranian officials, Iran has been noncommittal with its position. Iran has both indicated that it wants the U.S. to return to the table, while at the same time it has acted belligerently and rejected U.S. efforts at re-negotiation. However, the actions of the Trump administration have revealed a striking weakness in American foreign policy here. With the possibility of radical shakeup every four to eight years, many countries like Iran will be wary about making any major bilateral agreements, particularly ones like the JCPOA. Despite these challenges, European allies have urged Biden and his cabinet to follow through on such plans and this may very well help push the momentum forward.

In pursuing these goals, the Biden administration will run into all kinds of obstacles, not least the fact that they are going to have to deal with difficult personalities involved in the region: Netanyahu, Putin, Erdogan, Mohamad bin Salman, and others. They will have to balance practical considerations with idealistic goals. It is important that the administration consider all points of view before making decisions in the region and taking action. With Biden's history and expertise in this area, the incoming administration should be well prepared for these and other challenges. As such, the best outcome would occur when the United States takes a balanced approach to the region, not one that serves a limited agenda.

1.1.4. Assessing One-State and Two-State Proposals to Solve the Israel-Palestine Conflict

In May 2021, the confrontation in Israel-Palestine again assumed center stage with many people wondering if this conflict would ever end (International Crisis Group 2021). The human costs have been high. Millions of Palestinians and Israelis suffered mental and emotional anxiety. Hundreds were killed, thousands wounded, and tens of thousands displaced from their homes. Given the Israeli occupation and Israel's advanced military firepower, over 90% of the casualties and displaced were Palestinians. In theory, one way the conflict could come to an end is through a negotiated diplomatic outcome, but what would such an outcome look like? In this article, I consider the two most-commonly discussed negotiated solutions to the conflict: 1) one state with equal rights for all Palestinians and Israelis in what is today Gaza, Israel, and the West Bank and 2) two states, a State of Israel and a State of Palestine alongside each other. Each resolution has benefits and drawbacks; neither option is clearly more beneficial or more likely. Moreover, there is no independent decision rule that makes clear how to weigh the pros and cons and choose the better option.

One caveat: A discussion of one-state and two-state solutions is not exhaustive of all the options. The status quo is the current reality and may remain in place for years. In that reality, Israel is the only independent country (the Jewish State), Israeli settlements in the West Bank continue to grow, the Israeli occupation continues, and the Palestinian Authority has quite limited power. The Israeli right has advocated for sub-state options for Palestinians (e.g. autonomy, self-rule) as a long-term resolution, but such approaches have little support among Palestinians.

A one-state solution

A one-state solution means there would be a single country made up of pre-1967 Israel, the Gaza Strip, and the West Bank (Abunimah 2007; Azoulay and Ophir 2012; Lustick 2019; Munayyer 2019; and Tilley 2005). As a placeholder name, let's call this one, sovereign state "the Holy Land." Every person who lives between the Jordan River and the Mediterranean Sea would have equal individual rights, regardless of their ethnic or religious identity. They could live anywhere they want in the Holy Land, and they would have the right to vote in national elections. The capital would be in Jerusalem, and the government would include Jews and Palestinians. As I will further explain below, one state could be solely based on equal individual rights, or it could be a binational state meaning the two communities (Jews, Palestinians) have some communal rights as well.

The central obstacle to this one-state vision is about Israel's self-definition today and how, if at all, that would transition to a single state with full equality for Palestinians and Israelis. Israel as the Jewish State is not compatible with the Holy Land because the latter assumes symbols, laws, and government policies do not favor Jews over Palestinians. Yet Israel today privileges Jews in many ways, e.g. in migration, housing, employment, political rights, and treatment by security organs of the state. Why would Israeli Jews willingly forfeit those advantages? Few states ever willingly modified their self-definition or national identity in such a significant fashion due to external demands rather than internal transformation.

Moreover, could the Holy Land serve as the fulfillment of Zionism and as a refuge for world Jewry if it was no longer defined as the Jewish State? What, for example, would happen to the Law of Return, which gives a Jew from anywhere in the world the right to become a citizen of Israel? The law is a key pillar of the Jewish superiority built into the State of Israel, the very kind of differentiation that undergirds the conception of Israel as an apartheid state (Human Rights Watch, 2021). But the law is also tied to the idea of Israel as a safe haven for Jews, somewhere they may automatically seek protection if things go badly in their home country (think violent anti-Semitism).

In concrete terms, it is difficult to imagine how the shift would take place in the state's armed forces and security and intelligence community. Would Palestinians be integrated into the Israeli military and police to bring the numbers closer to 50/50 and to put Palestinians in key leadership roles? Would Palestinians leaders be given access to Israel's nuclear secrets? That seems hard to imagine and yet that is what equality mandates. At the same time, most Israeli Jews would be reluctant to concede exclusive control of the state's security decisions, fearful that they would not be protected in crisis moments.

What would equality mean in socioeconomic terms? In the status quo, Israeli Jews have many times the income and wealth of Palestinians. Would equality involve significant economic redistribution, something that itself could lead to further Israeli Jewish opposition to one state with equality? For comparison, the unification of East and West Germany faced such economic challenges with gaps that were not as stark.

One possibility is that the one state could be a binational state with reserved communal rights. The national civic identity and the Jewish or Palestinian ethnic identity could both continue. How exactly to do that would be complicated. Fundamentally, would it be based on new symbols and ideas (e.g. one new flag) or mutual recognition of dual symbols (e.g. two flags: Israel *and* Palestine's current flags)? Is it possible to imagine a definition of the Jewish community as a subset of the Holy Land that would allow the country to function on the basis of equality and satisfy some or much of the sentiment of Israeli Jewish nationalism (Kelman 1999)?

A parallel problem would arise with the Palestinian right of return. Palestinians, with backing from international law and UN resolutions, claim a right to return to their homes and land from pre-1948, the years before the establishment of the State of Israel. Over 5 million Palestinians are registered as refugees with the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA). While past surveys suggest many of the refugees might not want to return permanently, but might be content with visiting and receiving compensation, if even 10 or 20% moved to the Holy Land, it would have a notable effect on the Palestinian share of the population (Greenberg 2003). A majority of Jews would oppose the influx. But many Palestinians would object to any resolution that does not acknowledge and address the right of return. After all, Palestinian collective trauma is rooted in forced displacement, especially 1948 and the Nakba, the catastrophe of Israeli expulsion and lack of return. A strong sense of Palestinian identity and security may depend upon directly addressing that initial displacement and its consequences.

Even if an Israeli-Palestinian agreement did not provide full redress for Palestinian refugees, a limited number – limited by housing availability and financial resources – could simply move to the towns from which they or their ancestors had been expelled or fled (in the cases where such towns and cities still exist). They might not be able to re-enter their exact house in, say, Jaffa or Haifa, but some apartments or homes would likely be for rent or sale, a limited, market-based answer to Palestinian dispossession. Implementing a solution for Palestinian refugees raises many questions (Abu-Sitta 2008; and Scheindlin, 2020).

In a one-state solution, Israeli settlers would have gains and losses. Israeli settlements are towns and outposts built in the West Bank since Israel occupied the land in the 1967 War. First, most countries consider settlements illegal under international law. With an agreed-upon Israeli-Palestinian resolution and the end of the Israeli occupation, that would no longer be an issue. Second, at first glance, it appears Israeli settlers could stay where they are now. Israel would not need to withdraw settlers or close down any settlements since everyone would already be living in the same state, the Holy Land. That said, Israeli settlements in the West Bank have often been built on Palestinian land and that could open the door to legal wrangling. In the State of Israel to this point, the government, the judiciary, and the military have aided and abetted the illegal expropriation of Palestinian land for establishing or expanding settlements. But as the law and courts changed in this new one state, the Holy Land, presumably that favoritism toward Israeli Jewish claims would fade. Could the legal or political system start to un-do the questionable legal-territorial basis of many Israeli settlements? Settlements might not be as stable as they are in the status quo of Israeli occupation.

In addition, Jewish-only settlements would no longer be able to exclude Palestinians from living in them since the basis of the Holy Land is equality for all. In fact, even in what is today pre-1967 Israel, the use of social suitability as a criteria for who is allowed to live in a town – and the way it is often applied to exclude Palestinians – would have to end for equality to take hold. Settlements in the status quo are largely reflective of housing segregation, not equality. Many Jewish settlers might oppose such a shift. All that said, a housing exception would be if the one state was framed in binational terms and granted Jews and Palestinians communal rights, too, thereby allowing separate housing by community.

The deepest challenge to the success of one state should it come into being is whether Jews and Palestinians as co-citizens could form working partnerships, or at least co-exist, in a way that would allow the single state and society to function without frequent ethnic tension and violence. The May 2021 Jew-on-Palestinian and Palestinian-on-Jew violence inside pre-1967 Israel does not bode well for such a possibility. More generally, some analysts worry the tendency toward inter-group hostility, not cooperation, is dominant (Haklai 2021; Olesker 2021; Sucharov 2021). At the same time, tens of thousands of Palestinian and Jewish citizens of Israel stood side-by-side at protests denouncing war and violence and calling for working together. There are organizations that illustrate successful Arab-Jewish partnerships and the values that could help one state function amicably such as the Hand-in-Hand schools, the Oasis of Peace, the Palestine-Israel Journal, the Parents' Circle, and Combatants for Peace. It might be difficult to prevail in the face of hyper-nationalism, but there are kernels of a mutual and stable future.

Meanwhile, though, certain actors in society might well be trying to cause the single state to fail. Some political parties and leaders will make hypernationalist, ethnoreligious, or supremacist appeals that stoke inter-group animosity and conflict.

Even if such forces could be contained or marginalized enough to push through to a one-state resolution, they would not disappear. Spoilers might continually seek to undermine and unravel the agreed-upon resolution. In short, defending the new status quo would be a continuing project rather than a static obstacle to overcome.

One state would embody several other advantages not already mentioned. It would have all the attributes of a sovereign state. There would be no debate about its borders. The state and its borders would receive wide international recognition. The Palestinian drive for self-determination would be addressed and, arguably, achieved. Palestinians could again freely enjoy Jerusalem.

A two-state solution

A two-state solution means there would be two states, a State of Israel and a State of Palestine located alongside each other (Beauchamp 2021). The State of Israel already exists as an independent country; its borders would largely revert to what they were from 1949-1967. The State of Palestine would be located in the Gaza Strip and a contiguous section of the West Bank that encompasses 95% or more of the West Bank territory. Jerusalem would serve as the capital of both states, with Israel's sovereign capital in West Jerusalem and Palestine's sovereign capital in East Jerusalem, though an exact division is complicated by the Israeli settlements (neighborhoods) that ring the core of East Jerusalem. The Old City of Jerusalem, and perhaps some adjacent holy sites, would be 1) shared 2) overseen by an international committee 3) or somehow divided between the two states. (A common two-state variant is a confederal plan, but I do not discuss it here. See Avishai and Bahour 2021 and Scheindlin and Waxman 2016.)

Israeli settlements that are located along the Green Line, the dividing line between Israel and the West Bank prior to the 1967 War, would be annexed to Israel. Israel would compensate Palestine with other land adjacent to the West Bank or Gaza at a 1:1 ratio. Israeli settlements in the midst of the State of Palestine would be closed and the Israeli Jewish settlers withdrawn, though a small number of Jewish settlers might seek permission to stay on in the new State of Palestine. A token number of Palestinian refugees would be admitted to Israel. All Palestinian refugees would be eligible for compensation and could move to the new State of Palestine. Palestine's armed forces very likely would have certain additional constraints, at least for an initial time period. The states would have to come to agreements on dividing many other resources such as airspace and water. Israel would remain self-defined as the Jewish state. It could continue to promote the idea of Israel as a safe haven for Jews; it could continue the Law of Return allowing Jews from anywhere access to Israeli citizenship.

In contrast, the Palestinian Right of Return would be fulfilled only in a narrow sense. The vast majority of Palestinian refugees would not have the ability to return to their family's home and land inside that were located in what is today the State of Israel. Rather, they could get financial compensation, maybe some symbolic acknowledgment of their plight, and access to the new State of Palestine (comprising about 22% of historic Palestine). Whether this would satisfy most Palestinian refugees is an open question.

Most Israeli settlers would stay in place, but a sizable minority would be removed from their homes. Perhaps half a million settlers would stay in place in East Jerusalem and in settlements along the Green Line. But 100,000 or more (or fewer?) would move; implementation would be challenging (Krieger 2012; Sasley and Sucharov 2011). This could well spark strong opposition from the Israeli settler movement. From the Israeli government's perspective, the whole point of keeping most settlers in place would be to try to minimize political opposition to a two-state solution. I don't know what would happen to settlers who had inserted themselves in the midst of large Palestinian populations in East Jerusalem in places like Silwan, Sheikh Jarrah, or the Mount of Olives.

The status of Jews in Palestine and Palestinians in Israel would remain challenging to handle for exclusionary ethnonational definitions of statehood. Israeli irredentist organizations could come into being to protest the removal of Jewish settlers from parts of the West Bank. Palestinian irredentist organizations could come into being to protest the incomplete resolution of the right of return and the small share of the territory that constitutes the new State of Palestine.

The same risk of inter-ethnic tension that I discussed in relation to one state would apply to a shared city of Jerusalem. In that city, Palestinians and Israelis would need to work together as partners on multiple issues, or at least find ways to co-exist. Palestine would incorporate the Palestinians in East Jerusalem who mostly are currently residents, but not citizens, of Israel. Furthermore, the Israeli citizenry would still be 20% Palestinian so internal Jewish-Palestinian relations would remain a related issue. Some Israeli Jews might call for the revocation of Israeli citizenship for Palestinians and their expulsion to the new State of Palestine.

While Israel would have all the attributes of a sovereign state, Palestine would likely have some limits on its sovereignty, especially in terms of what would be allowed in its military and police forces. A peace agreement might detail monitoring and supervision provisions involving third-parties or an Israeli military presence on Palestine's borders with Egypt and Jordan. There would need to be an extensive negotiation about the border between the states as well as how Palestinians would transit between the two parts of the state, what are today called Gaza and the West Bank. Once that was agreed upon, the states and their borders would receive wide international recognition. The Palestinian drive for self-determination would be achieved.

Many members of the international community support the two-state solution, including the European Union, the League of Arab States, Russia, the United Nations, and the United States. But Israeli-Palestinian negotiators, especially in 2000-2001 (Oslo/Camp David/Taba) and

2007-2008 (Annapolis), have failed to reach agreement on a two-state solution (Pressman 2003; Avishai 2011).

One point of note is that the outline I have presented here of a two-state solution reflects both Israel's bargaining advantage as the more powerful party and the changes on the ground wrought by Israeli settlements. Absent such leverage, for example, the logical dividing line would be the Green Line, and all Israeli settlers would have to move. Or, how to share Jerusalem as a capital is much more complex because of Israeli Jewish settlers in and around East Jerusalem.

Weighing the options

On four criteria for comparing the two options, a two-state solution probably does better on these four metrics, but neither option looks especially promising or easier to achieve. Financial cost is a fifth possible criteria that I do not address here.

- Clarity of blueprint – The two-state solution has more major, unresolved issues. For the two-state solution, where exactly would the border be drawn? Which Israeli settlements would be withdrawn? What counts as a settlement 'along the Green line?' How many, if any, Palestinian refugees would be allowed to move into Israel? What would be the status of Jerusalem's Old City? What restrictions would be placed on Palestinian military and police forces? For a one-state solution, the main question is whether Jewish privilege would be fully eliminated or transformed into Jewish communal rights.
- Popular support among Israelis and Palestinians – Polling suggests a two-state solution is more popular than a one-state solution among Palestinians and Israelis, but the levels of support vary significantly among polls (PCPSR 2021; Palestinian-Israeli Pulse 2020). In 2020-21, it is uncertain whether any solution definitively has majority support. Moreover, respondents in the same survey may have different ideas about what exactly one- and two-state solutions entail.
- Political feasibility – Neither option seems politically feasible by which I mean it is hard to see how a plan would overcome existing political opponents in the government and public sphere. A one-state solution has to overcome widespread Israeli Jewish opposition. And since Israel holds the territorial cards, that widespread Israeli Jewish opposition cannot be ignored. The exact form of one state would determine the level of Palestinian opposition. A two-state solution faces opposition from major actors and their supporters in both societies (Likud and the Israeli right; Hamas). Israeli settlers and Palestinians refugees both have reasons that they might strongly oppose two states.
- International support – A one-state solution has little international support. A two-state solution has extensive international support, but no actor has been willing to use disincentives, e.g. UN Security Council action or trade/aid conditionality or withdrawal, to try to make it a reality, especially in terms of pressing Israel. This is

particularly important in the EU-Israeli relationship and the US-Israeli relationship. The United States has been willing to press Palestinian actors in material terms.

1.1.5. Confronting Israel's Annexation Plans: From Fear to Hope

The Israeli government's declaration to annex another 30% of the Palestinian Territories in the West Bank provides another example of what is a destructive policy decision in such a protracted conflict reality. Obviously, this is not the first-time that the Israeli government attempted to annex all or certain territories that were occupied in 1967. It has already annexed the Golan Heights and created a non-reversible reality on the ground. The same policy was followed in the decision to annex East Jerusalem in the early 1980s and most recently the campaigning to move foreign embassies from Tel-Aviv to Jerusalem. However, in all of these cases, the annexation acts and the harsh realities they created on the ground, failed to force the Palestinian population into accepting or even symbolically recognizing the annexation. On the contrary, the resentment and rejection of the Israeli Jewish presence in the territories have increased and were manifested in different violent and nonviolent resistance activities (the first Palestinian organized nonviolent uprising was in 1987–1992, but through 1970s there were many other popular campaigns to resist the occupation). This most recent threat to annex the Jordan Valley and other territories introduces another level of fear among Israeli and Palestinians who support peace and justice.
First, there is a decrease in hope for mobilizing support for a two-state solution. In an annexation scenario this is no longer accepted as viable or even perceived as possible by the overwhelming majority of Palestinians and Israelis. The plan clearly destroys any chance for two state solutions in the territories. This means that a one-state solution (a state for all its citizens) is the only option that remains at least from the Palestinian standpoint. This contributes to a wider gap between what the average Palestinian and Israeli Jew see as a just resolution. In recent years there has been very small Israeli minority that accepted the one state solution with equal rights for all citizens (less than 5%), while there has been over 40% who accepted two state solution.

A recent poll by Haaretz indicated:

Twenty-five years after the signing of the Oslo Accords, which promised two states for two peoples, only a third (34 percent) said they still back the two-state solution. Nineteen percent prefer a one-state solution (they were not asked to specify whether Palestinians would have political rights with such an option). Twenty-seven percent said they wanted something different altogether — one option, backed by 9 percent of respondents, was an Israeli-Palestinian confederation in which each state would govern itself while some matters would be overseen together.

Second, the annexation means, to the Palestinians, that the Israeli government, and the Israeli society in general, continue to deny the most basic right of Palestinians for self-determination. It brings the public discourse to a pre-Oslo situation in which no mutual recognition for self-determination between Israeli and Palestinian officials (the Oslo accords were signed in 1993) and even back to 1970s and 1980s, when many could not imagine a possible two state solution or a negotiated settlement between the two sides.

Third, the annexation is clear evidence that negotiation or peaceful efforts to resolve this conflict are not possible. After 24 years of engaging in a post Oslo peace process, the annexation comes to bury voices among Palestinians and Israeli Jews who may dare to imagine a just and peaceful situation for Arabs and Jews to live together in the region.

Fourth, many Israelis who oppose the plan are fearful that the annexation is a threat to the Israeli Jewish narrative of a democratic Jewish state (Shibley Telhami. Stop calling Israel a Jewish Democracy June 8, 2020). As it has been argued in the past, any increase in repression of Palestinians, will have its destructive consequences on the Israeli society too. This one is not so different. As Phillip H. Gordon and Robert Malley stated:

Israel's formal incorporation of parts of the West Bank will not only violate international law and deny Palestinians basic rights, but it will set off a process that will further erode Israeli democracy, isolate Israel internationally, and undermine the bipartisan U.S. support that has been so central to its success.

The "Jewish democratic state" ideology that has been promoted by different Israeli leaders even prior to 1948, will be weakened again by its own supporters. As Yosi Beilin stated "In that situation (Annexation Plan), it would become difficult to deny Palestinians Israeli citizenship without Israel's being accused of creating an apartheid state and jeopardizing the Jewish majority in Israel."

Fifth, Arab Jewish relations inside the borders of Israel will also be affected by this decision. As in other cases when harsh Israeli measures were imposed on the Palestinian people in The West Bank the annexation will further cause the Arab Palestinian citizens of Israel (about 20% of the Population within the 1948 borders) to lose confidence in the Israeli Jewish community's desire or willingness to live peacefully with Palestinians. This erosion in the belief that political solutions can be implemented further alienates the Arabs in Israel and pushes them to search for alternatives beyond the two-state solution, such as the endorsement of one state for all its citizens or a federation arrangement.

Sixth, beyond the above fears and concerns, from a peace-building perspective, the most relevant fear of the annexation plan is related to deepening the already deeply rooted feeling and perception of distrust and suspicion that both Israeli and Palestinian communities have had for each other throughout the past century. The history of this protracted conflict is full of examples of distrust and levels of communal feelings of hatred. Recurring statements such as 'you cannot change them they do not want us here, they do not recognize our basic rights', are few examples of that. This distrust of the other side's intentions is always the first step of resistance in accepting any invitation for a peaceful engagement with the other side, which can easily lead to violent escalation.

Seventh, the annexation plans end the hope for a peaceful political settlement and reset the conflict dynamics to ground zero where the younger generations will restart with a denial of basic rights for Palestinians. It is sad and painful to observe the Israeli Jewish and Palestinian current generations being unable to hand a better reality for peaceful and more just Israeli-Palestinian relations. These are the generations who lived through the hope for peace produced by the 1987–1992 intifada and its immediate Oslo peace process – which both produced mutual recognition of the right for self determination and first formal negotiation between Israeli and Palestinian representatives.

Finally, there is no doubt that the annexation is another clear step to formalize and legalize the apartheid system in the West Bank. It will extend Israeli laws and sovereignty only to Israeli Jewish residents who will live in these areas, and exclude Palestinians. The plan will formalize the existing separation system (such as roads and other physical infrastructures and services) between Jews and Palestinians who live in these territories.

However, despite the above gloomy reality and set backs in the Israeli-Palestinian journey towards a peaceful and just resolution, there is the resilience of the Palestinians who oppose the current annexation plan and managed to stop other past plans throughout the history of this conflict. In addition, there are the voices within Israel who also oppose the annexation plan and have stood in solidarity with Palestinians fight against the occupation. These voices within Israeli are much needed these days to stand against their government's plans and be part of the joint efforts to challenge the occupation system in the territories which is a viable path for future peaceful and just Israeli-Palestinian political arrangement. Finally, if we learned anything from the South African example of transformation of the Apartheid system, it taught us that we cannot give up on the hope and belief that the children on both sides deserve to live in dignity, security, and peace.

2. What is the Administrative Theory of Management?

The Administrative Theory of Management was first generalized by Henri Fayol (1841-1925) with his work and publications, Fayol's *14 Principles of Management* (1888) and *Administration Industrielle et Generale* (1916).

Fayol was a French Mining Engineer who recorded his industry methods. He ultimately became a management theorist with perhaps the greatest effect of all prior management theorists.

Fayol is considered the father of Administrative Management Theory, often called Process Theory or Structural Theory.

As a member of the classical theory movement, Fayol's work was unique from that of Taylor, who focused on worker efficiency.

Instead, Fayol focused on organization and structure of work tasks. He looked specifically at how management and workers are organized within a business to allow for the completion of task.

He proposed the creation of work groups and functional departments where distinct activities are performed. These activities contribute to the accomplishment of greater tasks in furtherance of company objectives.

Fayol followed a top-down approach to organizational efficiency. He believed that the effective organization of management would ultimately have an effect on the productivity of operational-level workers.

Administrative management theory is in contrast to the scientific approach to management, which posited that worker efficiency would lead to greater managerial efficiency.

What are Fayol's 14 Principles of Management?
Fayol's 14 principles of management provided specific guidance on the necessary organizational elements necessary for effective management and demonstrate the Administrative Management Approach.

These principles can be summarized as follows:

- **Division of Labor** - The division of labor within an organization allows for specialization. Individuals can become more proficient in the accomplishment of a limited set of activities - thus improving their output.
- **Authority** - Managers must have the authority to issue commands, but with that authority comes the responsibility to ensure that the work gets done.
- **Discipline** - There must be a clear line of authority. Subordinates must fully obey instructions from superiors. Managers must have the ability to instill discipline through punishment.

- **Unity of Command** - There should be only one boss from whom a worker receives instructions?
- **Unity of Direction** - Each workgroup or department is working under a singular plan that coordinates efforts. Work efforts should be guided by one supervisor.
- **Subordination of Individual Interest** - The interests of individuals are subordinate to the general interests of the group or department or company.
- **Remuneration** - Compensation is used to incentivize worker performance. Remuneration can include both financial and non-financial forms of compensation.
- **Centralization** - Decision making should be either centralized (management makes all decisions) or decentralized (employees also make decisions) depending upon the characteristics of the organization and worker competency.
- **Line of Authority (Scalar Chain)** - There must be a hierarchy of authority that places workers below managers in the reporting structure. The degree of authority is higher at each stage of the organizational hierarchy. The organizational hierarchy should be well understood throughout.
- **Order** - There must be well-defined rules and standards for the work environment and work responsibilities. A safe and orderly environment leads to greater coordination.
- **Equity** - The organization must be run based upon principles of fairness. Employees should be treated with a combination of kindliness and justice.
- **Stability of Tenure** - Organizations need low turnover. This allows employees time to learn their jobs, develop skills, and acquire loyalty.
- **Initiative** - Managers must promote initiative by allowing employees to create plans and carry them out.
- **Esprit de Corps** - Establishing a sense of belonging within the organization creates a sense of unity and moral.

Remember, the objective of Fayol's principles was to guide managers to efficiently organize and interact with employees.

What are Fayol's Five Functions of a Manager?

Per Fayol's Administrative Management Theory, the individual functions of a manager may vary widely depending upon the type of manager and the nature of the managers responsibilities. As such, categorizing the functions of a manager helps understand what are the responsibilities of a manager.

Henri Fayol, in his classic 1916 book, *Administration Industrielle et Generale*, Fayol laid out an informative categorization of managerial functions. These functions include:

- **Planning**
- **Organizing**
- **Commanding**
- **Coordinating**

- **Controlling**

The functions of commanding and controlling have generally been collapsed under the function Leading. The result is the modern-day P-O-L-C framework of managerial functions.

It is important to note that these categories are broad in nature. They represent the universal responsibilities of a manager, regardless of the task or industry-specific responsibilities that a manager may face, such as government, non-profit, accounting, finance, marketing, etc.

Planning - Fayol defined managerial planning as:

- forecasting future conditions,
- setting objectives, and
- developing means to attain objectives.

Notice that the planning function is flexible in nature to allow for contingencies that arise in the process.

Organizing - Fayol defined organizing as structuring activities and organizing individuals within the firm. This includes recruiting, equipping, and training individuals.

Commanding - According to Fayol, commanding as a managerial function concerned the:

- Direct supervision of employees, and
- Motivating their efforts toward a common objective.

Fayol recognized the need for managers to recognize and understand the behaviors of employees and to set an example for them.

Coordinating - Fayol identified coordination as identifying, arranging, and scheduling all activities carried out by subordinates. This coordination allows for the collective accomplishment of plans.

Controlling - Concerns the constant supervision of activities to identify accomplishment or goals and objectives. Derivation from the identified plan allows the manager to take corrective action.

Who are the Major Contributors to the Administrative Theory of Management?

The Administrative Theory of management is still very much integrated into our modern understanding of organizations and management practice.

Numerous theorists have contributed to Administrative Management Theory. These theorists develop numerous process-based approaches that identified management activities as sets of independent functions.

These functions take place at all levels of the organization, regardless of the industry or nature of the managers responsibilities. Noteworthy administrative theorists include:

- **Max Weber** (1864-1920) - Weber is credited with developing Bureaucracy Theory. This theory was a contemporary of Scientific and pre-dated Administrative Management theory. As such, we discuss Webers work as a section of Management Theory.

- **James D. Mooney** (1884-1957): Mooney contributed to administrative management theory through is book, Onward Industry! (1931), later republished as The Principles of Organization. In his text, he applied administrative management theory to organizations in various domestic and international contexts.
- **Luther H. Gulick** (1892-1993): Gulick was a physician, administrator, and health educator. He applied administrative management theory principles to government and private organizations.
- **George Terry** (1909-1979) - Terry published the first text entitled, Principles of Management. He adopted Fayols Functions framework. He combined commanding and controlling into actualizing. He defined a principle as a fundamental statement providing a guide to action to be applied through scientific methods.
- **Harold Koontz** (1909-1984) - Koontz approached management theory through the lens of Human Relations within the organization. He advocated treating employees tactfully as a management approach within the organization. He co-authored the book Principles of Management with Cyril J. O'Donnell.
- **Cyril O'Donnell** (1900-1976) - As a theorist, professor, and consultant, he published management papers and his text with Harold Koontz defining management as a combination of functions.
- **Ralph Davis** (1894-1960) - Davis was an academic and consultant who expanded upon Fayol's management functions model. He published a text, The Fundamentals of Top Management (1951), in which he introduced a rational-planning perspective to Fayols model. As such, his impact was primarily in the field of management strategy.
- **Henri Mintzberg** (1939 - Present) - Mintzberg is a modern-era theorist who critiqued Fayol's work as incomplete and impractical. He expanded upon the P-O-L-C framework by focusing on the roles that managers assume within the organization. The impact of his work has been substantial and is discussed as a separate section of Classical Management Theory.
- **Robert L. Katz** (1933- 2010) - Katz expanded upon the functions of managers by addressing the individual's skills that managers must possess at various levels within the organization. This work spanned scientific and administrative theory as is discussed as a separate section of classical management theory.

2.1 Theories of Administration

THE SCIENTIFIC MANAGEMENT THEORY

The first serious thought was made by Fredrick Winslow Taylor to conduct studies in management of industry in U.S.A. toward the end of the nineteenth century. The impact of his studies was so great, that management, which was hitherto considered an art, was given the status of science. An engineer by profession and training with his varied work experience ranging from a labourer to that of a chief engineer is regarded as the father of Scientific Management, for it was he who would first advocated the systematic adoption of the

methods of science to problems of management in the interest of higher industrial efficiency. He believed that best management is a true science, resting upon clearly fixed laws, rules and principles, as foundation and introduce 'scientism' modern management approaches and techniques. Taylor himself did not employ 'Scientific Management' to refer to his thoughts. This concept was first used by Louis D. Brandies in 1910 and subsequently used by Taylor in his widely known book, principles and Methods of Scientific Management published in 1911. Development of Scientific Management: In the beginning of twentieth century the working conditions in the factories were chaotic. The workers were left entirely to themselves in the matter of choosing the methods to be employed for doing the work. Not only this, they even used to bring their own tools for doing the work. The result was efficiency and considerable ad hoc planning. It was mainly to fulfill his need and find ways to raise industrial productivity that Taylor came out with his ideas on scientific Management. Taylor's contribution to the development of Scientific Management was needed in his papers. They are as follows: 1. A Piece-Rate System (1895) 2. Shop Management (1903) 3. The Art of Cutting Metals (1906) 4. The Principle of Scientific Management (1911) With his pragmatic concern for efficiency, he placed emphasis on planning, standardising and improving human effort at the level of worker. He was keen to find out scientifically the 'one best way' of doing each task and thus to increase productivity in the organisaiton.
Essence of Scientific Management: Taylor emphasized in the interest of social prosperity, close collaboration and deliberate cooperation between the workers and the management for the application of scientific methods. The four principles of Scientific Management are: a) Develop a science for each element of a man's work which replaces the old rule-ofthumb method. b) Scientifically select and then train, teach and develop the workman, whereas in the past he chose his own and trained himself as best as he could. c) Heartily cooperate with other men so as to ensure that all the work is being done in accordance with scientific principles. d) There is almost an equal division of work and responsibility between the management and the workman. The management takes over all work for which it is better fitted than the workman, while in the past, almost all of the work and the greater part of the responsibility was thrown on the men. Taylor's Functional Foremanship: Taylor developed the system of functional foremanship in which the worker receives orders from eight narrowly specialized supervisors. It replaced the 'linear' system or the military type of organization in which each worker is subordinate to only one boss. He divided the work not only among workers, but also at supervisory level. There are eight functional bosses – four will be responsible for planning and the remaining four for the execution. The four execution functional bosses are

1) The gang-boss 2) The repair-boss 3) The speed-boss 4) The inspector The four planning bosses are a) The order of work and route clerk b) The instruction card clerk c) The time and cost clerk d) The shop disciplinarian Taylor believed that in this functional type or organization, the foreman can be trained quickly and specialization becomes very easy. Taylor also prescribed nine qualities of a good 'foreman'. They are:

(a) education (b) special or technical knowledge (c) manual dexterity and strength (d) tact (e) energy (f) grit (g) honesty (h) judgment (i) good health. Taylor considered the philosophy of Scientific Management much more important than mere mechanism. His major contributions were: a) Motion-and time study b) Specialisation c) Standardisation d) Planning e) Techniques f) Slide rule and other work-saving implements g) Work instructions h) Work standards i) Piece-rate wage systems j) Product and implement classification systems k) Modern cost systems

Mental Revolution: According to Taylor, Scientific Management primarily involves a complete mental revolution on the part of workers and management as to their duties, towards their work and towards their fellow workers, and towards all of their daily problems. Without this, scientific management does not exist. Taylor's paper on A Piece-Rate System was considered as the outstanding contribution to the principles of wage payment. Here, he has elaborated on three things: a) Observation and analysis of work through time study to set the 'rate' or 'standard' b) A 'differential rate' system of piece work. It means those who produce above standard receive higher wages than those producing below standard. c) Paying men and not positions. In this paper on Shop Management, he discussed at length workshop organization and management. The focus is on these underlying principles: (i) To achieve efficiency, the stress is on to pay high wages and low unit production costs. (ii) Application of scientific methods to the management problems (iii) Standrdisaiton of working conditions and placing the workers on the basis of scientific criteria (iv) Formal training to workers by management and specific instructions to perform the prescribed motions with standardized tools and materials. (v) Friendly cooperation between workers and management on the basis of scientific system. Taylor's paper on The Art of Cutting Metals was considered more important than Taylor's other contributions, because they initiated a major breakthrough in the development of American industry. In this other experiments he made use of motion and time study and analysed how workers handled materials, machines and tools. Motion study, which is the observation of all the motions that comprise a particular job and the determination of the best set of motions, is a technique of standardization of work methods. What is the best procedure for doing a job is an example of standardization of work methods. Time study is the technique to be employed for the determines the time-content of a job. Scientific Management addressed itself to the problems of the 'Shop Floor', that is, the bottom part of an organization where the work performed is of a repetitive and routine nature. He used scientific fact-finding methods to determine empirically instead of traditionally the right ways to perform tasks with the help of stop-watch. Taylor and his associates such as Henry Gantt and Frank and Lillian Gilbreth wrote books and articles spreading the principles of Scientific Management far and wide. Gantt became well-known for the invention of the Gantt Chart on which progress of work could be plotted continuously against time. Gilbreth's system became known as 'speed work' as it involved reduction in the amount of work through the elimination of unnecessary motions and laid the foundation of modern motion-study techniques. Gilbreth's contribution was the 'flow process of chart'. An operation is broken down into steps that may be performed by several workers. This helps to discover whether some of the steps in the operation can be eliminated or shortened.

Criticism: The criticisms on Scientific Management are as follows: 1) The Scientific Management viewed man as a machine. This is a rather degrading view and unacceptable to modern man. 2) Workers were opposed to time study procedure and standardization of all aspects of their performance. Greater resistance came from the labour leaders who found in

Taylorism a threat to their role and to the growth of trade union movement. 3) Managers who wanted quick promotions to the high managerial position without any merit based on higher education opposed Taylor's stand, which advocated training by highly trained experts. They did not appreciate his scornful comments on rule-of-thumb method. 4) The management thinkers charged that Taylor's scientific management was impersonal and under emphasized the human factor.

5) Accordingly to Taylorism, an employee is motivated by high wages. The underestimates the meaning of human motivation. Likewise, the assumption that an individual existed isolation from his social environment is erroneous. 6) Herberts Simon and March have described the Scientific Management as the 'Physiological organisaiton theory.' It completely neglects the psychological aspects. Nevertheless, the ideas of Scientific Management greatly influenced administrative thought and management practices in subsequent years. Clear delineation of authority and responsibility, the use of standards in control, separation of planning from operation, the functional organization incentive system of workers, the principle of management by exception and task specialization – these were Taylor's ideas that greatly influenced management thought in later periods.

THE CLASSICAL THEORY

During the first half of the 20th century a broader approach to organization was initiated by a group of writers whose interest was chiefly on formal organisaiton structure and the basic management process. March and Simon have characterized this body to knowledge as 'administrative management theory'. This is a also known as the Mechanical theory or Classical theory or the Structural theory. This theory has been enunciated most notably by Henri Fayol, Luther Gulick, L.F. Urwick, J.D. Mooney, A.C. Reiley, M.P. Follet and R. Shelton. These writers argue that administration is administration regardless of the kind of work undertaken or the context within which it is performed. The most important concern of this theory is the formulation of certain universal principles of organization. Henri Fayol: He was one of the earliest writers on the general theory of management. He believed that there was a single 'administrative science' whose principles were applicable not only to business but also to government, religious and other organisaitons. Knowledge of administration rather than technical knowledge, according to Fayol, is what is needed at higher levels of an organization. Fayol divided all activities in an organisaiton into the following six groups: a) Technical activities b) Commercial activities c) Financial activities

d) Security activities e) Accounting activities f) Managerial or Administrative activities. Administration, according to him comprises the following five elements: (i) Planning (ii) Organising (iii) Co-ordination (iv) Command (v) Control Fayol perceived the administration from a manger's viewpoint and confined his analysis to top managerial functions. His theory is often considered as the first complete theory of management. Fayol suggests that managers should have the following attributes: 1. Physical, 2. Mental, 3. Moral, 4. General Education, 5. Special Knowledge, 6. Experience. In this book, General and Industrial

Management (1916) he outlined fourteen principles of organisaiton as listed below: 1) Division of work: It belongs to the natural order, and it increases efficiency. 2) Authority and Responsibility: The occupant of each position should be given enough authority to carry out all the responsibilities assigned to him. 3) Discipline: Discipline (obedience, application, energy, and essential for the smooth running of business. 4) Unity of Command: For any action, an employee should have only one boss 5) Unity of Direction: One head and one plan for each activity. 6) Scalar Chain: It stands for the chain of superiors ranging from the topmost authority to the lowest rank in an organisaiton. 7) Subordination of Individual Interest to General Interest: The interest of one employee or group should not prevail over that of total organisaiton. 8) Centralisation: The degree of initiative left to managers varies depending upon top managers, subordinates and business conditions. 9) Remuneration: The remuneration paid for services rendered should be fair and afford satisfaction to both personnel and the firm. 10) Order: Right man in the right place – this is how Fayol defined order. 11) Equity: Justice tempered with kindness is called equity. 12) Stability of Tenure: Suitable conditions should be created to minimize turnover of employees. 13) Initiative: Managers must sacrifice their vanity to inspire confidence in the lower ranks so that all levels show initiative. 14) Esprit de Corps: it is the prevalence of harmony among all members of the orgnaisation. The above principles were meant to raise management to the level of a science. Fayol was concerned with 'management' and the tasks of the manager unlike Taylor whose main focus was the shop level worker. Fayol is also a pioneer in suggesting the need for systematic training in administration. He suggests that training is a continuous process, starting from the employees within an organisaiton. He considers every superior officer in an organization as a teacher to his immediate subordinates.

He also suggests the term 'gangplank'. It merely refers to the need for 'level jumping' in an hierarchical organisaiton. Although Fayol places emphasis on formal organization, he is alive to the dangers of conformity to hierarchy and formalism. He illustrates the problem with reference to the following figure: If 'F' follows the principles of proper channel of communication, he ahs to send his message or file to 'P' through 'E', 'D' and so on, covering nine levels. It is, however, possible for 'F' to use 'gangplank' and avoid going through 'A' and all the other intervening layers as intermediaries. Recourse to 'gangplank' is possible only when the immediate superiors (in the whenever a disagreement develops between 'F' and 'P', they must turn the matter to their superiors. While suggesting 'gangplank' Fayol is rather cautious. He feels that it may be less relevant to are less clear than in private organizations. Fayol's line of thought was further elaborated by a number of writers during the 1920's and 1930's. the most comprehensive enunciation of the Classical theory is contained in Papers on the Science of Administration (1937), edited by Luther Gulick and Lyndall Urwick. Luther Gulick summed up the principles of organization in the word 'POSDCORB'. His famous POSDCORB, an acronym contains the first letters of seven administrative activities as follows: Planning: The development, in broad outline of the activities to be carried out and the methods of execution so as to accomplish the purpose set for the enterprise. Organising: The establishment of the formal structure of authority, on the basis of which work sub-divisions are established and co-ordinated for the achieving the defined objective. Staffing: The entire personnel function of recruiting and training staff, and maintaining favourable working conditions. Directing: The continuous task of leading the enterprise by making decisions and embodying them in specific and general orders and instructions. Co-ordinating: All important duty of interrelating the various parts of the work Reporting: The job of keeping superiors informed of the status of the work through reports and records. Budgeting: The tasks of fiscal planning, accounting and control. Mooney and Reiley's Onward Industry is a pioneering work on the development of organisaiton theory. Mooney and Reiley's formulated four principles of organisaiton. They are: 1) The co-ordinative principle, 2) The scalar principle 3) The functional principle of orgnaising tasks into departments 4) The staff/line principle for performance advisory and executive functions.

Special mention should be made of Mary Parker Follet. She attached special significance to lateral co-ordination authority acceptance in an organization, integration of individuals and orgnaisation, and administrative change. Criticism: 1) The assumption that all organisaiton can be managed by the same set of rules and principles does not hold good. 2) This theory is not well-suited to organizations where changes take place in a routine way. 3) It is more concerned with what ought to be and this kept it away from the study of actual behaviour in organizations. 4) It treats an organisaiton as a closed system, simply unconnected with, and uninfluenced, by its external environment. 5) It viewed human begins as passive 6) Most of the elements of theory are not supported by empirical evidence. An important contribution of the classical theorists in general is their attempt to find certain universal principles of organization. Increased co-ordination of administrative operations and specification of role brought more predictability and stability in organisaitonal behaviour.

THE BUREAUCRATIC THEORY

Today the dominant form of organisaiton in the private and public sectors is bureaucracy. The pedigree of the term 'Bureaucracy' is not quite clear. As Fritz Morstein Marx points out, "it was first used in the French form bureaucratie by a French Minister of commerce in operation, spread to Germany during the 19th century as Burokratie, and has since found its way into English and many other languages." The world 'Bureaucracy' was first coined by Vincent de Gourney (1712-1759), an economist of France. He had observed: "We have an illness in France which bids fair to play havoc with us; this illness is called bureaumania." The Dictionary of the French Academy accepted the word in its 1798 supplement and defined it as "power, influence of the heads and staff of government bureaux." The word 'Bureaucracy' itself is often used in a negative sense, that is, to characterize organizations burdened by red-tape and inefficient procedures. Actually, it refers to a specific form of social organization for administrative purposes. The most systematic study so far of bureaucratic phenomena is traced back to German sociologist Max Weber. Regarding the origin and nature of his concept 'organisaiton' (Verband) to Weber a person could be said to have 'power' (Macht) if within a social relationship his own power is exercised for the structuring of human groups, it becomes a special instance of power called 'authority' (Herrschaft). Thus, Weber distinguished between power and authority or 'domination'. Authority or domination is instrumental in the emergence of Verband. i.e., organization. The most important aspect of the administration is that it determines who was to give commands to whom. Thus, “every form of authority expresses itself and functions as administration.”

Weber was interested in a full-blown discussion on bureaucracy as a sociological phenomenon. His thought needs to be placed in he more general context of his theory of domination. Domination refers to a power relationship between the rulers and the ruled. In any kind of established authority, there exist a number of beliefs that legitimize the exercise of power in the eyes of the leaders and he led. The other important element is the notion of the administrative apparatus. Domination when exercised over a large number of people necessitates an administrative staff which will execute demands and serve a s a bridge between the ruler and the ruled. The beliefs about legitimation and the administrative apparatus constitute the two important criteria for the Weberian construct or typology of dominations, each corresponding to a particular type of domination. (a) Charismatic Domination: Charisma literally means gift of grace, the power exercised, by a leader – may be a prophet, a hero or a demagogue – substantiating the claim by virtue of his magical powers of heroism or other extraordinary gift or administrative apparatus is very loose and unstable. It usually consists of the most faithful followers or disciples who play the role of the intermediary between the leader and the followers. (b) Traditional Domination: It derives its legitimacy from the acceptance of it since hoary past. The persons exercising authority generally are called ‘Masters’ who enjoy personal authority by virtue of their inherited status. Their commands carry legitimacy because of the customs but they can also give orders based on their personal decision. The persons who obey the orders here are called ‘Followers’. This kind of patrimonial authority receives ready obedience because of a peculiar faith in traditional status and personal loyalty to the dominant person. The administrative apparatus in this kind of domination would consist of the personal relations, servants and relatives. (c) Legal Domination: It is based on the belief in the rightness of law. People obey the laws because they believe that these are enacted by a proper objective procedure. The typical administrative apparatus corresponding to this kind of domination is bureaucracy. These rules delineate in a rational way the hierarchy, the rights and duties of every position and the methods of promotion, recruitment and other conditions of service. Weber believed that all these three types of domination claim legitimacy as long as the ‘ruled’ accept them. The authority cases to carry legitimacy when the rulers do illegal things, ignore the traditions and lose charisma respectively. Of the three types of authority, Weber preferred the legal type of domination or authority, Weber preferred the legal type of authority because of inherent rationalities in it. Weber never defined bureaucracy. He only described its characteristics. To him bureaucracy is “an administrative body of appointed officials.” Following are the characteristics of bureaucracy as enumerated by Max Weber: 1) Hierarchical arrangement of offices or positions (i.e., a pyramid like structure with each lower office under the control of a higher one) 2) The staff members are engaged in the discharge of only the impersonal duties of their offices they are personally free. 3) Division of labour, with specified spheres of competence legitimized as official duties and powers 4) Written rules for carrying out assigned tasks, to be applied uniformly.

5) Impersonality – officials are subject to an impersonal order and formally established norms of conduct and act according to these rules in their contacts with others, inside and outside

the organization. 6) Officials are appointed on the basis of a contract 7) The functions of the offices are clearly specified. 8) Officials are selected on the basis professional qualifications, ideally substantiated by a diploma gained through competitive examination. 9) They have a money salary, and usually pension rights. The salary is graded according to position in the hierarchy. The official can always leave the post, and under certain circumstances it may also be terminated. 10) The official's post is his sole or major occupation. 11) There is a career structure, and promotion is possible either by seniority or merit, and according to the judgement of superiors. 12) The official may appropriate neither the post nor the resources that go with it 13) He is subject to a unified control and disciplinary system. The above features constituted Max Weber's ideal, pure or most rational type of bureaucracy. Four factors seem to have mainly influenced Weber in his wide-ranging discussion on bureaucracy. They are: 1) the historical, technical and administrative reasons for the process of bureaucratization particularly in western civilizations; 2) the impact of the rule of law upon the functioning of the bureaucratic organization 3) the occupational position and typical personal orientation of bureaucratic officials as an elite group; and 4) the most important attributes and consequences of bureaucracy in the modern world, particularly of governmental bureaucracy. In designing the legal-rational authority system, Weber formulated the following structuring propositions: 1) Official tasks are organized on a continuous, regulated basis 2) These tasks are sub-divided into functionally distinct spheres, each furnished with the requisite authority and sanctions. 3) Offices are arranged hierarchically 4) Official work is conducted according to the rulers which are either technical or legal 5) The resources of the orgnaisation are quite distinct from those of the members as private individuals. 6) The holder of an office cannot appropriate the office 7) Administration is based on written documents. 8) Legal authority system can take many forms, but are seen at their purest in a bureaucratic administrative staff. Bureaucracy provides a conceptualization of a form of social organisaiton with certain characteristics. It can be examined from three different points of view: a) Structural characteristics: This structural dimension has attracted the most attention in the discussion on bureaucracy. The features like division of labour, hierarchy and rules have been identified as important aspects of structure. b) Behavioural characteristics: Rationally (the most rational means of achieving imperative control over human beings), impersonality and neutrality (support to the political regime it serves) are the important aspects of behaviour. c) Instrumental characteristics: Bureaucracy has been looked at from the pint of view of achievement of purpose. As Peter Blau suggests, it should be considered as na "organization that maximizes efficiency in administration or an institutionalized method of organized social conduct in the interests of administrative efficiency." Criticism: Bureaucracy produces a number of unintended consequences or dysfunctions. The criticism are: (i) Rigidity: Critics claim that it is rigid, static and inflexible. Compliance with rules may provide the cover to avoid responsibility for failures. (ii) Impersonality: Bureaucracy emphasized mechanical way of doing things. Rules and regulation are glorified in place of employee needs and emotions. (iii) Ideal type: The ideal type is a mental construct that cannot be found in reality. It is an abstraction that exaggerates certain features and de-emphasises certain others with a view to conveying an image or an idea. (iv) Displacement of objectives: As organizational procedures become more formalized and individuals more specalised, means often become confused with ends. (v) Red tape: Bureaucratic procedures cause in-ordinate delays and frustration. By encouraging conformity to rules and regulations, bureaucracies leave nothing for original or innovative behaviour. (vi) Bureaupathology: The bureaucratic structure has also been criticized for encouraging what Victor Thompson called 'bureaupathology'. He believes that bureaucratic structures permit counter-productive personal insecurities to flourish and that same managers try to protect their authority and position by aloof, ritualistic behaviour. This is pathological because it can prevent the orgnanisation form meeting its goals. R.K. Merton argues that demands on officials to conform to bureaucratic regulations lead to ritualism, defensiveness, rigidity and difficulties in dealing with the public. This stream culminates in M. Crozier's The Bureaucratic Phenomenon (1964) in which the author uses bureaucracy to mean "an organization that cannot correct its behaviour by learning from its errors." Any assessment of Weber has to take into account the entire corpus of his writings, especially his political writings, where Weber appears as a critic of bureaucracy in real life politics.

IDEAS OF MARY PARKER FOLLET

Mary Parker Follet is an important author of 20th century. Her writings, however, do not wholly confirm to the work of other scholars of the administrative school. She talked of organization as a social system and management as a social process. She attached great importance to the psychological and social factors. She talked of lateral co-ordination, integration of individual and organization, administrative change, etc. She has often been described as the bridge between the classical theory and the behavioural approach organizational analysis.

IDEAS OF CHESTER BARNARD

Chester Barnard, a contemporary of Elton Mayo stated his views in his book The Functions of the Executive. He worked in various capacities both in Government and private administration. He is considered the spiritual father of the social system school, which influenced many organizational thinkers of the 20th century. Barnard defined organizations as "a system of consciously co-ordinated personal activities of two or more persons held together by a capacity to generate a common purpose, by a willingness on the part of its members to contribute to its processes, and by effective communications. He argued that organizations function through an equilibrium of contributions and inducements. He disapproves the theory of economic man, and instead proposes the theory of contribution-satisfaction and equilibrium, by which an individual contributes his activities to the operation of an organisaiton. Inducements, the incentives or satisfactions are offered by the organisaiton. Efficiency depends on organisaitons' capacity to offer this inducement in sufficient quantities to maintain the equilibrium of the system. Barnard maintains that in a modern society the contributors to an organization always are only a small minority actually having positive willingness and a preponderance of persons are negative in their commitment. Barnard rejects the traditional concept of authority and introduces acceptance as the basis of authority. He points out that the ultimate test of authority and introduces acceptance as the basis of authority. He points out that the ultimate test of authority. He points out that the ultimate test of authority lies in whether orders are accepted by those who receive them. According to Barnard, “leadership refers to the quality of the behaviour of individuals, whereby they guide people in their activities, in organised efforts." Barnard thought that formal organisations are artificial systems and they grew out of informal organisations which are natural systems. It is said that the neo-classical emphasis on the human factors of organisations constitutes a major contribution to modern theory.

HUMAN RELATIONS THEORY

The Human Relations theory has often been described as the Neo-classical theory. It was built on the base of the classical theory. The basic assumption of this theory is thatpsychological and social aspects of the worker as an individual and his work group ought to be emphasised. The influence of Pierre Janet and Sigmund Freud, was profound on the studies of Elton Mayo. The trace of the human relations movement can be found even in ancient literatures. The greatest influence of this theory came from the Hawthorne experiments carried out in the U.S.A. under the guidance of Elton Mayo in late 20's and early 30's of this century. The findings were first published in Management and the Worker (FJ. Roethlisberger and William J. Dickson) in 1939. Mayo started his first major research in a textile mill near Philadelphia in 1923. He named the study 'The First Inquiry'. The result of the study was the elimination of the problem of physical fatigue by the introduction of rest periods. In the first Hawthorne experiment, workers operating under a piece-rate system were observed, to see whether higher wages motivated them to work more. It was found that the workers worked to a point, they felt, would ensure them of an adequate income, and then refused to work more due to the fear that over production may lead to retrenchment. In another experiment, some female workers were isolated from the rest and placed under observation. Their level of productivity under diverse working conditions were carefully measured. But under all physical changes in their work environment the production of these girls showed a continually upward rise. This proved that there was no positive correlation between the working conditions and productivity and the girls were conscious of the fact that they had been selected for a special experiment.

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THE BEHAVIOURAL APPROACH

In Public administration', behaviouralism as a distinct line of study started in the 1930's along with the Human Relations Movement. The mechanistic orientation of the traditionalists has been counterbalanced by the humanistic view of the behavioural scientists. Berelson and Steiner have defined the behavioural sciences thus: "By the behavioural sciences we mean the disciplines of anthropology, psychology and sociology - minus and plus: Minus such specialised sectors as physiological psychology, archaeology, technical linguistics, and most of physical anthropology; Plus social geography, some psychiatary, and the behavioural parts of economics, political science, and law. In short, we are concerned here with the scientific research that deals directly with human behaviour." The behavioural scientists have been contributing to organisational dynamics since the days of the Hawthorne studies. Carl Rogers, J.L. Moreno, Kurt Lewin, and A.H. Maslow are some of the great names in this school. Rogers is well-known for his clinical approach to counseling therapy, and Moreno for his studies of interpersonal relations. Lewin pioneered the action research approach to organisational development. Maslow's theory of motivation has exerted strong influence on studies of organisational behaviour: Salient Features: This approach has the following salient features: 1) Its literature is descriptive rather than prescriptive, with the studies on motivation being an exception. 2) Increased attention is paid to the individual based on more realistic approach concerning motivation, decision-making process and the nature of authority. 3) Stress is laid on informal relationship and communication patterns among members of an organisation. 4) It is mainly concerned with quantification, and formal theory constructions. 5) Its emphasis, is on empirical study based on methods such as field study, laboratory experiments or use of other statistical methods. 6) It is inter-disciplinary in character and makes considerable use of propositions drawn from other social sciences. Contribution of Herbert Simon: a) Simon has been basically concerned with the behaviour of organisation as goal-oriented and adaptive entities. b) He focuses on the cognitive aspects of organisational operation and emphasises on problem solving and rational choice. c) He introduced the concept of 'satisfying' behaviour in organisational situations. Contribution of E. Wight Bakke: He identified the individual goals as security, progress and justice in respect of internal harmony understanding, autonomy, integration and respect. He was interested in the realities' of organisational life. According to Bakke, the individual seeks to use the organisation as a means to further his own goals, whereas the organisation tries to use the individual to attain its own goals. The 'personalising process' by which the individual makes use of the organisation, and the 'socialising process' by which organisation puts the individual to its own use get mixed up in real life. This is what Bakke called the 'fusion process'. Contribution of Chris Argyris : He speaks of a basic incompatibility between the needs of a mature personality and the requirements of a formal organisation designed on the classical principles of rigid task specialisation, span of control, and unity of command. Strict adherence to classical principles, according to him, is likely to create an organisation that will tend to make the employees dependent and passive. Contribution of Chester Barnard: He developed an equilibrium theory of organisation by suggesting that the organisation exists by maintaining an equilibrium between the contributors and satisfaction of its participant members. Both material inducements and psycho-social rewards are important. According to Barnard, efficiency in organisation is a personal matter related to individual's satisfaction and effectiveness is related to the accomplishment of a common organisational authority. Authority to his, is a matter of acceptance, of the superior role of the supervisors by the subordinate. Other contributions have come from Maslow's ideas on hierarchy of needs, McGregor (his theory X, and theory Y), Likert and Herzberg. Criticism: a) It has limited utility in the analysis of all types of administrative phenomena. b) It is applicable t6 small social groups whereas the study of Public administration deals with larger communities. c)

The total exclusion of values from the study of administrative problems and phenomena will make the study of Public administration rather irrelevant to the vital issues of the modern age. Despite these criticisms, the behavioural scientists have given a new orientation to administrative thought by focusing attention on the role of the individual, leadership, group dynamics, motivation and satisfaction, More importantly, many of the behavioural scientists are now active in the role of change agents.

THE SYSTEMS APPROACH

Modern theory, also called systems analysis of organisations, developed largely since the 1950s. The origin of general systems theory is traced to the thinking of the biologist Ludwig Von Bertalanffy, in the twenties. It aimed at the unification of science and scientific analysis. General Systems theory is an attempt to join up the different approaches in science (traditional, behavioural and management science) and thus, to provide a broad macroscopic view of different types of systems. . Weber defines a system as "A set or arrangement of things so related or connected as to form a unity or organic whole." A system is thus a unified whole having a number of interdependent parts or sub- systems and it has identifiable boundaries that distinguish it from its surrounding environment in which 'it is embedded, and with which it interacts. Features of Social System: 1) Social systems are open systems as they are in constant interaction With their environment. By contrast physical and mechanical systems arc closed in relation to their environment. 1) Boundaries of social organisations are not easily identifiable. It has to be understood from their activities and functions in real life situations. Physical and mechanical systems have easily identifiable boundaries. 2) Closed systems have the general tendency toward 'entropy' and disorganisation; open systems, on the other hand, have the tendency to develop through greater internal differentiation and move towards higher levels of organisation. Most social systems fall in this latter category. Relevance of Organisation Theory: The Systems approach is particularly relevant to the study of complex public organisations that have elaborate structures and that are embedded in larger social, political and economic environments. An organisation survives and grows by'urawing inputs from the' environment which are processed internally to produce its output. C. West Churchman provides five basic considerations in relation to the systems approach to management. These are: 1. The total objectives of the system and the measures of system performance. 2. The system's environment acting as constraints. 3. The system's resources that are put to use in performance. 4. The system's components and their goals and activities. 5. The management of the system (the regulation and decision-making aspect). The systems view of organisation was prominent in the writings of M.P. Follet, Chester Barnard. Herbert Simon's decision-making scheme follows the Systems approach which was further elaborated by him and his associates later. Philip Selznick has used the systems framework in his studies of governmental and other complex organisations. The most representative writings in this field are: Organisations by March and Simon, and Modern Organisation Theory by Haire. Norbert Wiener pioneered in the field of cybernetics. He gave the first clear view of an organisation as a system consisting generally of inputs, process, outputs, feedback and environment as shown below: Organisational systems like social systems are considered to be Cybernetic in their behaviour with regard to the external environment. This means that "they are self-steering, using feedback to guide and control their behaviour". They develop mechanisms to collect, interpret and apply feed back in their decision-making process so as to acquire the capacity to adapt, evaluate the performance and to correct errors.

3. Macroeconomics Definition, History, and Schools of Thought

What Is Macroeconomics?
Macroeconomics is a branch of economics that studies how an overall economy—the markets, businesses, consumers, and governments—behave. Macroeconomics examines economy-wide phenomena such as inflation, price levels, rate of economic growth, national income, gross domestic product (GDP), and changes in unemployment.

Some of the key questions addressed by macroeconomics include: What causes unemployment? What causes inflation? What creates or stimulates economic growth? Macroeconomics attempts to measure how well an economy is performing, understand what forces drive it, and project how performance can improve.

KEY TAKEAWAYS

- Macroeconomics is the branch of economics that deals with the structure, performance, behavior, and decision-making of the whole, or aggregate, economy.
- The two main areas of macroeconomic research are long-term economic growth and shorter-term business cycles.
- Macroeconomics in its modern form is often defined as starting with John Maynard Keynes and his theories about market behavior and governmental policies in the 1930s; several schools of thought have developed since.
- In contrast to macroeconomics, microeconomics is more focused on the influences on and choices made by individual actors in the economy (people, companies, industries, etc.).

Understanding Macroeconomics

As the term implies, macroeconomics is a field of study that analyzes an economy through a wide lens. This includes looking at variables like unemployment, GDP, and inflation. In addition, macroeconomists develop models explaining the relationships between these factors.

These models, and the forecasts they produce, are used by government entities to aid in constructing and evaluating economic, monetary, and fiscal policy. Businesses use the models to set strategies in domestic and global markets, and investors use them to predict and plan for movements in various asset classes.

Properly applied, economic theories can illuminate how economies function and the long-term consequences of particular policies and decisions. Macroeconomic theory can also help individual businesses and investors make better decisions through a more thorough understanding of the effects of broad economic trends and policies on their own industries.

History of Macroeconomics

While the term "macroeconomics" is not all that old (going back to the 1940s), many of macroeconomics's core concepts have been the study focus for much longer. Topics like unemployment, prices, growth, and trade have concerned economists since the beginning of the discipline in the 1700s. Elements of earlier work from Adam Smith and John Stuart Mill addressed issues that would now be recognized as the domain of macroeconomics.

In its modern form, macroeconomics is often defined as starting with John Maynard Keynes and his book *The General Theory of Employment, Interest, and Money* in 1936. Keynes explained the fallout from the Great Depression when goods remained unsold, and workers were unemployed.

Throughout the 20th century, Keynesian economics, as Keynes' theories became known, diverged into several other schools of thought.

Before the popularization of Keynes' theories, economists did not generally differentiate between micro- and macroeconomics. The same microeconomic laws of supply and demand that operate in individual goods markets were understood to interact between individual markets to bring the economy into a general equilibrium, as described by Leon Walras.

The link between goods markets and large-scale financial variables such as price levels and interest rates was explained through the unique role that money plays in the economy as a medium of exchange by economists such as Knut Wicksell, Irving Fisher, and Ludwig von Mises.

Macroeconomics vs. Microeconomics

Macroeconomics differs from microeconomics, which focuses on smaller factors that affect choices made by individuals and companies. Factors studied in both microeconomics and macroeconomics typically influence one another.

A key distinction between micro- and macroeconomics is that macroeconomic aggregates can sometimes behave in very different ways or even the opposite of similar microeconomic variables. For example, Keynes referenced the so-called Paradox of Thrift, which argues that individuals save money to build wealth (micro). However, when everyone tries to increase their savings at once, it can contribute to a slowdown in the economy and *less* wealth in the aggregate (macro). This is because there would be a reduction in spending, affecting business revenues and lowering worker pay.

Meanwhile, microeconomics looks at economic tendencies, or what can happen when individuals make certain choices. Individuals are typically classified into subgroups, such as buyers, sellers, and business owners. These actors interact with each other according to the laws of supply and demand for resources, using money and interest rates as pricing mechanisms for coordination.

Limits of Macroeconomics

It is also important to understand the limitations of economic theory. Theories are often created in a vacuum and lack specific real-world details like taxation, regulation, and transaction costs. The real world is also decidedly complicated and includes matters of social preference and conscience that do not lend themselves to mathematical analysis.

It is common in economics to find the phrase *ceterus paribus*, loosely translated as "all else being equal," in economic theories and discussions. This is because there are so many variables that economists use this phrase as an assumption to focus on the relationships between the variables being discussed.

Even with the limits of economic theory, it is important and worthwhile to follow significant macroeconomic indicators like GDP, inflation, and unemployment. This is because the performance of companies, and by extension their stocks, is significantly influenced by the economic conditions in which the companies operate.

Likewise, it can be invaluable to understand which theories are in favor and influencing a particular government administration. The underlying economic principles of a government will say much about how that government will approach taxation, regulation, government spending, and similar policies. By better understanding economics and the ramifications of economic decisions, investors can get at least a glimpse of the probable future and act accordingly with confidence.

Macroeconomic Schools of Thought

The field of macroeconomics is organized into many different schools of thought, with differing views on how the markets and their participants operate.

Classical

Classical economists held that prices, wages, and rates are flexible and markets tend to clear unless prevented from doing so by government policy, building on Adam Smith's original theories. The term “classical economists” is not actually a school of macroeconomic thought but a label applied first by Karl Marx and later by Keynes to denote previous economic thinkers with whom they respectively disagreed.

Keynesian

Keynesian economics was founded mainly based on the works of John Maynard Keynes and was the beginning of macroeconomics as a separate area of study from microeconomics. Keynesians focus on aggregate demand as the principal factor in issues like unemployment and the business cycle.

Keynesian economists believe that the business cycle can be managed by active government intervention through fiscal policy, where governments spend more in recessions to stimulate demand or spend less in expansions to decrease it. They also believe in monetary policy, where a central bank stimulates lending with lower rates or restricts it with higher ones.

Keynesian economists also believe that certain rigidities in the system, particularly sticky prices, prevent the proper clearing of supply and demand.

Monetarist

The Monetarist school is a branch of Keynesian economics credited mainly to the works of Milton Friedman. Working within and extending Keynesian models, Monetarists argue that monetary policy is generally a more effective and desirable policy tool to manage aggregate demand than fiscal policy. However, monetarists also acknowledge limits to monetary policy that make fine-tuning the economy ill-advised and instead tend to prefer adherence to policy rules that promote stable inflation rates.

New Classical

The New Classical school, along with the New Keynesians, is mainly built on integrating microeconomic foundations into macroeconomics to resolve the glaring theoretical contradictions between the two subjects.

The New Classical school emphasizes the importance of microeconomics and models based on that behavior. New Classical economists assume that all agents try to maximize their utility and have rational expectations, which they incorporate into macroeconomic models. New Classical economists believe that unemployment is largely voluntary and that discretionary fiscal policy destabilizes, while inflation can be controlled with monetary policy.

New Keynesian

The New Keynesian school also attempts to add microeconomic foundations to traditional Keynesian economic theories. While New Keynesians accept that households and firms operate based on rational expectations, they still maintain that there are a variety of market failures, including sticky prices and wages. Because of this "stickiness," the government can improve macroeconomic conditions through fiscal and monetary policy.

Austrian

The Austrian School is an older school of economics that is seeing some resurgence in popularity. Austrian economic theories mainly apply to microeconomic phenomena. However, they, like the so-called classical economists, never strictly separated micro- and macroeconomics.

Austrian theories also have important implications for what is otherwise considered macroeconomic subjects. In particular, the Austrian business cycle theory explains broadly synchronized (macroeconomic) swings in economic activity across markets due to monetary policy and the role that money and banking play in linking (microeconomic) markets to each other and across time.

Macroeconomic Indicators

Macroeconomics is a rather broad field, but two specific research areas represent this discipline. The first area is the factors that determine long-term economic growth, or increases in the national income. The other involves the causes and consequences of short-term fluctuations in national income and employment, also known as the business cycle.

Economic Growth

Economic growth refers to an increase in aggregate production in an economy. Macroeconomists try to understand the factors that either promote or retard economic growth to support economic policies that will support development, progress, and rising living standards.

Economists can use many indicators to measure economic performance. These indicators fall into 10 categories:1

- **Gross Domestic Product indicators**: Measure how much the economy produces
- **Consumer Spending indicators**: Measure how much capital consumers feed back into the economy
- **Income and Savings indicators**: Measures how much consumers make and save
- **Industry Performance indicators**: Measures GDP by industry
- **International Trade and Investment indicators**: Indicates the balance of payments between trade partners, how much is traded, and how much is invested internationally
- **Prices and Inflation indicators**: Indicate fluctuations in prices paid for goods and services and changes in currency purchasing power
- **Investment in Fixed Assets indicators**: Indicate how much capital is tied up in fixed assets
- **Employment indicators**: Shows employment by industry, state, county, and other areas
- **Government indicators**: Shows how much the government spends and receives
- **Special indicators**: All other economic indicators, such as distribution of personal income, global value chains, healthcare spending, small business well-being, and more

The Business Cycle

Superimposed over long-term macroeconomic growth trends, the levels and rates of change of significant macroeconomic variables such as employment and national output go through fluctuations. These fluctuations are called expansions, peaks, recessions, and troughs—they also occur in that order. When charted on a graph, these fluctuations show that businesses perform in cycles; thus, it is called the business cycle.

The National Bureau of Economic Research (NBER) measures the business cycle, which uses GDP and Gross National Income to date the cycle.2 The NBER is also the agency that declares the beginning and end of recessions and expansions.

How to Influence Macroeconomics

Because macroeconomics is such a broad area, positively influencing the economy is challenging and takes much longer than changing the individual behaviors within microeconomics. Therefore, economies need to have an entity dedicated to researching and identifying techniques that can influence large-scale changes.

In the U.S., the Federal Reserve is the central bank with a mandate of promoting maximum employment and price stability. These two factors have been identified as essential to positively influencing change at the macroeconomic level.

To influence change, the Fed implements monetary policy through tools it has developed over the years, which work to affect its dual mandates. It has the following tools it can use:

- **Federal Funds Rate Range**: A target range set by the Fed that guides interest rates on overnight lending between depository institutions to boost short-term borrowing
- **Open Market Operations**: Purchase and sell securities on the open market to change the supply of reserves
- **Discount Window and Rate**: Lending to depository institutions to help banks manage liquidity
- **Reserve Requirements**: Maintaining a reserve to help banks maintain liquidity—reduced to 0% in 2020
- **Interest on Reserve Balances**: Encourages banks to hold reserves for liquidity and pays them interest for doing so
- **Overnight Repurchase Agreement Facility**: A supplementary tool used to help control the federal funds rate by selling securities and repurchasing them the next day at a more favorable rate
- **Term Deposit Facility**: Reserve deposits with a term, used to drain reserves from the banking system
- **Central Bank Liquidity Swaps**: Established swap lines for central banks from select countries to improve liquidity conditions in the U.S. and participating countries' central banks
- **Foreign and International Monetary Authorities Repo Facility**: A facility for institutions to enter repurchase agreements with the Fed to act as a backstop for liquidity
- **Standing Overnight Repurchase Agreement Facility**: A facility to encourage or discourage borrowing above a set rate, which helps to control the effective federal funds rate.

The Fed continuously updates the tools it uses to influence the economy, so it has a list of 14 other previously used tools it can implement again if needed.4

What Is Macroeconomics in Economics?
Macroeconomics is the field of study of the way a overall economy behaves.

What are the 3 Major Concerns of Macroeconomics?

Three major macroeconomic concerns are the unemployment level, inflation, and economic growth.

Why Is Macroeconics Important?
Macroeconomics helps a government evaluate how an economy is performing and decide on actions it can take to increase or slow growth.

Macroeconomics is a field of study used to evaluate performance and develop actions that can positively affect an economy. Economists work to understand how specific factors and actions affect output, input, spending, consumption, inflation, and employment.

The study of economics began long ago, but the field didn't start evolving into its current form until the 1700s. Macroeconomics now plays a large part in government and business decision-making.

4. Data Science Will Transform the Investment Industry: Are You Prepared?

Here is a scenario: You are the portfolio manager of an active equity fund. You wake up one morning to the news that a labor strike is delaying flights at an airline in your portfolio. Your job is to assess the impact of this event on the firm's fundamental value and make a portfolio decision. You can hedge, sell, buy, or do nothing. Evaluating events like these, at the very least, requires you to (1) gauge the severity of the loss, (2) assess its permanence, and (3) compare the updated fundamental value of shares to the current market price.

Apart from an intimate understanding of the airline's business, you need a robust working model of the company and some "processing" time to properly recalculate the firm's new valuation.

While market prices change instantaneously in reaction to the news, the search for the fair price continues well after the newsmaking event, as the market participants scramble to place their bets . . .

Now imagine the same exact strike scenario but with a slight twist.

Early Warning: Several hours before the news hits the market, you receive an alert of a possible labor strike. This alert pops up on your computer's investment dashboard, which houses an array of analytical tools to help you make informed, fundamentals-based investment decisions on the go.

Intelligent Dashboard: Your dashboard is powered by artificial intelligence (AI) — a set of self-learning, self-correcting algorithms. They scour their data feeds, which range from satellite imagery to social media networks and economic, political, and financial databases, to bring you relevant information about your portfolio. They distinguish signal from noise and update your portfolio's intrinsic value and risk metrics in real time as new information pours in.

From your dashboard, you can see the airline's routes affected by the strike, the anticipated daily dollar loss stemming from it, and the likely effect on share price should the strike continue one more day, three more days, or another week. You can drill down and see where the data is coming from and how it's analyzed. At any time, you can change the model's inputs to reflect your own views or select a different method of analysis.

Action Menu: At the bottom of your dashboard, you have a menu of your available investment actions, each supplemented with its potential impact on your portfolio return and risk.

Your job? To understand what's at stake for those involved in the strike and to recalibrate its probability to last past a certain date — say one week. You have a few questions to answer: What are the labor union's demands? What are the chances they will be met? What can the union realistically settle for?

The dashboard described above does not exist. At least not to my knowledge, but we may not be too far from some version of it becoming reality. This realization is not easy for me. I am a finance professional with a decade of fundamental investing experience. However, after studying data science for some time, I am convinced that it will bring profound change to our profession.

While the tenets of rational, fundamental investing are likely to remain relevant, the future of investment research will be shaped by data science and by the dynamic models that don't yet exist. I see this as a natural step in the evolution of finance. A step that will require solid understanding of data science in addition to investing skills.

Why will data science become a permanent feature of the investment landscape? Because it outperforms humans in at least three areas:

1. Unbiased Analytical Thinking: Using machines to make investment decisions minimizes human error and cognitive biases. Investment professionals may use a number of techniques to recognize and minimize them, but we can't eliminate them. Many of these are "hardwired" into our brains as established neural pathways.

In contrast to humans, AI-based algorithms have no egos. They are agile, they can quickly absorb new information and make course corrections. Any data can be used to generate insight. AI can learn and evolve from changes in its environment. Unlike static quantitative models with limited shelf lives, AI-based systems are "alive."

2. Processing Power: When it comes to information processing, humans are no match for machines. They can out-analyze us. Think of IBM's Deep Blue supercomputer defeating grandmaster Garry Kasparov at chess in 1997, or Google's AlphaGo AI outplaying the world's top-ranked Go player in 2017.

And this edge goes beyond analytical thinking. Machines also have us beat in the more subtle associative thinking, a skill long thought to be exclusive to humans. In 2011, IBM's Watson defeated the top human Jeopardy! champions by a wide margin. For me, this was the moment that redefined my view of analytical thought, artificial or not.

In their current form, machines like Siri and Alexa already understand human speech and can learn, process, and analyze the entire history of a human-produced domain knowledge. If this trend continues, machines will become capable of intelligent investment and resource-allocation decisions with minimal human input.

3. Software Economics: From a purely economic point of view, the value of an employee is a function of his/her contribution to the bottom line. Software that can replicate an employee costs a fraction of what firms may spend on their new hires. This threat is especially pronounced for college graduates whose starting jobs consists of collecting, organizing, and analyzing analytical data.

There are five steps in the investment decision-making process: data collection, data processing, investment analysis, investment decision making, and performance evaluation. Of these, three can be performed by pieces of code. In fact, given a data source, any task that can be broken down into its logical steps can be turned into code and automated. Hedge funds like Bridgewater already started to use AI to augment their investment decision-making processes.

The third step — investment analysis — still requires human input to evaluate such factors as strategic imperatives, the competitive landscape, government policy, and board independence. Generally, any key investment data that can't be collected and aggregated into databases due to, say, legal/logistical restrictions, will require human input. Examples include in-person interviews with the portfolio company management where non-verbal clues come into play.

Artificial Intelligence (AI)-Based Investment Process

Source: Oqulent LLC

In all likelihood, future portfolio managers will have to be fluent in methods of extensive data collection and data analysis. They will also need to know how to transform their investment ideas into machine-readable code. To the degree that portfolio company's decision making involves people, portfolio management will also require a good understanding of human behavior.

A Brave New World?

Instead of reading financial statements for nuggets of financial insights, future investment professionals will derive their alpha from analyzing and predicting the impact of human behavior as an overlay to an already-established array of highly analytical, flexible, AI-based investment frameworks.

In that context, I can't rule out the black-box approach to investing. These are cases where AI-based systems could make investment recommendations the rationales for which are beyond our ability to understand. While we will have some fundamentals-based safeguards in place against extreme swings, our investment decisions would be driven by the AI's predictive power rather than our grasp of its decision-making path. In this world, investment professionals will act more as guardians of investor interests, defining investment goals, optimizing decision-making algorithms, and training AI to do most of the analytical heavy lifting.

Judging by the pace of technological evolution, this world may come sooner than later. The good news is that data science will need finance pros with domain experience to write the next chapter in the history of the investment profession.

5. Do Algorithms Make Better — and Fairer — Investments Than Angel Investors?

Can an algorithm outperform the average angel investor? And if it can, does that also mean it will make less biased investments? Researchers put these questions to the test: They built an investing algorithm and put it head to head with 255 angel investors in a...more

Many large venture capital funds use artificial intelligence (AI) to support their investment decisions. Bill Maris, former managing partner at Google Ventures, once said that when you "have access to the world's largest data sets … it would be foolish to just go out and make gut investments."

Most startup investors, however, do not have access to Google-esque resources and still do things the old-fashioned way. Angel investors, for instance, rely heavily on gut feeling to make investments. But as technology advances and the cost of building powerful algorithms through machine learning decreases, these investors will need to decide whether to incorporate AI. Can it outperform human judgment in making early stage investment decisions? And how should angel investors use it?

To answer these questions, we built an investment algorithm and compared its performance with the returns of 255 angel investors. Utilizing state-of-the-art machine learning techniques, we trained the algorithm to select the most promising investment opportunities among 623 deals from one of the largest European angel networks. The algorithm's decisions were based on the same data that was available to the angel investors at the time, which included pitch material, social media profiles, websites, and so on. We used this data to predict a startup's survival prospects — instead of measures such as valuation, which investors often favor — because it allowed us to train the algorithm with a much larger and more reliable dataset.

For our test, we used this prediction model to simulate investments and to compare the returns of the angel investors' portfolios against the ones that were created by the algorithm. We further investigated how angel investors of varying experience — novices with fewer than 10 investments vs. expert investors with at least 10 investments — faired relative to the algorithm's performance. Expert angel investors in our sample, on average, made about twice as many investments as novices (12.2 vs. 5.2) and invested double the amount per startup (€10,530 vs. €4,548).

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AI and Equality

Designing systems that are fair for all.

The results were striking, and offer significant insight into how — and when — algorithmic investing tools might be used to maximum advantage. According to our research, novice investors are easily outperformed by the algorithm — with their limited investment experience, they showed much higher signs of cognitive biases in their decision making. Experienced investors, however, faired far better. As such, our research shows how biases shape the decisions of human investors — and how working with algorithms might help produce better and fairer investment returns.

The Algorithm vs. the Angels

It has been well documented that cognitive biases — meaning systematic deviations from rational behavior — lead to inferior investment performance. We measured five biases: 1) local bias, which describes angel investors' tendency to make investments that are in close geographic proximity to themselves; 2) loss aversion, meaning angel investors' tendency to be more sensitive to potential losses than to potential gains; 3) overconfidence, when investors "overcommitted" and spent significantly more money on one startup that they usually would; 4) gender bias; and 5) racial bias. Our data shows that all biases were present among the angel investors with overconfidence — which 91% fell prey to at least once — being the most frequent and strongest bias to affect investment returns.

Because cognitive biases cause investors to make irrational investment decisions, it is not surprising that our investment algorithm outperformed the human average. While the algorithm achieved an average internal rate of return (IRR) of 7.26%, the 255 angel investors — on average — yielded IRRs of 2.56%. Put another way, the algorithm produced an increase of more than 184% over the human average.

Not all investors are equally susceptible to their biases, however. For instance, angel investors with lower signs of irrational behavior in their portfolios performed significantly better than their rather irrational counterparts: the less biased novice group averaged 3.51%, whereas the novice group with higher biases, on average, lost money at -20.52% IRR.

Intrigued by these results, we investigated whether the algorithm would win even when the investors were highly experienced. What we found is that experienced angel investors showed far fewer signs of cognitive biases and therefore achieved significantly better investment returns. This elite group of experienced angel investors achieved an average IRR of 22.75%. Experience alone, however, does not do the trick: Investors who had a good deal of experience but also showed high levels of cognitive biases achieved, on average, only 2.87% IRR. Our results thus show that only experienced investors who can suppress their cognitive biases effectively outperform machine learning algorithms in making early stage investment decisions.

There was one other factor we found to be at play, which may give algorithms an edge. Achieving higher portfolio returns in venture investing has two sides – protecting the downside and increasing the upside. A central thesis and the main focus of venture investing has always been to find statistical outliers (i.e., "unicorns"); our study, however, gives reason to rethink this central investment hypothesis in angel investing. By predicting survival probabilities, the algorithm was able to pick much better portfolios than the large majority of the 255 angel investors. As such, our data suggests that in the greater scheme o things, it might actually be more important to avoid a bad investment than to try to hit a home run. Given their limited funds, angels only invest in a finite amount of ventures and must, therefore, take great care with each investment. Therefore, asking "is this a viable business with very high chances of survival?" might be more valuable in achieving higher portfolio returns than searching for the needle in the haystack.

Does Better Also Mean Fairer?

There has been ample discussion about whether algorithms are biased by their creators. In our case, the outcomes in the training data were not classified by humans directly (compared, say, to hiring algorithms, where humans decide who has been a good hire in the past). The algorithm was trained on actual survival and performance data of hundreds of ventures. Given this high degree of objectivity, we see that compared to the average investor, the algorithm's portfolio selection was less influenced by classical investment biases such as loss aversion or overconfidence. That doesn't mean it didn't show bias, however. We were surprised to see that the algorithm did tend towards picking white entrepreneurs rather than entrepreneurs of color and preferred investing in startups with male founders.

Given these specific results, we can say that the current controversial discussion around biased algorithms that are being blamed for making unfair decisions is overly simplistic and misses the underlying problem of inflated expectations. Machine learning models are frequently trained to discriminate between different decision alternatives, e.g., good or bad early stage investments. AI itself is, per default, not irrational or biased; it just extrapolates patterns that exist in the real world data that we give it to learn and to exploit these patterns in order to distinguish between the potential decision alternatives.

Thus, AI may be able to counter the flawed decision-making processes of individual investors with low investment experience, e.g., it may help correct investors that overestimate their ability to assess the risk of a given investment. However, using AI as a means for fighting societal inequalities is more challenging. Although all data sources were objective and free of human judgement in our case — and the algorithm was not fed race and gender data — it still came to biased decisions. But the algorithm itself did not make biased decisions; it reproduced societal inequalities that were inherent in our training data. For example, one of the most important factors on which the algorithm based its predictions was prior funding that the startup had received. Recent research shows that women are disadvantaged in the funding process and ultimately raise less venture capital which may lead to their startups not being as successful. In other words, the societal mechanisms that make ventures of female and non-white founders die at an earlier stage are just projected by the AI into a vicious cycle of future discrimination.

Importantly, our results indicate that consciously debiasing decisions for race and gender might increase not only fairness, but also performance of early stage investment decisions. For instance, we found that experienced investors that invest in ventures of non-white founders systematically outperformed our algorithm. Thus, these experienced investors made successful investment decisions that were free of the implicit patterns of discrimination that undermined the results of our algorithm. In general, there is always a tradeoff between fairness and efficiency in resource allocation. This tradeoff is also apparent in algorithmic decision making. We can never expect AI to have a built-in solution to automatically solve societal problems that are inherent in the data that we feed it.

A Hybrid Approach

Our research underscores the advantages of using AI in early stage investing. It can process large amounts of data, correct individual investment biases, and, on average, outperform its human counterpart. At the same time, the most successful individuals — experienced investors able to correct for their cognitive biases — outperform the algorithm in terms of both efficiency and fairness.

Of course, this doesn't have to be a binary choice between gut feeling and algorithmic decisions. Managers and investors should consider that algorithms produce predictions about potential future outcomes rather than decisions. Depending on how predictions are intended to be used, they are based on human judgement that may (or may not) result in improved decision making and action. In complex and uncertain decision environments, the central question is, thus, not whether human decision making should be replaced, but rather how it should be augmented by combining the strengths of human and artificial intelligence — an idea that has been referred to as hybrid intelligence.

Artificial intelligence in the loop. Our research shows that algorithms could help novice investors in making early-stage investment decisions. To start angel investing with the help of an algorithm enables novice investors to avoid decision caveats and thus to achieve higher returns early in their investment career, which encourages them to continue investing. Angels who keep investing provide important resources to an ecosystem that fosters job creation and innovation. Therefore, we see lots of potential in *investment algorithms to train novice investors* in making expert-like decisions that result in improved financial returns.

Human intelligence in the loop. For more experienced angel investors who have learned to manage their cognitive biases, our findings show that their intuition should still be considered the gold standard of early-stage investing. So, algorithms should not only be trained on "objective" past performance data that easily reproduce societal biases, but also on the decisions and actions of these selected decision makers. Therefore, at same time, we see potential in *experienced investors to train investment algorithms t*o make better and fairer investment decisions.

In the end, despite AI is rapidly entering the financial markets, best-in-class early-stage investments are still dominated by experienced angel investors. The key to building an investment algorithm that can ultimately replace even the most experienced angel investors in making their investment decisions does not only lie in counteracting human biases but also in mimicking experts' intuition in finding the most promising investment opportunities.

5.1. Tactical Investment Algorithms

Two major epistemological limitations prevent finance from becoming a science, at par with physics, chemistry or biology. First, finance does not comply with Popper's falsifiability criterion, because financial theories cannot be tested in a laboratory in controlled experiments. Claims such as "value and momentum factors explain the outperformance of stocks" cannot be proven wrong, even if they are. All researchers have is the outcome from a single realized path (a price time series) produced by an unknown data-generating process (DGP). We cannot draw millions of alternative paths from the same DGP and evaluate in how many instances value and momentum factors had explanatory power, while controlling for environmental conditions. The second epistemological limitation afflicting finance is non-stationarity. Financial systems are extremely dynamic and complex, with conditions that quickly change over time. Financial causeeffect mechanisms are not invariant, due to changes in regulation, expectations, economic cycles, market regimes and other environmental variables. For instance, even if value and momentum factors truly explained the outperformance of stocks in the 20th century, that may no longer be the case as a result of recent technological, behavioral or policy changes. Perhaps value and momentum only worked under certain conditions that are no longer present. Consequently, claims made by financial economists are typically based on anecdotal information, and do not rise to the standard of scientific theories. Due to these epistemological limitations, researchers rely on backtesting for developing investment algorithms. A backtest infers the performance of an investment algorithm under the general assumption that future observations will be drawn from the same DGP that produced past observations. In this paper, I explain the different types of backtesting methods, and the specific

assumptions underlying each method. I also argue that one particular type of backtesting method can help address finance's epistemological limitations, and bring financial theories closer to scientific standards. The Three Types of Backtests In general terms, we can differentiate between three types of backtests. First, the walk-forward method (WF) assesses the performance of an investment algorithm under the assumption that history repeats itself exactly. 1 A first caveat of WF is that past time series merely reflect one possible path produced by the DGP. If we were to take a time machine, the stochastic nature of the DGP would produce a different path. Since WF backtests are not representative of the past DGP, there is no reason to believe that they are representative of the future DGP. Accordingly, WF is more likely to yield a descriptive (or anecdotal) than an inferential statement (see López de Prado [2018], chapter 11). A second caveat of WF is that the DGP is never stated: should the DGP change, the researcher will not be able to decommission the algorithm before it loses money, because she never understood the conditions that made the algorithm work. The second type of backtest is the resampling method (RS), which addresses WF's first caveat. RS assesses the performance of an investment algorithm under the assumption that future paths can be simulated through the resampling of past observations. The resampling can be deterministic (e.g., jackknife, crossvalidation) or random (e.g., subsampling, bootstrap). Because RS can produce many different paths, where the historical is just one possibility, it allows us to consider more general scenarios consistent with the DGP. For instance, through a RS backtest we can bootstrap the distribution of the algorithm's Sharpe ratio, which is much more informative than the single-path Sharpe ratio derived by WF. Whereas it is trivial to overfit a WF backtest, it is more difficult to overfit a RS backtest. Still, resampling on a finite historical sample may not yield paths representative of the future (see López de Prado [2018], chapter 12). The third type of backtest, the Monte Carlo method (MC), addresses both of WF's caveats. The MC method assesses the performance of an investment algorithm under the assumption that future paths can be simulated via Monte Carlo. MC requires a deeper knowledge of the DGP, derived from the statistical analysis of the observations or theory (e.g., market microstructure, institutional processes, economic links, etc.). For instance, economic theory may suggest that two variables are cointegrated, and empirical studies may indicate the range of values that characterize the cointegration vector. Accordingly, researchers can simulate millions of years of data, where the cointegration vector takes many different values within the estimated range. This is a much richer analysis than merely resampling observations from a finite (and likely unrepresentative) set of observations (see López de Prado [2018], chapter 13).

A Practical Example of MC Backtest Consider a researcher that wishes to design a market making algorithm. Market microstructure theory tells us uninformed traders cause short-term mean reversion as a result of temporary market impact, and informed traders cause permanent impact on market prices. Informed traders arrive at the market at a rate μ and uninformed traders arrive at the market at a rate ε, where both rates can be modelled with a Poisson process. The statistical analysis of historical time series gives us a range of fluctuation of μ and ε, which can be used to simulate long series under various scenarios. For a given combination of μ and ε, MC allows us to derive the optimal market making algorithm, that is, the set of profit taking and stop loss levels that maximize the Sharpe ratio in a MC backtest. In contrast, WF and RS would backtest the overall performance of the market making algorithm, over all historical values of μ and ε, without allowing us to estimate the performance at specific pairs of μ and ε, and without allowing us to derive optimal market making algorithms for each specific pair. Exhibit 1 shows the performance of a trading algorithm under various profit-taking and stop-loss scenarios, where the underlying price follows an Ornstein-Uhlenbeck process with a half-life of 5, zero drift and noise with unit variance (see López de Prado [2018], chapter 13). The half-life is so small that performance is maximized in a narrow range of combinations of small profit-taking with large stop-losses. In other words, the optimal trading rule is to hold an inventory long enough until a small profit arises, even at the risk of experiencing some 5-fold or 7-fold unrealized losses. Sharpe ratios are high, reaching levels of around 3.2. The worst possible trading rule in this setting would be to combine a short stop-loss with a large profit-taking threshold, a situation that market-makers avoid in practice. Performance is closest to neutral in the diagonal of the mesh, where profit-taking and stop-losses are symmetric.

Exhibit 2 shows what happens when the half-life increases from 5 to 10. The areas of highest and lowest performance spread over the mesh, while the Sharpe ratios decrease to levels around or below 2. This is because, as the half-life increases, so does the magnitude of the autoregressive coefficient, thus bringing the process closer to a random walk. For a sufficiently long half-life, even the optimal combination of profit-taking and stop-loss levels yield an unacceptably low return on risk.

Four Unique Advantages of MC Backtest MC offers four critical advantages over WF and RS. First, MC backtests help address the first epistemological limitation of finance, because they allow researchers to conduct randomized controlled experiments. Admittedly, these experiments require the assumption of a particular DGP, but at least that DGP is explicitly stated (unlike in the WF backtests published in financial journals). In MC backtests, the researcher declares the hypothesis underlying her findings. If the investor believes that the true DGP is different, she just needs to propose an alternative DGP and repeat the analysis. We can consider MC backtests a particular case of Ersatz tests, where statistical methods are tested on computer-generated data from known models (Jarvis et al. [2017]). Second, MC backtests help address the second epistemological limitation of finance, because the researcher does not need to assume that the DGP is immutable. Instead, the discovery is connected to a particular DGP, where realizations may be drawn from different DGPs over time. In other words, MC backtests allow us to develop "tactical investment algorithms," as opposed to the "strategic investment algorithms" developed with the help of WF or RS.2 The probability that a particular DGP is producing the realizations can be evaluated statistically, which allows researchers to commission or decommission tactical algorithms as conditions evolve.

Third, MC backtests enable the incorporation of priors, which inject information beyond what we could have learned from a finite set of observations. When these priors are motivated by economic theory, MC offers a powerful tool to simulate the most likely scenarios, even if some of those scenarios have not been observed in the past. Unlike WF or RS, MC backtests can help us develop tactical algorithms to be deployed in the presence of black swans. Fourth, the length of MC backtests can be expanded for as long as needed to achieve a targeted degree of confidence. This is helpful in that MC backtests avoid the indetermination inherent to working with finite datasets. The Criticism of MC Backtest Investors are sometimes skeptical of MC backtests, because they compute the performance of investment algorithms on synthetic data, which may not be representative of future realizations of the true DGP. This skepticism is misplaced, for two reasons: (a) estimating a DGP is not necessarily a harder problem than forecasting the markets. It is intellectually incoherent to assume that, on one hand, statistical methods can lead to successful investment outcomes but, on the other hand, statistical methods cannot identify a DGP; (b) the observations used by WF and RS are unlikely to reoccur in the future exactly as simulated, and the paths generated by MC are not necessarily less likely. Another concern is that a researcher may select a DGP that is particularly favorable to the investment algorithm. This concern is also misplaced: the MC method explicitly declares the assumptions underlying the performance simulations, so if the DGP is unrealistically favorable to the algorithm, the investor can object. In contrast, the WF and RS methods imply those assumptions through the selection of the historical dataset used by the simulations, obfuscating the dangers of selection bias and confirmation bias Examples of DGPs A Monte Carlo randomly samples new (unobserved) datasets from an estimated population or DGP, rather than from an observed dataset (like a bootstrap would do). Monte Carlo experiments can be parametric or non-parametric. An instance of a parametric Monte Carlo is a regime-switching time series model (Hamilton [1994]), where samples are drawn from alternative processes, n=1,…,N, and where the probability pt, n of drawing from process n at time t is a function of the process from which the previous observation was drawn (a Markov chain). Expectation-maximization algorithms can be used to estimate the probability of transitioning from one process to another at time t (the transition probability matrix). This parametric approach allows researchers to match the statistical properties of the observed dataset, which are then replicated in the unobserved dataset (see Franco-Pedroso et al. [2019]).

One potential caveat of parametric Monte Carlo is that the DGP may be more complex than a finite set of algebraic functions can replicate. When that is the case, non-parametric Monte

Carlo experiments may be of help, through the use of variational autoencoders, self-organizing maps, or generative adversarial networks (De Meer Pardo [2019]). These methods can be understood as non-parametric, non-linear estimators of latent variables (similar to a non-linear PCA). An autoencoder is a neural network that learns how to represent high-dimensional observations in a low-dimensional space. Variational autoencoders have an additional property which makes their latent spaces continuous. This allows for successful random sampling and interpolation and, in turn, their use as a generative model. Once a variational autoencoder has learned the fundamental structure of the data, it can generate new observations that resemble the statistical properties of the original sample, within a given dispersion (hence the notion of "variational"). A self-organizing map differs from autoencoders in that it applies competitive learning (rather than error-correction), and it uses a neighborhood function to preserve the topological properties of the input space. Generative adversarial networks train two competing neural networks, where one network (called a generator) is tasked with generating simulated observations from a distribution function, and the other network (called a discriminator) is tasked with predicting the probability that the simulated observations are false given the true observed data. The two neural networks compete with each other, until they converge to an equilibrium. The original sample on which the non-parametric Monte Carlo is trained must be representative enough to learn the general characteristics of the DGP, otherwise a parametric Monte Carlo approach should be preferred. See López de Prado [2019] for additional details. The Tactical Algorithmic Factory The WF and RS backtesting methods attempt to find "all-weather" algorithms, that is, strategic investment algorithms that are not associated with a particular DGP, and are deployed under all market conditions. The notion of strategic (all-weather) investment algorithms is inconsistent with the fact that markets go through regimes, during which some algorithms are expected to work and others expected to fail. Given that markets are adaptive and investors learn from mistakes, the likelihood that truly all-weather algorithms exist is rather slim (an argument often wielded by discretionary portfolio managers). And even if all-weather algorithms existed, they are likely to be a rather insignificant subset of the population of algorithms that work across one or more regimes. In contrast to WF and RS backtests, MC backtests help us define the precise sensitivity of an investment algorithm to the characteristics of each DGP. Once we understand what characteristics make the algorithm work, we can deploy it tactically, while monitoring the idoneity of market conditions, and derive the appropriate ex-ante risk allocations. When used in this way, MC backtests allow us to trade the algorithms rather than the markets. Under this investment paradigm, a firm will develop as many tactical investment algorithms as possible (López de Prado [2018], chapter 1), and then deploy only those algorithms that are certified to work under the prevalent market conditions. These algorithms are DGP-specific, not instrument specific: the same

algorithm will be deployed tactically on different instruments over time, when those instruments temporarily follow the DGP associated with that algorithm. The main difference between the tactical algorithmic factory (TAF) approach and the strategic algorithmic factory (SAF) approach is that TAF's objective is to develop DGP-specific algorithms, which are not required to work all the time. Instead, TAF's algorithms only need to work during the DGP for which they have been certified. DGP Identification MC backtests allow researchers to pose the algorithm selection problem in terms of a DGP identification problem. This is advantageous, because finding an algorithm that works well across all possible DGPs is much more challenging than estimating what is the current DGP (which in turn determines the algorithm that should be run at a given point in time). Also, from a mathematical perspective, identifying the optimal algorithm associated with a particular DGP is a well-defined problem.3 One practical way of identifying the prevailing DGP is as follows: First, through MC backtests, develop many tactical investment algorithms for a wide range of DGPs. Second, select a sample of recent market performance. Third, evaluate the probability that the sample of recent market performance was drawn from each of the studied DGPs. This probability can be estimated through different methods, the total variation distance, the Wasserstein distance, the Jensen-Shannon distance, some derivation of the Kullback-Leibler divergence, or the Kolmogorov-Smirnov test. The resulting distribution of probability can then be used to allocate risk across the algorithms developed by the TAF. In other words, an ensemble of optimal strategies is deployed, and not only the most likely optimal strategy. In practice, it takes only a few recent observations for the estimated distribution of probability to narrow down the likely DGPs. The reason is, we are comparing two samples, where the synthetic one is comprised of potentially millions of datapoints, and it typically does not take many observations to discard what DGPs are inconsistent with recent observations. Another possibility is to create a basket of securities with a returns distribution that matches the distribution of a given DGP. Under this alternative implementation, rather than estimating the probability that a security follows a DGP, we create a synthetic security (as a basket of securities) for which a given algorithm is optimal. One virtue of running an ensemble of optimal algorithms is that the ensemble strategy does not correspond to any particular DGP. This allows the ensemble strategy to dynamically and smoothly transition from one DGP to another, and even profit from a never-seen-before DGP.

6. Conclusions

Conversations around data science typically contain a lot of buzzwords and broad generalizations that make it difficult to understand its pertinence to governance and policy. Even when well-articulated, the private sector applications of data science can sound quite alien to public servants. This is understandable, as the problems that Netflix and Google strive to solve are very different than those government agencies, think tanks, and nonprofit service providers are focused on. This does not mean, however, that there is no public sector value in the modern field of data science. With qualifications, data science offers a powerful framework to expand our evidence-based understanding of policy choices, as well as directly improve service delivery.

To better understand its importance to public policy, it's useful to distinguish between two broad (though highly interdependent) trends that define data science. The first is a gradual expansion of the types of data and statistical methods that can be used to glean insights into policy studies, such as predictive analytics, clustering, big data methods, and the analysis of networks, text, and images. The second trend is the emergence of a set of tools and the formalization of standards in the data analysis process. These tools include open-source programming languages, data visualization, cloud computing, reproducible research, as well as data collection and storage infrastructure.

Perhaps not coincidentally, these two trends align reasonably well with the commonly cited data science Venn diagram. In this diagram, data science is defined as the overlap of computer science (the new tools), statistics (the new data and methods), and critically, the pertinent domain knowledge (in our case, economics and public policy). While it is a simplification, it is still a useful and meaningful starting point. Moving beyond this high-level understanding, the goal of this paper is to explain in depth the first trend, illuminating why an expanded view of data and statistics has meaningful repercussions for both policy analysts and consumers of that analysis.

TRADITIONAL EVIDENCE-BUILDING FOR POLICY ANALYSIS

Using data to learn about public policy is not at all new. The origins of the social sciences using statistical analysis of observational data goes back at least to the 1950s, and experiments started even further back. Microsimulation models, less common but outsized in their influence, emerged as the third pillar of data-driven policy analysis in the 1970s. Beyond descriptive statistics, this trifecta—experiments, observational statistical analysis, and microsimulation—dominated the quantitative analysis of policy for around 40 years. To this day, they constitute the overwhelming majority of empirical knowledge about policy efficacy. While recent years have seen a substantial expansion in the set of pertinent methods (more on that below), it is still critical to have a strong grasp of experiments, observational causal inference, and microsimulation.

THE EXPANDED METHODS OF DATA SCIENCE FOR POLICY ANALYSIS

Nothing discussed above falls outside the field of data science. These approaches all use data, programming, and statistics to infer meaningful conclusions about the world. Still, the term "data science" has some value, as it connotes a broader set of methods and data types than is traditional to the field of policy analysis. While many of these methods have existed for a long time, the proliferation of new and diverse data sources means this expanded toolkit should be more widely understood and applied by policy analysts. Many of the methods detailed below fall into the field of machine learning, but in this case, that terminology complicates the issue without adding much clarity.

WHY DATA SCIENCE MATTERS TO PUBLIC POLICY AND GOVERNANCE

Evaluating data is becoming a core component of government oversight. The actions of private companies are more frequently in databases than file cabinets, and having that digital information obscured from regulators will undermine our societal safeguards. Government agencies should already be acting to evaluate problematic AI-hiring software and seeking to uncover biases in models that determine who gets health interventions. As algorithmic decision-making becomes more common, it will be necessary to have a core of talented civic data scientists to audit their use in regulated industries.

Even for public servants who never write code themselves, it will be critical to have enough data science literacy to meaningfully interpret the proliferation of empirical research. Despite recent setbacks—such as proposed cuts to evidence-building infrastructure in the Trump administration's budget proposal—evidence-based policymaking is not going anywhere in the long term. There are already 125 federal statistical agencies, and the Foundations of Evidence Based Policymaking Act, passed early last year, expands the footprint and impact of evidence across government programs.

"Even for public servants who never write code themselves, it will be critical to have enough data science literacy to meaningfully interpret the proliferation of empirical research."

Further, the mindset of a data scientist is tremendously valuable for public servants: It forces people to confront uncertainty, consider counterfactuals, reason about complex patterns, and wonder what information is missing. It makes people skeptical of anecdotes, which, while often emotionally powerful, are not sufficient sources of information on which to build expansive policies. The late and lauded Alice Rivlin knew all this in 1970, when she published "Systemic Thinking for Social Action." Arguing for more rigor and scientific processes in government decision-making, Rivlin wrote a pithy final line: "Put more simply, to do better, we must have a way of distinguishing better from worse."

How to encourage data-scientific thinking and evidence-based policies

The tools and data to distinguish better from worse are more available than ever before, and more policymakers must know how to use and interpret them. A continued expansion of evidence-based decision-making relies on many individuals in many different roles, adopting practices that encourage data-scientific thinking. Managers in government agencies can hire analysts with a rigorous understanding of data in addition to a background in policy. They can also work to open up their datasets, contributing to Data.gov and the broader evidence-based infrastructure. Grant-making organizations have a critical role, too. They should be mandating an evaluation budget—at least 5% of a grant—to collect data and see if the programs they are funding actually work. When they fund research, it should require replicable research and open-data practices.

Company administration is a formal insolvency process designed to rescue viable elements of a struggling business, or else increase returns for outstanding creditors. An insolvency practitioner will be appointed as part of the process, and they will assume control of the company whilst it remains in administration.

If your company is being threatened by creditors (i.e. - a landlord, HMRC, your bank, credit card companies, etc.) and you fear that you could be taken to Court and put out of business, then continue reading to find out how an administration order could protect your company from liquidation and dissolution:

If you don't feel like reading the following guide and you have a specific question that needs answering, feel free to send us an email or call us for free advice.

Company Administration
Free 60 Second Test
Our Confidential Test will help your understand your:

- Debt and Asset Position
- Liability for Company Debts
- Next Steps to Take

Plus much more ... When is it Ideal for a Company to Enter into Administration?

Before we tell you more about the process you should consider the following points to make sure it is appropriate for your company to enter into administration:

1. The business should be insolvent or contingently insolvent, and should have a significant amount of assets and/or value. Cash flow and profitability should be reasonably predictable.
2. Creditor pressure is present and there is a concern that the company could be taken to Court in the near future. Often creditors have already made threats to force the business into compulsory liquidation in order to recover what is owed to them.
3. If the company has very little assets and is also lacking in cash flow then a creditors' voluntary liquidation (CVL) would be a more suitable solution. If creditors are not yet threatening legal action but you're concerned that they may start soon then you may want to attempt a company voluntary arrangement (CVA).

To be absolutely sure that administration is the best route for your company speak with one of our insolvency practitioners today.

What are the Advantages and Disadvantages of Administration?

Advantages:

- Any legal actions being taken by creditors are immediately stayed, which means your company would be protected from the possibility of compulsory liquidation or any other negative legal action during the administration.
- Puts the company in the hands of a licensed insolvency practitioner acting as the administrator. This ensures that all actions taken during administration are carried out with the interest of the company and its creditors in mind.
- Keeps the financial position of the creditors from worsening.
- The administrator is given time to communicate a clear picture of the company's finances to its creditors and outline the ways in which the administrator intends to conduct the administration and how the administrator intends to realise funds for creditors.
- If a pre-pack is arranged then the continuity of the business can be protected.
- During the procedure the administrator can propose a company voluntary arrangement (CVA).

Disadvantages:

- During administration your directors are no longer in control of the affairs of the company.
- The administration becomes a matter of public knowledge because correspondence with all creditors and clients must include a note that specifies the company is "in administration" next to the company name. For example, your company name printed on your invoices would have to appear as “Example Company Ltd. (In Administration).” Furthermore, the administrator is required to notify all creditors and employees that the business is under administration.
- The bank or one of your creditors may have the right to appoint their own administrator.
- Given the fact that the cost of administration can be quite excessive we usually only recommend it for companies that have decent cash flow but are being threatened by aggressive creditor action.
- If a Pre-Pack administration is carried out then TUPE regulations will apply, which means you'll have to transfer the employees and their contracts over to the “newco.” This can create a problem if the budget of the “new company” cannot afford to cover the payroll of the old company.

Who Has the Ability to Appoint an Administrator?

The directors of a company can elect to voluntarily enter into administration with the assistance of a licensed insolvency practitioner. Alternatively, the company can be put into administration by the holder of a floating charge under a debenture granted after 15th September 2003.

If the charge is held on a debenture that was granted before that date then they would be able to put your company into administrative receivership. Keep in mind that even if the directors of your company are the ones who initiate the administration it is possible for the bank, or another holder of a floating charge, to appoint their own administrator at their discretion.

How long can a company be in administration

The administrator must submit their proposals to creditors within 8 weeks of the commencement of administration. After submitting their proposals and having them approved the administrator can take up to several months to carry out the administration as planned. Overall, an administration is supposed to last no longer than 1 year, but this time limit can be extended by the Court, or through the consent of the company's creditors. It can take 1-2 weeks to organise a pre pack administration.

Our licensed insolvency practitioners are experienced in all matters related to company administration. For free advice email us or call us today 0808 253 3826) and we'll help you formulate a plan to get back on track. Real Business Rescue provide director advice online, over the phone, or in-person at one of our 100 UK offices or a place of your convenience.

Economic activity in China continues to track the ups and downs of the pandemic—outbreaks and growth slowdowns have been followed by uneven recoveries. Real GDP growth is projected to reach 2.7 percent this year, before recovering to 4.3 percent in 2023, amid a reopening of the economy, according to *Navigating Uncertainty*, the latest China Economic Update released today by the World Bank.

"Continued adaptation of China's COVID-19 policy will be crucial, both to mitigate public health risks and to minimize further economic disruption," said **Mara Warwick, World Bank Country Director for China, Mongolia and Korea.** *"Accelerated efforts on public health preparedness, including efforts to increase vaccinations especially among high-risk groups, could enable a safer and less disruptive re-opening."*

Public health measures could include focused efforts to increase vaccination rates among vulnerable groups, rollout of a booster campaign, increased access to effective COVID-19 treatments, and efficient use of limited hospital capacity for severe cases.

China's growth outlook is subject to significant risks, stemming from the uncertain trajectory of the pandemic, of how policies evolve in response to the COVID-19 situation, and the behavioral responses of households and businesses. Persistent stress in the real estate sector could have wider macroeconomic and financial spillovers. Risks related to climate change are growing, as demonstrated by this year's extreme weather patterns and the resulting disruption to economic activity. Externally, risks emanate from highly uncertain global growth prospects, greater-than-expected tightening in financial conditions, and heightened geopolitical tensions.

"Continued macroeconomic policy support will be needed, as growth is expected to remain below potential and the global environment is weakening," said **Elitza Mileva, World Bank**

Lead Economist for China. *"Directing fiscal resources towards social spending and green investment would not only support short-term demand but also contribute to more inclusive and sustainable growth in the medium term."* China has adequate fiscal policy space, especially at the central level, that could be deployed to bolster a stronger recovery, alongside easing of COVID-related public health measures.

Increasing youth unemployment rates have highlighted the emergence of another pressing challenge for policymakers. Employment subsidies and public works programs have provided near-term support to youth employment. The report argues in a special topic section that these short-term measures could be complemented with structural measures to strengthen the skillset of youth, improve labor market mobility, address information asymmetries, and strengthen labor market statistics.

So, the global economy is on a razor's edge. Even a small shock can trigger an outright recession.

Host: On this edition of Expert Answers, the attention turns to the global economy as we unpack the latest findings from the January 2023 edition of the Global Economic Prospects report.

The main headline: that the global economy is dangerously close to a recession with global growth sharply declining due to high inflation, deteriorating financial conditions, rising geopolitical tensions and more.

So, what will this mean as we look to the year ahead? Is a global recession imminent, and how can countries overcome these challenges? Well, to answer these questions and more, let's talk to the World Bank's Director of the Prospects Group, Ayhan Kose.

[00:55] Well, Ayhan, it's great to have you back on Expert Answers to talk about the Global Economic Prospects. I know we check in with you and your team every January and June as new additions of the report are launched. Tell me, **what are the headlines for this year?**

WB Expert: This year the big headline is unfortunately, once again, the global economy is in a tight spot. We downgraded our global growth forecast. We are now expecting global growth to be around 1.7%. This is half of almost what we expected six months ago. So, the global economy is on a razor's edge. Even a small shock can trigger an outright recession.

[01:44] **Host:** I want to talk more about a global recession in a minute, but what really struck me this year with this report is **the scope of the slowdown**, right? That the countries, the economies, the people that are affected, the impact seems to be very widespread. Can you talk to me more about that?

WB Expert: Slowdown is a very sharp one, and it is broad-based. Relative to six months ago, when we released the Global Economic Prospects in June, we downgraded our forecast for 2023 for around 75% of countries around the world. For advanced economies, we owngraded this year's forecast for almost all of them. For emerging market developing economies, we downgraded for nearly 70% of them. In the case of advanced economies, we are expecting a very deep downturn. So, they're going to slow from 2.5% last year to 0.5% this year. This is one of the sharpest slowdowns we have seen over the past five decades. And when these types of slowdowns actually take place in advanced economies, they have forested of global recessions.

In the US, we are expecting growth to be around 0.5%. This is a very weak number for the US economy. In the Euro area, growth will be flat, zero, and of course that's not a good outcome either.

So, some people debate whether the US will have a recession, the Euro area will have a recession. Actually, whether they will have a recession or not, they will feel it is like a recession.

In the case of emerging market developing economies, China is critical, and there is a major COVID outbreak in China that will have in the near term negative effects, and they will... these negative effects will translate into [? dollars] to the rest of the world. So, if you take out China, emerging market developing economies growth will slow from 3.5% last year to 2.7% this year. In the case of China, we are hoping that growth will be around 4%, but it is still 1% points almost lower than what we expected six months ago.

[04:12] **Host:** Sure. Let's talk about this a bit more because of course, every forecast carries within some downside risks, right? That conditions could be worse than expected. You might have new factors come into play that exacerbate the situation. You touched upon this a bit in your previous answer, but how real is **the risk of a recession** and do you believe in a so-called, soft landing?

WB Expert: So, now, six months ago, we had a downside scenario. We talked about global economy could slip into a sharp downturn. That scenario has now materialized. So, our downside scenario six months ago became the baseline scenario for 2023, and global growth is really weak around 1.7%. This is the lowest growth rate since the early 1990s, outside of global recessions. The question is whether there will be a global recession.

Now, there is a large menu of risks, and a small shock, materialization of one of these risks, could trigger a global recession. One of these risks is associated with higher interest rates because inflation rates remaining persistently high. We are expecting inflation moderating this year relative to last year, but core inflation might remain elevated, and central banks have to continue increasing interest rates or they keep interest rates at a high level.

So, nowadays, interest rates around at the global level 5%. In the report we discuss one scenario, if global policy interest rates go up to 6%, we might end up seeing recessions in major economies and of course, a global recession. Meaning that, this global growth number I mentioned, 1.7%, could go down to all the way 0.6%. That means, of course, per capita income contracting by about 0.3%, and that is the technical definition of a global recession. And policymakers need to be proactive in an environment with multiple risks. The risk of policy mistakes is also higher.

[06:51] **Host:** I have to ask, from what you've just said here, what does this mean for our **development goals**, for poverty, for inequality in general? Because it doesn't sound good.

WB Expert: That is actually the crux of the argument. When we think about poverty, when we think about inequality, when we think about inclusive growth, when we think about the types of development goals global economy set for itself by 2030. These goals are possible. For us to make meaningful progress in these goals, we need to have sustained, robust growth.

Three years ago, we had a global recession: global economy contracted because of the pandemic. Now, we are in the midst of a sharp downturn. When you look at during the next two years, emerging market developing economies -- per capita income-- in these economies will grow slightly below 3%. That's 1% points lower than what they delivered on average during the previous decade, and we were not happy with that growth performance. So, even weaker per capita income growth.

In the case of Sub-Saharan Africa, which is basically home to 60% of extreme pool. Per capita income growth is going to be barely above 1%. What does that mean? That type of growth is far below what is needed to have meaningful reduction in poverty. So, with these growth outcomes, it is much more difficult for the global community to make serious meaningful progress when it comes to development objectives.

[08:50] **Host:** So, let's talk a bit more about growth. One of the areas of this edition of the report mentions is around **investment growth**, and you highlight a slowdown in that area. Why is that a problem? Why is it going to be bad if we have poor investment growth?

WB Expert: Now, I'm happy you ask that. We go to international meetings. Of course, we have meetings in the World Bank, and there is not much agreement about what are the big global policy priorities. Some people might say the number one priority is power to reduction. Some people might say, "No, no, no. The number one priority is to increase growth, and basically make progress in terms of income convergence." Some others might say, "No, no, no. Number one priority is climate change." But the good news is that everybody agrees there is one solution. We need to have sustained, strong investment growth if we would like to make progress to deliver in these policy priorities. Whether that's climate change, whether that is power to reduction or basically income convergence. What happened is that we basically ended up with a very weak income growth outlook, especially after the pandemic. Prior to the pandemic, investment growth has been slowing, along with of course, income growth.

When you think about the numbers from 2000 to 2009, investment growth around 9% to 10%, from 2010 to 2019 around let's say 5%, so you basically half the number. During the pandemic, 70% of emerging market develop economies experienced outright investment contractions, so investment growth stopped. Since then, investment has been recovering at a very slow pace, and if you compare it with the 2010, again, we were not very happy with that performance. It is almost one third slower pace than what we saw after the global financial crisis. So, when we look at the future, this 5% number I mentioned is not going to be with us. We are going to basically see growth numbers, investment growth numbers around 3% to 4%. So, when we are not investing sufficiently today, it is difficult to generate potential growth, it is difficult to generate productivity growth, and it's difficult to deliver broader development objectives

[10:27] **Host:** On the thing here is, we're not dealing with just one crisis, right? We're dealing with multiple crises, and they bring with them near term and medium term risks. **What can countries do to overcome these challenges?**

WB Expert: There are policy prescriptions at the global level, as well as at the national level. At the national level, policymakers need to take care of their house. They need to make sure their house is in order. So, in the context of short-term policies, frameworks, implementation, flexibility are the keywords. What do I mean by policy frameworks? We need robust frameworks in the context of fiscal policy, monetary policy, and in the context of course, financial policies. Take for example, fiscal policy. We need to have very clear debt sustainability metrics. We need to have a medium term fiscal plan, so we have a good idea about our revenues and expenditures. We are trying to adjust the fiscal policy through this difficult period.

The other important issue, of course, implementation. Sometimes, policymakers pass laws, they're in the books, but they need to be implemented. And the crisis provides great opportunity to enforce policies. And finally, flexibility of policies, critical. Why? We are already in a tight spot, and we have multiple risks confronting the global economy. So, it's important to be flexible, resilient, calibrate the policies as the new shocks emerge.

At the global level, there is no question what we need to do. We need to collaborate to address these global problems. Of course, that starts with the peace in Europe. We need to basically find ways to work even more aggressively to address the climate change challenge. We need to find ways to address the food insecurity in many countries, and we need to have robust frameworks to have quick and durable solutions in the context of debt related challenges we have.

[13:01] **Host:** So, let's talk more about countries in particular, because another part of the addition this year, which I found particularly fascinating, is on **the plight of small states**. Now, these are countries that have a population of 1.5 million people or less. Tell me more about small states. Why are they significant? What are the issues that they've been facing and might continue to face if their economic situation were to worsen?

WB Expert: Yes, small states are like the canaries in the coal mine. In the sense that they tell us the magnitude of these shocks, we are experiencing, consequences of these shocks, and what might happen next.

In the report, we are looking at 37 small states. These are emerging market developing economies. They do not have diversified production basis. They rely on small number of goods. Most of the time, they rely on tourism. Most of them are small island states. They are quite open to trade, and they of course, import a lot of energy and food. So, what happened during the past three years created this perfect storm for these economies in the sense that during the pandemic, tourism collapsed primarily because of that, these economies contracted by about 11% in 2020. And this is seven times more than what happened in a typical emerging market developing economy.

Since then, of course, there were new shocks emerged. The shock associated with the Russian invasion of Ukraine created this turmoil in food markets, in energy markets. And of course, they translated into a negative shock, another negative shock for these small states.

Now, a number of them are highly indebted. Financing conditions have been getting tighter. It is becoming more difficult for them to basically make the [date -sic] debt payments. So, the recovery has been very slow in all likelihood that slow recovery will be with us for the foreseeable future.

It is very important to talk about the bigger challenge of climate change in the context of small states. These small states are very vulnerable to climate-related shocks, especially in the context of natural disasters. I mean, we see that the frequency of natural disasters has been increasing over time. And the typical natural disaster shaves of 5% of GDP on average in small state., this is much, much larger than what a typical emerging market developing economy experiences.

So, in a nutshell, small states actually are the perfect laboratory. When we think this, the adverse impact of these shocks, especially the climate-related shocks. National policymakers in small states need to undertake policies to make their economies resilient. And there is no question about that, and these policymakers do know that. But the room for policy implementation is limited. So, small states have unfortunately large problems. Global community needs to provide help, and that help should be quite sizable.

Host: I mean, what you just said about their economic output falling 11% in 2020. I mean, that to me, that's a pretty massive statistic. So, to me, from what you've just said, it sounds like there really is a lot at stake when it comes to small states.

WB Expert: Indeed, there is a lot of stake. 11% contraction, you might call that a depression. So, the challenge is that, when we look at, for example, how they have been recovering, they have been recovering, as I mentioned, very slowly. We are hoping that this year they are going to go back to their pre-crisis GDP level. Emerging market, developing economies actually recovered within two years. Advanced economies recovered very quickly, but recovery has been very slow because of this multiple crisis global economy has been experiencing, and each of this crisis has been really hitting these economies.

[15:29] **Host:** So, Ayhan, we have unpacked a lot here today, and I know a lot of it has been pretty grim, but in the spirit of the new year, I have to ask, can you give me some **good news about the global economy**?

WB Expert: Yes, good news. Good news are there. First of all, there is greater recognition of the inflation problem. Especially during the past year, major central banks, central banks in emerging market developing economies have been acting decisively to get ahead of the inflation problem. Six months ago, we talked about the threat of stagflation, but the policymakers acted decisively. So, we think that inflation will moderate, and that's good news. I think second piece of good news is on the financial stability front. Despite repeated interest rate increases, financial sector has been resilient. This does not necessarily mean that there are some cracks here and there in the system. We will see this year, hopefully there won't be a major crack. And I think the third important news, when we look back 2022, there is greater recognition by the global community: the need that there should be larger resources to address the climate change problem.

I'm not saying that we are making sufficient progress, but we can make no progress if we do not recognize the magnitude of the problem and the magnitude of resources needed to solve that problem. I think we have made good progress last year in terms of acknowledging the problem and acknowledging the need to address this problem. In this context, investment is critical. We raise the issue of investment weakness. Of course, without significant infrastructure investment, we cannot overcome the climate challenge. So, it is a demo outlook, but I think there are good reasons to be optimistic and we should look to the future, stay on course, and on the part of policymakers deliver what is necessary in a credible fashion.

Host: And perhaps, as you said, not only does it let us look ahead, but these moments really offer up a chance to reflect on what we've been doing.

WB Expert: Indeed.

[18:13] **Host:** Well, Ayhan, **thank you** again so much for joining me on Expert Answers, and unpacking some of the findings from this year's Global Economic Prospects report. Really appreciate it. Thank you.

WB Expert: Thank you. Thank you, Sri.

Host: Thank you so much.

Several crucial yet sobering messages coming to the fore from our conversation here today. You can of course get your very own copy of the Global Economic Prospects report. It's available now, and it is chockfull of analysis and data on the topics that we've touched upon here today. And there is also a special focus in this edition on investment growth prospects, post pandemic, as well as the plight of small states.

To get your own copy, head on over to our website, www.worldbank.org/gep, G-E-P. That's it for this edition of Expert Answers. We'll see you again next time. Goodbye.

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