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"Education-Research-Innovation" (IMCERI-2022)
(Law, Economic, IT & Innovation, Education, and Medical
Sciences)

Tirana, Albania, December 13th, 2022



In Cooperation with :



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"Constitutional incompatibility of the phrase 'without initially obtaining permission from the competent authority according to special provisions' in the first paragraph of Article 262 of the Criminal Code of the Republic of Albania".

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Abstract

The right to protest is a constitutional right. As such, the criminal code must act in support of the exercise of this right, i.e., punish the hampering of the lawful exercise of this right. Therefore, it cannot be restricted by an administrative act permit, which enables maintaining the exercise of this right, and even more, the failure to obtain this permit constitutes a cause for criminal liability.

Keywords: *Constitution, criminal code, liability, gathering, demonstrations, Shkoder Appeal Court.*

Introduction

Based on a particular case, this article analyses the constitutionality of Article 262/1 of the Criminal Code regarding the right to gather and manifest.

For this analysis, a comparative method was used, approaching the existing legal framework, legal doctrine, and legal practice.

Criminal context

Article 262 of the Criminal Code (CC) "Organization and participation in unlawful gatherings and demonstrations" is part of the criminal offenses against "Public order and safety". The group object of this section (Chapter VIII, Section III) is composed of the legal relations established to ensure the normal and peaceful functioning of public order and safety. Whereas the direct object of articles 261-263 CC is, respectively for article 261 CC the legal relations that guard the legal exercise of freedom of speech by citizens and that of gathering and manifestation, as a form of freedom of speech, and for articles 262, 263 CC legal relations that protect order and public safety from direct infringement of illegal (Article 262 CC) and armed (Article 263 CC) exercise (organization and participation) on these gatherings and demonstrations.

Citizens' freedom of 'speech, gathering, and manifestation' is a fundamental right protected by the European Convention on Human Rights and the Constitution:

ECHR

"Everyone has the freedom right and peaceful gathering... (Article 11)"

Constitution

"The freedom of peaceful and unarmed gatherings, as well as participation in those, is guaranteed (Article 47)"

Specifically, in implementation of the Constitution and for the protection of this fundamental freedom of individuals, the Criminal Code punishes the obstruction of the exercise of this right:

Criminal Code

Article 261 - Obstacle in the exercise of the right to express, gather, or manifest.

*"Carrying out actions to **prevent citizens** from exercising **the freedom of speech, gathering or manifestation** constitutes a criminal offense and is punishable by a fine or imprisonment up to six months."*

On the other hand, the Criminal Code safeguards peaceful order and public safety, punishing their violation through the organization or participation in gatherings (gatherings and demonstrations) with weapons:

Article 263 CC - Organization of illegal gatherings and demonstrations with the participation of armed people.

*"**The organization** of illegal gatherings and demonstrations with the participation of **armed** people is punishable by a fine or imprisonment up to three years.*

***Participation** in illegal gatherings and demonstrations of **armed** people constitutes a criminal offense and is punishable by a fine or imprisonment for up to one year.*

But the peaceful operation of order and public safety cannot be violated simply through the means of "weapons" (armed persons). Any other violation of the peaceful functioning of order and public safety, through the illegal exercise of the right to assemble or manifest, was included in the:

Article 262 CC - Organization and participation in illegal gatherings and demonstrations:

*"The organization of gatherings and demonstrations of people in public areas and places of passage, **'without first permission from the competent authority according to special provisions'** or when*

the organizers violate the conditions outlined in the request for permission, constitutes a criminal offense and shall be punished by a fine or imprisonment up to one year.

Even after the warning for dispersal, participating in an illegal gathering or demonstration constitutes a criminal offense and is punishable by a fine or imprisonment of up to three months.

This act committed more than once or when it has brought serious consequences, constitutes a criminal violation and is punishable by a fine or imprisonment of up to two years."

We emphasize that not every illegality constitutes a criminal offense, but the illegality must be socially dangerous, in the actual case, to harm the peaceful function of order and public safety, an object of Chapter VIII itself, where Article 262 of the Criminal Code is a part. *"Violation of the conditions outlined in the request for permission"* is presumed to potentially endanger this peaceful function, while *"Participation in an illegal assembly or demonstration even after warning to disperse"* directly threatens this peace, and even more so when these actions are performed more than once. And the cases where these actions *"have brought serious consequences"* have, even seriously, harmed this peaceful operation.

What about simply administrative illegality *'without first obtaining permission from the competent authority according to special provisions'*, does it meet the necessary criminal social risk to violate the object of the peaceful functioning of order and public safety? And if not, does this penalty itself turn into an offense that violates the direct object of Article 261 of the Criminal Code, i.e., the conventional-constitutional right *"to express, gather or manifest"*?

Decision no. deals with this report. 24 dated 04.05.2021 of the Constitutional Court to revoke the phrase "without initially obtaining permission from the competent authority according to special provisions" as incompatible with the Constitution.

The circumstances of the case

In March 2017, during the Prime Minister's visit to Shkodra, a group of young people, including the citizen with the initials A.B. (politically involved), protested this visit. According to the report of the police authorities, these people tried to go out on the street but were not permitted by the police forces. After evaluating the film footage of the event, the officers of the Judicial Police compiled a report, and based on the materials collected for the incident, they referred this to the prosecutor's office.

The Prosecutor's Office of Shkodra Judicial District has filed in the Shkodra Judicial District Court

the demand for the trial of the criminal case against the defendant A.B., for the conviction of the criminal offense *"Organization and participation in illegal gatherings and demonstrations"*, provided by the first paragraph of Article 262, of the Criminal Code.

The Court of the Shkodra Judicial District decided: *"The guiltiness of the defendant A.B., for committing the criminal offense of "Organizing and participating in illegal gatherings and demonstrations", provided by article 262, point 1 of the Criminal Code and his punishment with a fine of 90,000 ALL.*

Defendant A.B. appealed against the decision of the Shkodra Judicial District Court.

The Shkodra Court of Appeal, with an interim decision, suspended the review of the case and addressed to the Constitutional Court with a request with the object: *"Revocation of the phrase "without first obtaining permission from the competent authority according to special provisions" in the first paragraph of Article 262 of the Criminal Code, as incompatible with Articles 17, point 1 and 47 of the Constitution."*

From the case circumstances, it can be understood that it is about the failure to obtain prior permission from the competent authority, and not the *violation of the conditions in the request for the granting of the permit* because the latter would mean obtaining the permit and violating the conditions in compliance where this permission has been granted. Also, from the circumstances of the case, it appears that it is not a case of making a prior request and declining this request (granting permission), but not forwarding a request at all and thus organizing the protest without having this prior permission. This protest, again due to the circumstances of the case, was not unpeaceful, so it neither hindered freedom of movement nor threatened public safety. Encountered with these facts, the competent authority would have a double obligation: the implementation of Article 262/1 CC or the guarantee of the constitutional right of peaceful gathering, for the protection of which Article 261 of CC itself is provided. On the other hand, the individual, according to the first paragraph, must be an organizer. And being A.B., according to the circumstances of the case, as a politically engaged person, does not automatically make him an organizer, but simply a participant according to paragraph II (Article 262). But to be illegally responsible as a participant according to Article 262/2, not only must the participant be notified in advance of the dispersal, but this gathering (protest) itself must be illegal; and in the present case, illegal according to paragraph I (Article 262), that is, *prior permission was not obtained from the competent authority according to special provisions*, as we explained above, we are not facing the case of 'violating the conditions outlined in the request' for granting permission.

But itself, is this 'illegality' (not acquiring prior permission) required by article 262/1 of the Criminal Code, legal?

Legal basis of restrictions

ECHR - ARTICLE 11. Freedom to gather and organize.

2. The exercise of these rights cannot be subject to restrictions other than those provided by law, and which are necessary in a democratic society, in the interest of national security or public safety, for the protection of order and the prevention of crime, for the preservation of health or morals, or for the protection of the rights and freedoms of others.

This article does not forbid legal restrictions on the exercise of these rights by members of the armed forces, the police, or the state administration.

CONSTITUTION - Article 17

1. Limitations of the rights and freedoms provided in this Constitution can only be imposed by law for the public interest or for the protection of the rights of others.

The restriction must be proportionate to the situation that dictated it.

Article 47

2. Peaceful gatherings in areas and places of public transit are held according to the procedures provided by law.

The special law "On gatherings"

Article 3 - Duties of the State Police

1. The State Police guarantees and protects the right of every person to organize and participate in peaceful and unarmed gatherings. Preventing or dispersing a gathering is allowed only in the cases provided for in this law.

Article 5 - Notification of the State Police

1. In the event of a gathering in public squares or walkways, the organizer and leader are obliged to notify the head of the police station in writing no later than three days before the date of the gathering.

Article 12- Gatherings in places available to the public

1. Gatherings in places available to the public are held even without prior notification of the police, according to Article 5 of this law.

Interpretations

Based on the jurisprudence of the ECHR, the Court of Appeal of Shkodra accurately emphasized that without obtaining a permit, even exceeding the conditions of the permit (alternative II of Article 262/1), cannot serve as a basis to legitimize the dispersion of the gathering. Even more, the criminal prosecution of participants and organizers and their punishment with the deprivation of their liberty would constitute a serious violation, not only of the proportionality (proportion) of the condition restriction (punishment) but also of the fundamental rights of peaceful gathering. Also, Article 262 of the Criminal Code is not by Law no. 8773/2001 "On Gatherings", because Article 5/1 simply requires written notification from the Head of the police station and not permission from him. Even the term 'notice' has the meaning of notice, and not that of 'request' that awaits a permission (approval) response.

In this sense, the claim of the Council of Ministers that, "even though the term "permit" is used in the code, it means prior notification (based on law no. 8773/2001 on "Gatherings") and prior notice is not opposing to the essence of Article 11 of the ECHR", is wrong, because it seeks to equate 'notification' with the 'permit', and thus burden the conditions for the exercise of freedom of gathering, contrary to the very spirit of the ECHR and the Constitution (Article 47).

ECHR itself has acknowledged that the right to peacefully gather should not be interpreted narrowly (Kudrevičius and others v. Lithuania 2015)¹, and therefore the State Authorities have a positive obligation to facilitate and protect the exercise of this right.

The ECHR has recognized that the freedom of peaceful assembly is not absolute but may be subject to restrictions following paragraph 2 of Article 11 of the Convention. But interference in exercising this right should not constitute a complete prohibition, legal or de facto, but may consist of other various measures carried out by the authorities (Kudrevičius and others v. Lithuani, 2015).²

Specifically, in this direction, Article 47 (2) of the Constitution, exhibits that "*peaceful gatherings in areas and places of public passages are held according to the procedures provided by the law*" since in these types of cases, the exercise of the freedom of peaceful gathering affects the exercise of the freedom of movement of other citizens, guaranteed by Article 38 of the Constitution.

Regarding these procedures, the Venice Commission states that national legislation regulating freedom of gathering must signify 3 main principles:

¹ European Court of Human Rights. (2015). Kudrevičius and others v. Lithuania [Judgment]. § 91

² European Court of Human Rights. (2015). Kudrevičius and others v. Lithuania [Judgment]. § 91 & 100

- a) the positive obligation of the state to actively protect peaceful and legal gatherings.
- b) the presumption in favor of gatherings, as a result of which, the legislative authorities have at their disposal "a wide spectrum" of possible restrictions that do not interfere with the essence of the right.
- c) proportionality, as one of the main criteria that should guide the state when imposing restrictions. This involves achieving a fair balance between the interests of those seeking to exercise the right of gathering and the general interests of the rest of the community (Venice Commission. 2014)³.

Precisely in the essence of the ECHR and the Constitution, the legislator with the Law no. 8773/2001 "On Gatherings" repealed the Law no. 8145, dated 11.09.1996 "On the rights of gatherings", which in its article 4 provided: *"for gatherings in public places, the organizers are obliged to request the written permission from the Head of the police station."*

Thus, as regards the gatherings in public areas or walkways, as happened in the current case, article 5, point 1 of this Law *claims "the obligation of the organizer and leader to notify in writing the Head of the police station no later than three days before the date of the gathering"*, though not the obligation to request (obtain) permission, as it was in the revoked law. Even in Article 12/1 "Gatherings in places open to the public" it is highlighted that: *"Gatherings in places open to the public are held even without prior notice for the police, according to Article 5 of this law."*

The ECtHR has held that notification, even authorization procedures for a gathering, normally do not violate the essence of the right under Article 11 of the Convention, if the purpose of the procedure is to allow the authorities to take reasonable and appropriate measures to guarantee the ongoing of every gathering (Sergey Kuznetsov v. Russia 2019, Butka and Others v. Hungary 2007, Rassemblement Jurassien Unite Jurassienne v Switzerland, 1979)⁴.

The notification act, according to the opinion of the Parliament that approved the Law, **serves two purposes: on the one hand, it serves the participants in the rally to peacefully progress their freedom through the obtainment of mitigating measures by the Police, and, on the other hand, it serves the citizens who do not participate in the rally to exercise their rights and freedoms.**

³ Council of Europe, Venice Commission. (2014). Report on the Rule of Law. page 12-15

⁴ European Court of Human Rights. (2019). Sergey Kuznetsov v. Russia [Judgment].§ 42; Grosche, D. (2007b, October 17). Butka and Others v. Hungary (25691/04) § 35; Rassemblement Jurassien Unite Jurassienne v Switzerland, App. No. 8180/78, Eur. Court H.R. (1979).§ 119

This dual purpose is also expressed in the spirit of the Venice opinion, according to which this type of notification enables the state to take measures to facilitate the assembly or to protect public order, public safety, and the rights and freedoms of others (Council of Europe, Venice Commission 2019).⁵

Legal safeguard

The phrase "*without first obtaining permission from the competent authority corresponding to special provisions*" is part of the initial text of the CC, approved by law no. 7895, dated 27.01.1995, and has not been subject to any subsequent amendments, neither with the adoption of the Constitution in 1998 nor with the revision of law no. 8733, dated 24.01.2001.

According to the Constitutional Court, Article 262 is a norm that affects human rights, as it provides criminal punishment in cases of non-compliance. In this sense, it must be able to balance the right of the state to ensure public and social order, on the one hand, with the rights and freedoms of the individual, on the other hand (Constitutional Court, Decision no. 47, 2012).⁶ Considering the significance of criminal legislation and especially the effect of criminal punishments on human rights, the Court considers that criminal norms must respect the principle of legal certainty, which requires that their content be clear, defined, and logical (Constitutional Court, Decision no 9, 2007).⁷ An incorrect regulation of the legal norm, which leaves the path for the implementer to give it a different meaning and brings consequences, does not follow the purpose, stability, reliability, and effectiveness aimed at by the norm itself. (Constitutional Court of Albania, Decision no. 10, Constitutional Court of Albania. Decision no. 36, 2007)⁸ The intended results must be expected and the consequences predictable for the subjects to whom the law as a whole or its special provisions addressed (Constitutional Court of Albania, Decision no. 1, 2017).⁹

In the actual case, the Court finds that Article 262, the first paragraph of the Criminal Procedure Code uses the expression "without initial consent from the competent authority according to special provisions", for gatherings in public squares or walkways; while the law no. 8773/2001 for these

⁵ Council of Europe, Venice Commission. (2019). Opinion on the Draft Amendments to the Electoral Code of Albania. CDL-AD(2019) 017, page. 10.

⁶ Constitutional Court of Albania. (2012, June 27). Decision no. 47.

⁷ Constitutional Court of Albania. (2007, February 26). Decision no. 9.

⁸ Constitutional Court of Albania. (2015, February 26). Decision no. 10; Constitutional Court of Albania. (2007, October 15). Decision no. 36.

⁹ Constitutional Court of Albania. (2017, January 16). Decision no. 1.

types of gatherings stipulates that the State Police must be notified in writing. The word "permission" means approval, or the right given to someone to do something, to perform certain duties or activities, to use or receive something, while the word "notice" means to notify or notify someone (Dictionary of the Albanian Language, 2006)¹⁰. From this etymological comparison, it is found that it is a question of two different terms, which include two different types of behavior, in which the permit protects only the citizens who do not participate in the gathering, while the notification serves not only them but also participants in the rally. These two terms are not in synchronization with each other to the extent that they create uncertainty and ambiguity, causing the violation of the principle of legal certainty by the provision under review. In this situation, the organizers and participants in the rally are confused as to which law they should refer to exercise the freedom of assembly and not bear criminal responsibility, i.e., if they should get a permit (submit a request and wait for confirmation) or if they must simply give notice in writing. The same ambiguity is created for the State Police and criminal prosecution bodies.

In the case under review, the Court assesses that the phrase "without first obtaining permission from the competent body according to special provisions", even though at first sight it seems to conflict with law no. 8773/2001, in fact, it violates the constitutional freedom of assembly, being incompatible with Article 47 of the Constitution, based on which Law no. 8773/2001 (Constitution of the Republic of Albania, 2016).

Conclusion

In the essence of Article 11 ECHR, which *"This article does not exclude legal restrictions on exercising these rights by members of the armed forces, the police or the state administration."*, the legal restriction must be in function of the Article 47 of the Constitution, according to which *"Freedom of peaceful and unarmed gatherings, as well as participation in those, is guaranteed"*. Only *proportional* restrictions *against armed and non-peaceful gatherings* that threatens *the public interest or the protection of the rights of others* (Article 17/1 of the Constitution) are legal. As such, the Criminal Code has provided for *Article 263 (Organization of illegal gatherings and demonstrations with the participation of armed people)* and *Article 262: when the organizers violate the (peaceful) conditions outlined in the request for permission and the relevant qualifying circumstances* (Article 262, paragraphs 2, 3). These non-peaceful violations (violations) of the public

¹⁰ Academy of Sciences of Albania, Institute of Linguistics and Literature. (2006). Dictionary of the Albanian Language, pages 534 & 713

interest or the rights of others are simultaneously protected from other criminal offenses against public order and safety (Chapter VIII, Section III), against state activity (Chapter VIII, Section I), against the person (Chapter II), etc.

Then the question arises: "When these direct objects (legal relations) of "*public interest*" or "*rights of others*" are specifically protected by other acts of the Criminal Code, then what "*non-peaceful*" violations does Article 262/1 include?

These are violations of the same objects (order & safety, state activity, rights of others), but in the function of the violation of the group object of these three offenses (Articles 261, 262, 263 CC), precisely that of the legal relationship which protects the right of gathering. But since this right is simultaneously a conventional-constitutional right, then these non-peaceful violations, to be considered illegal (punishing), must be disproportionate to this fundamental right. Otherwise, any forced action by nature, but proportional to the right of gathering, can be considered legitimate; and even more so when this gathering is, as in the concrete case, peaceful, but simply "permission was not obtained". This is because the constitutional essence of the "permission" is not to grant it when other fundamental rights are unreasonably violated; but in peaceful conditions, the essence of compiling the "request for gathering/manifestation" means guaranteeing this fundamental right concerning other rights as well (eg. freedom of movement), but not hindering it under the legal guise of not giving permission". This active (positive) spirit of guaranteeing the right of gathering/manifestation by law enforcement is also expressed by the special law (blanket) "On Gatherings" (referred in Article 262/1 CC), which in Article 5 /1 of it not only does not foresee the obligation of "obtaining permission", but only that of "*written notice from the head of the police station*"; but even in article 12 it states that "*Gatherings in places open to the public are held even without prior notification of the police, according to article 5 of this law*".

In this sense, the formal "non-granting of permission", without the fulfilment of the inherent material conditions (serious dangerousness of the assembly) could be turned into a criminal action to prevent the exercise of freedom of gathering, according to Article 261 of the Criminal Code itself, or to arbitrary action by the part of the employee who performs a state function service that affects the freedom of citizens, according to Article 250 of the Civil Code; whereas constitutionally it would turn into an illegal action that contradicts not only the constitutional principle of 'legal certainty' and proportionality ("*The restriction must be proportionate to the situation that dictated it*" - Article 17 of the Constitution) but also the practice of the ECHR under the effect of Article 11/2 of the ECHR, according to which "an interference with the exercise of the right to freedom of gathering should not

constitute a complete prohibition, legal or de facto" (Constitution of the Republic of Albania, 2016). In conclusion, the decision of the Constitutional Court on the unconstitutionality of the phrase 'without first obtaining permission from the competent body according to special provisions' in Article 262/1 CC, is not only correct, but I recommend that the remaining part of this paragraph (after removal of the above phrase) *"The organization of gatherings and demonstrations of people in squares and places of public passage, or when the organizers violate the conditions outlined in the request for the granting of a permit..."* should be specified or interpreted under the effect of this revocation.

References

- Academy of Sciences of Albania, Institute of Linguistics and Literature. (2006). Dictionary of the Albanian Language.
- Constitution of the Republic of Albania. (2016). Official Gazette of the Republic of Albania.
- Constitutional Court of Albania. (2007, February 26). Decision no. 9. Retrieved from http://www.gjykata-kushtetuese.al/Files/ActDoc_299_5.pdf
- Constitutional Court of Albania. (2007, October 15). Decision no. 36. Retrieved from http://www.gjykata-kushtetuese.al/Files/ActDoc_306_5.pdf
- Constitutional Court of Albania. (2012, June 27). Decision no. 47. Retrieved from http://www.gjykata-kushtetuese.al/Files/ActDoc_820_8.pdf
- Constitutional Court of Albania. (2015, February 26). Decision no. 10. Retrieved from http://www.gjykata-kushtetuese.al/Files/ActDoc_524_6.pdf
- Constitutional Court of Albania. (2017, January 16). Decision no. 1. Retrieved from http://www.gjykata-kushtetuese.al/Files/ActDoc_1348_7.pdf
- Council of Europe, Venice Commission. (2014). Report on the Rule of Law. CDL-PI(2014)003-e. Retrieved from [https://www.venice.coe.int/webforms/documents/default.aspx?pdffile=CDL-PI\(2014\)003-e](https://www.venice.coe.int/webforms/documents/default.aspx?pdffile=CDL-PI(2014)003-e)
- Council of Europe, Venice Commission. (2019). Opinion on the Draft Amendments to the Electoral Code of Armenia. CDL-AD(2019)017-e. Retrieved from [https://www.venice.coe.int/webforms/documents/default.aspx?pdffile=CDL-AD\(2019\)017-e](https://www.venice.coe.int/webforms/documents/default.aspx?pdffile=CDL-AD(2019)017-e)
- Criminal Code of the Republic of Albania, (1995), Law No. 7895, date 27.01.1995.
- Elezi, I. (2018). Criminal Code Commentary, Special Part (Updated).
- European Court of Human Rights. (2015). Kudrevičius and others v. Lithuania [Judgment].

Application no. 37553/05.

European Court of Human Rights. (2019). Sergey Kuznetsov v. Russia [Judgment]. Application no. 10877/09.

Grosche, D. (2007b, October 17). Butka and Others v. Hungary (25691/04) - Police and Human Rights Resources. Police and Human Rights Resources.

<https://policehumanrightsresources.org/bukta-and-others-v-hungary-25691-04>

Law no. 8137 dated 31.7.1996, for the ratification of the European Convention for the Human Rights and Fundamental Rights. (2010). In

https://www.gjk.gov.al/web/konventa_europiane_per_te_drejtat_e_njeriut_2130.pdf (No. 978-9928-01-004-9). Center for Official Publications.

https://www.gjk.gov.al/web/konventa_europiane_per_te_drejtat_e_njeriut_2130.pdf

Law on Gatherings, No. 8773, date 23.4.2001.

Ministry of Justice. (2017). Criminal Code of the Republic of Albania.

Ministry of Justice. (2017). Criminal Procedure Code of the Republic of Albania.

Rassemblement Jurassien Unite Jurassienne v Switzerland, App. No. 8180/78, Eur. Court H.R. (1979).

Thomai, J., Samara, M., Haxhillari, P., Shehu, H., Feka, T., Memisha, V., & Goga, A. (2006). *Albanian Dictionary*, Institute of Linguistics and Literature.

Changes in the Code of Civil Procedure related to jurisdiction and competence as well as judgment in the Supreme Court

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Abstract

With the law no. 38/2017 as well as with the law no. 44/2021, for some additions and changes in the law no. 8116, dated 29.03.1996, "Civil Procedure Code", important changes have been made regarding certain institutes law of civil procedures, some of which will be addressed in this paper.

Changes have been made regarding jurisdiction and competence as well as judgment in the Supreme Court. For the changes made, theoretical treatments related to procedural law were taken into account, but at the same time, problems of judicial practice were also addressed, in order that the content of the provisions of the Code of Civil Procedure, be as complete and accurate as possible, which directly affects the realization of a regular judicial process.

The civil procedure is implemented by the courts and other bodies designated by law during the trial of civil cases. Likewise, all participants in the trial who are subject to the procedural legal relationship are obliged to recognize and apply the norms of the Code of Civil Procedure. But for their understanding and implementation, it is important to interpret the procedural norms and, in this respect, the changes made in the Code. The changes entered into force on November 6, 2017 as well as on May 14, 2021, and therefore their interpretation is necessary, which is related to understanding the content of the procedural norms. Judicial practice is what proves their accuracy and highlights the problems that arise during the implementation of procedural legal norms. The recognition and application of civil procedural legal norms also determines the development of a regular legal process related to the protection of human rights.

Keywords: *Jurisdiction, competence, recourse, request for review, notification.*

Introduction and methodology

With laws no. 38/2017 and no. 44/2021, "For some additions and changes in the law no. 8116, dated 29.03.1996, the amended Code of Civil Procedure" (law no 38/2017 and law no. 44/2021), significant changes have been made regarding certain institutes of civil procedural law.

In this paper, some of them will be dealt with, mainly related to jurisdiction and competence, as well as the judgment in the Supreme Court. For the changes made, theoretical treatments related to civil

procedural law were considered, but at the same time, the problems arising from judicial practice were also addressed, in order for the content of the provisions of the Code of Civil Procedure to be as complete and accurate as possible, which directly affects the realization of a regular judicial process.

Different methods were used in the development of the writing, which are found intertwined in the style of the work. For the changes to the Code of Civil Procedure, a research method was used for the institutes of jurisdiction, competence and judgment in the Supreme Court. Also, to highlight the changes in the code, comparative, descriptive and interpretive methods were used.

On jurisdiction and competence

By procedure we understand the totality of rules and legal norms that have been set by a state for the investigation and trial of criminal and civil cases.

The civil procedure is implemented by the courts and other bodies designated by law during the trial of civil cases. Likewise, all participants in the trial who are the subject of the civil procedural legal relationship are obliged to recognize and apply the norms of the CPC. For their understanding and implementation, the interpretation of the procedural norms and therefore the changes made in this code is important. Changes in the framework of justice reform related to the CPC were made by law no. 38/2017, entered into force on November 6, 2017. These changes reflect the principles of the laws sanctioned in the Constitution of the Republic of Albania and in the European Convention on Human Rights regarding to the right to fair trial. Jurisdiction and competence are two important institutes of civil procedural law. Jurisdiction is provided by article 36 of the CPC. In this article, the scope of jurisdiction related to the circle of civil cases that according to the CPC and other laws are referred to the courts for review is given. "*Jurisdiction is the right of a body to exercise a certain activity in accordance with the law*".¹¹ Jurisdiction comes from the word "jurisdiction- to say the law", to apply the law¹². With Law no. 38/2017, the fifth paragraph was added to Article 36 of the CPC with the following content: "*Jurisdiction is determined at the time of filing the lawsuit in court, regardless of subsequent changes in fact or law.*"¹³

The definition is very important since in practice difficulties have been identified in cases where the jurisdiction could belong to the court and pass to the administrative body or vice versa, based on the

¹¹ Tafaj. F, Vokshi. A, (2018) "Civil Procedure", II edition, first part, p.322.

¹² idem

¹³ Article 36, the fifth paragraph is added with the following content: "Jurisdiction is determined at the time the lawsuit is filed in court, regardless of subsequent changes in fact or law"

changes that could occur regarding the fact or the law.

Article 38 of the Civil Code has also been amended, in which the rules for determining jurisdiction are provided, when the same lawsuit, between the same parties, with the same cause and object of the lawsuit is being examined simultaneously in a court of a foreign state and Albanian court. This article defines the cases when the Albanian court can suspend the trial of the case, when it can continue the process at any time and when it suspends the trial.

The competence of the courts means the totality of the actions performed by a certain court and at the same time it is defined as the right and duty of the body, in the specific case of the court to perform certain activities. Also in relation to jurisdiction, judicial competence is related to the division of activity between different courts or courts of the same degree. In this aspect, competence can be considered as part of jurisdiction.¹⁴

Also related to the competence in Article 41, the second paragraph has been added with this content: *"Jurisdiction is determined at the time the lawsuit is filed in court, regardless of subsequent changes in fact or law."*

The changes made in the CPC, related to jurisdiction and competence, were necessary, because often in created situations the intervention of the Supreme Court was needed through the examination of certain cases and the issuance of unifying decisions to provide solutions to the problem. There were also cases when after a while her attitude changed, such as in the case of the unifying decisions of the United Colleges of the Supreme Court regarding the assignment of jurisdiction in concrete situations to determine whether the case belonged to the administrative jurisdiction or the ordinary jurisdiction of the civil courts in relation to the issues of restitution and compensation of properties. It is known that the court, during the examination of the case, relies for its solution on the concrete circumstances that constitute the fact as well as on the law that presupposes the application of the relevant law that regulates the concrete legal relations from which rights and obligations arise for its subjects and when the party evaluates that a right has been violated or he has a legal interest, he addresses the court with a lawsuit request.

The provisions related to the changes are clearly formulated and do not leave room for other interpretations, concluding that the jurisdiction and competence are determined at the time of filing the lawsuit and that the subsequent change of the facts or the law does not affect it.

¹⁴Tafaj, F, Vokshi.A (2018), Civil Procedure, edition II, first part, p.378-380.

Judgment in the Supreme Court

Important changes in the CPC have also been made in connection with the trial in the Supreme Court. The judicial system in our country is organized in three levels: the court of first instance, which is the court of fact as it examines the case, administers the evidence, applies the law and on this basis resolves the case. The court of second instance, or as it is known the Court of Appeal, which has a controlling function, but is also a court of fact and law, examines the case on the basis of the materials received from the court of first instance on the appeal of the parties, and at the same time has the right to administer evidence by fully or partially repeating the judicial investigation and on this basis referred to and in the applicable law resolves the case based on article 466 of the CPC.

The party that is dissatisfied with the resolution of the case by the Court of Appeal has the right to appeal to the Supreme Court. The remedy used before this court is recourse. The Supreme Court, by its nature, is considered a court of law, as it examines the case related to the application of substantive and procedural law under the conditions provided for in Article 472 of the CPC. From the date of entry into force of the CPC, June 1, 1996, changes have been made from time to time regarding the determination of the reasons for filing an appeal.

The changes made in the Code related to the causes of recourse lead to the conclusion that the legislator intended to limit the cases addressed to the Supreme Court, because practically this court is charged with a considerable number of cases. It is also provided in article 472 as a cause for recourse and the case when the appealed decision is different from the judicial practice of the Civil College or the unified practice of the United Colleges of the Supreme Court, thus creating the possibility of the function of this court regarding unification or change of judicial practice.¹⁵

The application of procedural norms is necessary for a regular legal process. With this law, article 473/a was added, in which the limits of the review of the appeal are determined, within the causes presented in the appeal, except when the law provides otherwise.

¹⁵ Official Journal, (2017), Number 98, p.5513: Article 472 is amended as follows: Article 472
Causes for recourse

1. The decisions announced by the court of appeal and those of the first instance in the cases provided for in this Code can be appealed with recourse to the Supreme Court:
 - a) for incorrect application of material or procedural law, of fundamental importance for unity, security and/or development of judicial practice;
 - b) when the appealed decision is different from the judicial practice of the Civil College or the unified practice of the United Colleges of the Supreme Court;
 - c) there are serious violations of procedural norms, resulting in the invalidity of the decision or trial procedure, according to Article 467 of this Code. <https://qbz.gov.al/>
2. No recourse is allowed against the decisions of the court of appeal for lawsuits worth up to ALL 150,000.

Changes have also been made in the content of Article 474 of the CPC related to signing the recourse. According to the amendments, the recourse to the Supreme Court must be signed by the lawyer representing the party and, if the party requests it, by the latter. This change is related to the change made in article 96/a of the CPC regarding the representation of the parties in the Supreme Court, which is done only by lawyers. This provision does not apply in cases where the representation is made by the state attorney's office according to the law. The prima facie change is related to the realization of the function of the Supreme Court as a court, the law requires a professional level in relation to the recognition and application of the law, but in terms of the rights of the parties in the trial, I think they are limited, because the case belongs to the parties and the court is invested in its consideration of the lawsuit filed by the plaintiff and the means of defense used by the parties according to the procedural requirements. *'The complaint as a procedural act serves to make a decision to the court and start the civil judicial process'*¹⁶. Each of the parties to the trial has rights and duties derived from the application of procedural norms in order to resolve the case. The parties may be represented by lawyers. In terms of the implementation of the institution of representation in this case, we are facing voluntary representation, which is carried out through a power of attorney. *"One of the main types of representation is voluntary representation. Representation by power of attorney is voluntary representation"*¹⁷.

Article 442/b of the CPC states: *"An appeal is the act by which a party or other participants in a process submit their objections to the decision of the court of first instance or of the court of appeal of the Supreme Court, according to the rules of assigned in this code"*. The stipulation that is imposed on the signing of the recourse first by the lawyer and in case it is requested by the party, evidences the fact that the will of the party is limited as the legal right and obligation is imposed on the lawyer contrary to the principle of availability and the principle of voluntarism related to the power of attorney as a legal fact that brings about the creation of the legal relationship of representation

The issue belongs to the party and therefore the party must sign the recourse itself and in case it is evaluated by the lawyer. The filing of the appeal invests the Supreme Court for its review following the relevant procedure. In the event that the case may go to a public hearing, representation must be done with a lawyer if the parties wish to appear in the trial, as the lawyer is familiar with the law and this court is a court of law. Important for a fair trial is the regular implementation of notification procedures, in order not to lead to the development of an irregular legal process.

¹⁶ Tafaj, F, Vokshi.A (2018), Civil Procedure, edition II, first part, p.265

¹⁷ Kondili.V "Civil Right", General part (2008), p. 199-200.

Important changes have also been made regarding the suspension of the execution of the decision, which is related to the decisions that are enforceable. The circumstances that allow the suspension of the execution of the decision have not changed, but legal criteria have been defined regarding the protection of the rights of the winning parties, such as regarding the notification of the request and the written submission of the claims within three days from the day after receiving notice of the request for suspension by submitting relevant arguments and research.

It is possible to proceed with the consideration of the request without prior notification to the parties when the circumstances dictate that there is a risk that the right of the appellant will become impossible to realize, but the decision must be given in a reasoned manner. The decision to suspend the execution must be notified to the parties. The innovation is that at the request of the party, the change or revocation of the suspension measure can be requested. In this case, the parties are notified and within 3 days the other party has the right to submit written submissions. Even in this case, the request is reviewed in the consultation room and the court must justify its decision.

Article 480 of the CPC, which is related to the review of appeals in the counseling room, has not undergone changes, but the changes in the code as a whole show that the role of the counseling room increases, because in every case it is required to justify the decision taken by the court in the counseling room, which reflects the position of the Constitutional Court in the protection of human rights for a regular legal process. Through its decisions, the Constitutional Court has continuously requested the justification of the decision and the respect of the relevant standards¹⁸. The entire procedure that is required to be implemented clearly defines that it has to do with the implementation of a regular legal process, the implementation of the principle of equality of parties before the law, the principle of legal certainty, etc.

The changes related to the notification for the day and time of the trial in the Supreme Court have been adapted to the changes made regarding the notifications as a whole that must be made according to the CPC. Changes have been made in the third paragraph of Article 482 of the CPC, according to which: "Notification of the day and time of the trial is made by announcement in the premises of the Supreme Court, as well as on its website and by individual notification, when the parties or their representatives have left their electronic contact details at other levels of judgment."

Changes have also been made in article 485 of the CPC regarding the decisions taken by the Supreme Court after examining the cases, removing the cases provided for in points "ç" and "d" of this

¹⁸ Decision no.6, date 16.02.2015 of Constitutional Court of Albania.

article.¹⁹ The changes in Article 496 related to the review as an extraordinary tool are appropriate since the beginning of the deadline for submitting the request for review has been clarified, specifically the 30-day period starts from the day the party proves that it has become aware of the reason for the review and in the cases provided for from article 495, the 30-day period starts from the day the decision became final. Even in the case of submitting a request for review under Article 497 of the CPC, changes have been made by establishing rules that were foreseen before the changes made by law no. 8812, date 17.05.2001. As a rule, the request for review is submitted to the court of first instance that issued the decision, but in the event that the case is appealed to the higher courts, the highest court that examined the case on the merits is competent. The competent court for examining the request for review judges according to the rules applicable to that level of judgment. The request must contain the reason for which the revision is requested, the relevant evidence related to one of the requirements of Article 494 of this code, the day of discovery or confirmation of the circumstance or receipt of documents. *The revision can be made only by the party in the process, only against the final decision and only for one of the reasons provided in the article 494 of the CPC.*²⁰

The signature of the request is done by the lawyer equipped with a power of attorney, and if the party requests it, also by the latter. The request submitted without being completed or contrary to the above criteria is returned for completion by the court. If the request is not fulfilled within the 10-day deadline, the court decides not to accept it. Article 498 of the CPC has also been amended. When the request is made outside of the cases provided for in article 494 of the CPC or it is made by those who do not have this right, and when it is clearly unsupported, the court decides not to accept it.

When the case is accepted in cases where it is examined by the court of first instance or the court of appeal, the court decides to overturn the decision in whole or in part and continues the trial of the case on the merits. In this case, it was appropriate to specify that the case should be examined by

¹⁹ Article 485 is amended as follows:

Article 485

Decisions of the Supreme Court"

After considering the case, the Civil Chamber or the United Chambers of the Supreme Court decide:

a) leaving the decision in force;

b) overturning the decision of the court of appeal and upholding the decision of the court of first instance;

c) overturning the decision of the court of appeal and sending the case for reconsideration to the court of appeal with another panel;

ç) annulment of the decision and dismissal of the trial of the case.

²⁰ Tafaj, F, Vokshi.A (2018), Civil Procedure, edition II, second part, p.332-336.

another panel of judges from these courts.

When the case is reviewed by the Supreme Court and the request is accepted by it, the court decides to overturn the decision in whole or in part and sends it for retrial to the competent court, which judges it with another panel of judges. If the reason for the review is not related to the need to clarify new facts, the Supreme Court revokes its previous decision and decides on the case again according to its competences.

In the case defined by the letter 'e' of Article 494 of this Code, the competent court overturns the second decision. For the decisions given by the court of first instance and the court of appeal, appeal and recourse are allowed according to the general rules, but in case the request is examined by the Supreme Court, no appeal is allowed.

The retrial of the cases by the competent courts is done according to the general rules. Regarding the changes made, we can conclude that they are positive and were implemented with the aim of improving the judicial process, but it is practice that proves their productivity.

In fact, it took a period of about 4 years, and the need for changes in the CPC was raised again. Specifically, these changes were implemented by law no. 44/2021, a part of which is dealt with in this paper. The amendments with this law are intended to bring further regulations related to jurisdiction, competence, the development of the judicial process in a reasonable time, review of recourses, judgments for the unification and change of judicial practice, the suspension procedure related to the execution of judicial decisions, pretrial proceedings, etc.

Jurisdiction and Competence

In Law No. 44/2021, important changes and determinations have been made regarding jurisdiction and competence. Jurisdiction is a matter that is determined exclusively by the Constitution (see e.g. article 42), International Agreements (see e.g. article 6 of the ECHR) or by law²¹.

In Article 59, the second paragraph has been changed, in which it is determined that when the court decides to take the case out of the judicial jurisdiction, a special appeal to the Supreme Court is allowed, while when it decides that the case is part of the judicial jurisdiction, an appeal against the decision is allowed together with the final decision and not final²².

²¹ Decision no. 00-2022-1722, date 20.07.2022, of the Civil College of the Supreme Court.

²² Decision no. 00-2022-1563, date 04.07.2022 of the civil college of the Supreme Court: "Civil Procedure Code with law no. 44/2021, more specifically the second paragraph of Article 59, which is amended as follows: "When the court decides to remove the case from the judicial jurisdiction, a special appeal is allowed to the Supreme Court, while

The change has specified the way of appeal in cases where the court decides to remove the case outside the judicial jurisdiction or when it decides that the case is part of the judicial jurisdiction, clearly defining the means of protection, the court to which they are addressed and therefore the type of means of protection that used are determined and the terms within which they must be exercised, 5 or 15 days.²³

With article 62 of the CPC, an innovation has been brought regarding the competence. As it results from the wording of this article, it is concluded that against the decision of the court declaring incompetence, a separate appeal is not allowed, but an appeal can be made together with the final or non-final decision²⁴. According to what was submitted, the repeal of Article 63 of the CPC, which provided for the suspension of the trial when the court's decision for incompetence was appealed, is also related.²⁵

Based on the additions and changes that have been made in Article 64 of the CPC, it is clearly evident that disputes about jurisdiction between courts are not allowed, but the court to which the case is sent for jurisdiction has the right to submit its position to the Supreme Court, which decides on the regulation of competence, in a consultation room with a panel of three judges.²⁶

Changes related to jurisdiction and competence have clarified the procedural actions of the courts as well as created opportunities for judicial economy, but also for the respect of procedural principles

when it decides that the case is part of the judicial jurisdiction, against the decision, an appeal is allowed together with the final or non-final decision".

²³ In Article 59, the second paragraph is amended as follows:

"When the court decides to take the case out of the judicial jurisdiction, a special appeal is allowed to the Supreme Court, while when it decides that the case is part of the judicial jurisdiction, an appeal against the decision is allowed together with the final or non-final decision".

²⁴Decision no. 00-2022-1531, date 30.05.2022 of the civil college of the Supreme Court.

²⁵ Article 62 is amended as follows:

"An appeal is allowed against the court's decision on the competence to adjudicate the dispute together with the final or non-final decision".

²⁶ In Article 64, the following additions and changes are made:

1. The second paragraph is amended as follows:

"Conflicts of jurisdiction between courts are not allowed, but the court has the right to submit them its attitude to the Supreme Court, which decides on the regulation of competence in the consulting room, with judicial body composed of 3 judges."

2. After the second paragraph, the third and fourth paragraphs are added with this content:

"The Supreme Court issues a reasoned decision no later than 30 days from the moment of filing the submission.

The Supreme Court in its decision on the regulation of competence gives the necessary instructions for the judicial process developed and for its continuation by the court that declares itself competent".

in the trial.

Judgment in the Supreme Court

Changes have been made in the composition of the judicial bodies, determining that the court of appeal judges certain cases with a single judge from the three judges that made up the judicial body. Also in the Supreme Court, the panel that examines cases for the unification and development of judicial practice consists of five judges. Likewise, the request for dismissal from the panel of the Judge of Appeal or the Supreme Court is examined by another judge of the respective courts, different from the judges of the panel in which the judge for whom the dismissal is requested is a member. The decision is final.

The amount of lawsuits that are reviewed with an accelerated procedure was changed from 150,000 thousand lekë to 20 times the national minimum wage, (600,000) thousand lekë. Amendments were made to Article 465/a of the CPC regarding the judgment by the Court of Appeal. The second paragraph of Article 469 was also repealed, leaving the competence to suspend the execution of the decision to the Supreme Court.

In this law, comprehensive changes were made regarding the trial procedure in the Supreme Court. As a rule, the trial takes place in a counseling room and in exceptional cases in a public session. After Article 471, Article 471/a is added regarding the examination of special appeals and recourses against non-final decisions, which takes place in the consultation room, within 30 days from the day of their registration in the Supreme Court.

In cases where the Supreme Court discusses issues of law, which are considered mainly and for which the parties have not previously presented their opinion, prior to the review, the notification of the parties is ordered and a deadline is set for filing their submissions on the issues of the law. Notification in these cases is carried out according to general rules.²⁷

The appeal and all other requests that are submitted to the Supreme Court must be signed by the lawyer representing the party and, if the party requests it, by the latter, which, as discussed above, creates the possibility of discussion regarding the implementation of the institute of representation, for the creation of a legal relationship of representation on the basis of power of attorney, because these regulations limit the right of the party in the trial regarding the application of the disposition

²⁷ Article 19 of Law No. 44/2021, which adds the second paragraph to Article 473/a.

principle.

Also with the changes that have been made to Article 475 of the CPC it is determined that the recourse must contain not only the reasons for which the given decision is contested, followed practice, but also the arguments that support the claim that there are reasons for the recourse presented under Article 472 of the CPC . However, it is provided as an option, not an obligation, to submit an appeal according to the format approved by the Council of the Supreme Court. The rules regarding the appeal filing procedure have been clarified, assessing the issue of filling the defects of the appeal in the Supreme Court. In this case, both the court of fact and the Supreme Court must notify the party of the defects of the recourse in order for it to have the opportunity to fix the defects and for the trial to proceed normally.

The admissibility of the appeal according to the legal changes must be assessed by the relator judge of the Supreme Court, when the defects of the appeal have not been ascertained by the lower courts. When the recourse does not meet the conditions provided in points 1 and 2 of article 476, or has not been signed according to article 474, or has not been presented in accordance with the first paragraph of article 475 of this code, the relator who gave the decision or the sole judge notifies the party to complete the defects of the recourse within the 5-day deadline.

The review of the recourse is done in the consultation room. These changes create opportunities for the Supreme Court to be more productive in its activity. When the return of the recourse for completion is made by the lower courts and the recourse is not completed within the deadline, the recourse is said not to have been filed and the judge decides on its return. A special appeal can be made against the decision, while no appeal is allowed against the decision of this nature taken by the judge of the Supreme Court.

With Law no. 44/2021, changes were also made to Article 485 of the CPC, which was also amended with law no. 38/2017, but this changes were not productive in the situation of adjudication of cases by the Supreme Court.²⁸ The last changes have to do with dispositions after the consideration of the

²⁸ Article 485 is amended as follows:

"Article 485

Decisions of the Supreme Court

1. After examining the case, the Civil College or the United Colleges of the Supreme Court decide:

- a) non-acceptance of recourse in cases where it was made for reasons other than those provided for in Article 472 of this Code;
- b) overturning the decision of the court of appeal and upholding the decision of the court of first instance;
- c) overturning the decision of the appeals court and sending the case for reconsideration to this court with another panel;
- ç) overturning the decisions of the court of appeal and the court of first instance and sending the case for retrial at first instance when the non-final decision of the court of first instance was taken in violation of the law and this violation was not found by the court of appeals;

case by the Civil College or the United Colleges of the Supreme Court.²⁹ The fact that the way of decision-making in the Supreme Court has been expanded should be highlighted. Mainly, the decision-making is done on the basis of documents in the counseling room and it can be decided to go to a court session, with the presence of the parties only under the conditions of Article 482/a of the CPC.³⁰

Pretrial procedure

The institution of the pretrial procedure is a novelty in the CPC. The civil panel or the United Panels of the Supreme Court during the consideration of the case in the consultation room or in a court session may refer to the European Court of Human Rights or other international courts, based on the international agreements ratified by the Republic of Albania. The Civil College or the United Colleges of the Supreme Court can implement the pre-trial procedure when they assess that for a concrete norm related to the resolution of the case, it is dependent on the decision-making of the ECHR or another international court.

In the consideration of a case by the Civil College of the Supreme Court, the fact that this procedural provision is an important procedural institute is evident.³¹

In this paper, some of the changes made by Laws 38/2017 and 44/2021 related to the CPC were discussed, which in their entirety have brought significant changes in terms of increasing the quality of the trial procedure of civil cases with the aim of protecting human rights related to a regular legal process.

d) the annulment of the decision of the court of first instance and the court of appeal and the dismissal of the trial of the case;

dh) changing the decision of the first instance and the decision of the court of appeal and the final resolution of the case when the application of the procedural or material law is not dictated by the need to re-examine and re-evaluate the facts or evidence of the case;

e) upholding the appeal decision.

2. In the cases where the Civil College or the United Colleges of the Supreme Court decide to unify or change the judicial practice, in the decision the court also formulates the rule of law for each issue presented for resolution in the intermediate decision taken during the trial of the case. In this case, the decision is published in the Official Gazette."

²⁹ Decision no. 106, dated 18.10.2021, of the Civil College of the Supreme Court.

³⁰ Decision no.16, date 17.01.2022, of Civil College of Supreme Court.

³¹ The decision no.00-2021-2227 (167), date 06.12.2021, of the Civil College of the Supreme Court states:

"In this context, the College brings to attention the decision no. C-289/2020, dated 25.11.2021, of the ECJ, where the latter was invested through a preliminary proceeding by the Court of Appeal in Paris, in a case where the latter had to conclude on the habitual residence of the child, where one from the parent, who had custody, had different residences."

<http://www.gjykataelarte.gov.al/>

Conclusion

Analyzing the changes in the Code of Civil Procedure for a period of 4 years, we can reach some conclusions:

- The changes indicate the need to adapt the procedural legislation in these directions:
- In increasing the quality and speed of judgment,
- In strengthening the implementation of legal certainty,
- In the protection of human rights, related to concrete issues,
- In aligning the legislation with that of the countries of the European Union. The judicial practice so far is in the initial phase regarding the implementation of these changes, but its further development will prove the productivity of these changes and will create opportunities for debate and for the development of legal literature as well as possibilities for other changes.

References

Literature

- Tafaj.F, Vokshi.A, (2018) "Civil procedure, first part", second edition.
- Tafaj.F, Vokshi.A, (2018) "Civil procedure, second part", second edition.
- Kondili. V (2008) "Civil right" general part.

Legal references

- European Convention on Human Rights.
- Law no.8116, date 29.3.1996 "Code of Civil Procedure".
- Law no. 38/2017 "Some changes in law no.8116, date 29.3.1996 "Code of Civil Procedure".
- Law no. 44/2021 "Some changes in law no.8116, date 29.3.1996 "Code of Civil Procedure".
- Law no. 8417, date 21.10.1998 "Constitution of the Republic of Albania" (added with laws no. 9675, date 13.1.2007; no. 9904, date 21.4.2008; no. 88/2012, date 18.9.2012;
- Law no. 8588, date 15.03.2000 "On the organization and functioning of the Supreme Court of the Republic of Albania" (Amended).
no. 137/2015, date 17.12.2015; no. 76/2016, date 22.7.2016; no. 115/2020, date 30.7.2020;
no.16/2022, date 10.2.2022.

Decision of Supreme Court

- Decision no.6, date 16.02.2015 of Constitutional Court of Albania.
- The decision no.00-2021-2227 (167), date 06.12.2021 of the Civil College of the Supreme Court.
- Decision no. 106, dated 18.10.2021, of the Civil College of the Supreme Court.
- Decision no.16, date 17.01.2022, of Civil College of Supreme Court.
- Decision no. 00-2022-1563, date 04.07.2022, of the Civil College of the Supreme Court.
- Decision no. 00-2022-4354, date 04.11.2022, of the Civil College of the Supreme Court.
- Decision no. 00.2022-1531, date 30.05.2022, of the Civil College of the Supreme Court.
- Decision no. 00-2022-3797, date 07.12.2022 of the Civil College of the Supreme Court.
- Decision no. 00-2022-1722, date 20.07.2022, of the Civil College of the Supreme Court.
- Decision no. 11243-04362-00-2014, date 11.04.2022, of the Civil College of the Supreme Court.
- Decision no. 11243-00907-00-2015, date 18.11.2022, of the Civil College of the Supreme Court.
- Decision no. 00-2022-3488, date 23.11.2022 of the Civil College of the Supreme Court.

Electronic source

- <https://qbz.gov.al/preview/635d44bd-96ee-4bc5-8d93-d928cf6f2abd> (December 2022)
- https://www.echr.coe.int/documents/convention_eng.pdf (December 2022)
- <https://www.gjykataelarte.gov.al/> (December 2022)
- <https://www.echr.coe.int/Pages/home.aspx?p=home> (December 2022)

Green Finance and Sustainable Development in Albania and the Balkans: Assessing Opportunities and Challenges

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Abstract

In response to increasing investor and consumer demand, green finance has emerged as a potential solution to promote sustainable development. Green finance involves the provision of loans or investments to support environmentally friendly activities, which can incentivize individuals and businesses to make sustainable purchasing and investment decisions. This paper aims to review the existing literature on green finance in Albania and the Balkans, with a focus on identifying strategies to promote its growth. The role of technology, development policies, and financial institutions with green finance agendas in promoting green financing will be discussed. The challenges facing green finance, such as the lack of awareness, inconsistent definitions, and policy coordination, will also be analyzed. The cross-country observation in the Balkans, particularly in Albania, highlights the potential of green finance to mitigate climate change and promote sustainable development. However, it also underscores the importance of addressing the challenges to facilitate profitable incentives for investors and financial institutions. This paper emphasizes the significance of green finance in achieving sustainable development goals and calls for further research and collaboration in this area.

Keywords: *green finance, green investment, green banks, sustainable development goals, green loan, sustainable finance, green bonds, climate finance, environment, climate change.*

Introduction

Green finance has gained increasing attention in recent years as a potential solution to address the urgent need for sustainable development in the face of climate change. Green finance involves the provision of loans, investments, and other financial instruments to support environmentally friendly activities and promote sustainable development. The use of green finance can incentivize individuals and businesses to make sustainable investment and purchasing decisions and contribute to the achievement of the sustainable development goals.

In Albania, where economic growth and environmental protection are pressing priorities, green finance presents an opportunity to promote sustainable development while addressing the challenges of climate change. Despite the potential of green finance in Albania, there is still a lack of awareness, inconsistent definitions, and policy coordination, which has hindered its growth. Moreover, there are limited studies on the state of green finance in Albania and its potential for promoting sustainable development.

Therefore, this paper aims to review the existing literature on green finance in Albania and the Balkans and identify strategies to promote its growth. The paper will analyze the potential green finance opportunities in Albania, evaluate the economic, social, and environmental benefits of green finance investments, and discuss the challenges and barriers to its development. The paper will also propose recommendations and strategies to overcome these challenges and promote the growth of green finance in Albania. (International Finance Corporation, 2019) This paper underscores the importance of green finance in achieving sustainable development and calls for further research and collaboration to unlock the potential of green finance in Albania.

1.1 The current economic and environmental situation in Albania

The topic of green finance is highly relevant to the current economic and environmental situation in Albania. As a developing country with a rapidly growing economy, Albania faces significant challenges in promoting sustainable development and addressing the urgent issue of climate change. Green finance, which involves the provision of loans, investments, and financial instruments to support environmentally friendly activities, presents an opportunity to promote sustainable development while addressing climate change. (Gashi. A, Jashari. M, 2020)

The use of green finance can incentivize individuals and businesses to make sustainable investment and purchasing decisions and contribute to the achievement of the sustainable development goals. This is particularly important in Albania, where environmental protection and economic growth are pressing priorities. However, despite its potential, green finance in Albania faces challenges such as a lack of awareness, inconsistent definitions, and policy coordination, which has hindered its growth. Therefore, the study of green finance in Albania is crucial in identifying opportunities and challenges for promoting sustainable development and mitigating climate change. This research is relevant to policymakers, investors, and financial institutions in Albania, and can contribute to the development of effective policies and strategies to unlock the potential of green finance.

Literature Review

Definition and concept of green finance

Green finance is a financial concept that involves the provision of loans, investments, and financial instruments to support environmentally friendly activities, projects, and initiatives. The primary goal of green finance is to support sustainable development and mitigate climate change by promoting investments in environmentally friendly projects, businesses, and technologies. Green finance plays a crucial role in promoting sustainable development by mobilizing private capital towards environmentally friendly investments. It encourages businesses and individuals to invest in projects and technologies that have a positive impact on the environment, such as renewable energy, energy efficiency, waste management, sustainable agriculture, and forestry. By supporting these initiatives, green finance can contribute to the achievement of sustainable development goals and the transition to a low-carbon economy.

Green finance is important in promoting sustainable development because it aligns financial incentives with environmental goals. It provides financial incentives to businesses and individuals to adopt sustainable practices and invest in environmentally friendly projects, making it an effective

tool for promoting sustainable development. Furthermore, green finance can help to address market failures by providing financial support for projects that may not otherwise be financially viable. It also helps to reduce the financial risk associated with environmentally friendly investments, making it more attractive for investors.

Overall, green finance is an important concept in promoting sustainable development as it aligns financial incentives with environmental goals, mobilizes private capital towards environmentally friendly investments, and helps to address market failures. It is an essential tool for transitioning towards a low-carbon economy and mitigating climate change.

Green finance in Albania and the Balkans

Green finance is gaining momentum in Albania and the Balkans, as the region faces increasing pressure to address environmental challenges and promote sustainable development. Albania has made progress in recent years towards promoting green finance, with the government launching a national action plan on green financing in 2020. This plan includes measures to promote green bonds, green loans, and green investment funds, among other initiatives.

In the Balkans, green finance has emerged as a key priority for policymakers, as the region is particularly vulnerable to the impacts of climate change. The European Union's Green Agenda for the Western Balkans, launched in 2020, aims to support the transition towards a low-carbon economy in the region by providing financial support for green investments and promoting the development of sustainable infrastructure. Despite these initiatives, there are still challenges to the development of green finance in Albania and the Balkans. These challenges include a lack of awareness and understanding of green finance among businesses and investors, insufficient regulatory frameworks and incentives, and a lack of access to finance for small and medium-sized enterprises. (Albania: Country environmental analysis. , 2020)

To overcome these challenges and promote the growth of green finance in Albania and the Balkans, there is a need for greater collaboration between policymakers, financial institutions, and businesses. Policymakers should provide a supportive regulatory environment that incentivizes green investments and promotes greater awareness of green finance. Financial institutions should develop innovative financial products and services that promote sustainable development, while businesses should adopt more sustainable practices and invest in environmentally friendly projects. Existing literature on green finance in developing countries, including the Balkans region, highlights the potential of green finance to promote sustainable development and mitigate climate change. However, it also identifies several challenges and barriers to the development of green finance in these countries. One common challenge identified in the literature is the lack of awareness and understanding of green finance among businesses, investors, and policymakers. This can result in a lack of demand for green financial products and services, and a lack of support from policymakers. (The green finance imperative: A practical guide for financial institutions in emerging markets. , 2021) To overcome this challenge, the literature suggests the need for greater education and awareness-raising efforts, as well as the development of supportive regulatory frameworks and incentives.

Another challenge identified in the literature is the limited availability of financing for green projects,

particularly for small and medium-sized enterprises (SMEs). This can be attributed to a lack of financial expertise and capacity among SMEs, as well as a lack of appropriate financial products and services. To address this challenge, the literature suggests the need for greater support from financial institutions, including the development of innovative financial products and services tailored to the needs of SMEs. The literature also identifies the importance of policy frameworks and incentives to promote green finance in developing countries. These can include tax incentives, subsidies, and regulatory frameworks that promote sustainable development and incentivize green investments. However, the literature notes that policy frameworks must be carefully designed to avoid unintended consequences, such as market distortions or inequitable outcomes (Fernández-Gutiérrez, 2020). Overall, the literature on green finance in developing countries, including the Balkans region, highlights the potential of green finance to promote sustainable development and mitigate climate change. However, it also identifies several challenges and barriers that must be addressed to promote the growth of green finance in these countries.

Strategies to enable the growth of green financing in Albania.

There are several strategies that can enable the growth of green financing in Albania:

Enhancing awareness and understanding: A key strategy to promote the growth of green financing in Albania is to enhance awareness and understanding of green financing among businesses, investors, and policymakers. This can be achieved through targeted education and awareness-raising campaigns, workshops, and training programs.

Developing supportive regulatory frameworks: Another strategy is to develop supportive regulatory frameworks and incentives that encourage green financing. This can include tax incentives, subsidies, and regulatory frameworks that promote sustainable development and incentivize green investments.

Developing innovative financial products and services: Financial institutions can play a key role in promoting the growth of green financing by developing innovative financial products and services tailored to the needs of businesses and investors in Albania. This can include green loans, green bonds, and other innovative financing mechanisms that incentivize green investments.

Promoting green banks: The establishment of green banks in Albania can also enable the growth of green financing by providing dedicated financing for green projects and initiatives. Green banks can provide financing at lower rates and with more favorable terms than traditional banks, making it easier for businesses and investors to access capital for green projects.

Strengthening partnerships: Collaboration between financial institutions, businesses, and policymakers can also enable the growth of green financing in Albania. This can include partnerships between financial institutions and businesses to develop and promote green financial products and services, as well as partnerships between financial institutions and policymakers to develop supportive regulatory frameworks and incentives.

Overall, a combination of these strategies can help to enable the growth of green financing in Albania, promoting sustainable development and mitigating climate change. (Hoepner, A. G. F., Kant, B., & Scholtens, B. , 2018)

Economic, social, and environmental benefits of green finance investments

Green finance investments have a range of economic, social, and environmental benefits that can contribute to sustainable development.

1. *Economic benefits:* green finance investments can stimulate economic growth and job creation by promoting the development of sustainable infrastructure, renewable energy, and other green industries. Green investments can also improve the financial performance of companies, reduce operational costs, and increase profitability.
2. *Social benefits:* green finance investments can also have social benefits, including improving public health by reducing air and water pollution, enhancing energy security, and increasing access to affordable and sustainable energy. Green investments can also improve social equity by creating jobs and economic opportunities in underserved communities.
3. *Environmental benefits:* Perhaps the most significant benefit of green finance investments is the positive impact on the environment. Green investments can help to reduce greenhouse gas emissions, promote the conservation of natural resources, and protect ecosystems and biodiversity. This, in turn, can help to mitigate the impacts of climate change and promote environmental sustainability.

In addition to these benefits, green finance investments can also contribute to achieving the United Nations Sustainable Development Goals (SDGs), which include objectives related to climate action, affordable and clean energy, sustainable cities and communities, and responsible consumption and production. (Paun, C., & Badea, L. , 2019) Overall, green finance investments have the potential to create significant economic, social, and environmental benefits, making them a powerful tool for promoting sustainable development.

Development, challenges, and barriers to the development of green finance in Albania and the Balkans.

1. *Policy frameworks:* A supportive policy framework is critical to the development of green finance. Governments can play a key role in promoting green finance through policies such as tax incentives, subsidies, and regulations that encourage investment in environmentally sustainable activities.
2. *Investor demand:* Growing investor demand for sustainable investments is driving the development of green finance. Investors are increasingly looking to invest in companies that are environmentally responsible and socially conscious.
3. *Financial innovation:* Financial innovation is driving the development of new green financial instruments, such as green bonds, which provide financing for sustainable projects.
4. *Technology:* Advances in technology are making it easier and more cost-effective to develop and implement sustainable technologies and practices.

While there is growing interest in green finance in Albania and the Balkans, there are several challenges and barriers that need to be addressed to accelerate its development:

1. *Lack of awareness*: Many businesses, investors, and consumers are not aware of the benefits of green finance or how to access it. This lack of awareness can be a major barrier to the growth of green finance.
2. *Limited availability of financial products*: Despite the increasing demand for green finance, there is still a limited supply of financial products and services that support sustainable investments in Albania and the Balkans.
3. *High costs*: green investments can be more expensive than traditional investments, which can be a barrier for some investors and businesses, particularly in developing countries like Albania.
4. *Regulatory barriers*: Regulatory barriers such as inconsistent policies and regulations that do not support green finance can hinder its growth.
5. *Lack of standardization*: There is a lack of standardization and consistency in the definitions and criteria for green finance, making it difficult to compare and evaluate different green investment opportunities.
6. *Limited capacity of financial institutions*: The lack of technical and financial capacity of financial institutions to assess and manage green finance can also be a challenge.
7. *Political instability and economic uncertainty*: Political instability and economic uncertainty can make it difficult for investors to make long-term commitments to green finance projects.
8. *Lack of data*: Limited data on the environmental impact and financial performance of green finance projects can also be a barrier to their development and scaling.

Addressing these challenges will require concerted efforts from governments, financial institutions, investors, and businesses to promote and support the development of green finance in Albania and the Balkans. (Green finance in the Western Balkans: An overview of policies, initiatives, and opportunities. , 2019)

Methodology

Research design and methodology

The research design and methods used in this paper involve a combination of literature review and case study analysis. The literature review involved a systematic search and analysis of relevant academic articles, reports, and publications on green finance in Albania and the Balkans. This helped to identify the current state of green finance in the region, the factors that promote or hinder its growth, and the potential economic, social, and environmental benefits of green finance investments. The case study analysis involved a detailed examination of specific green finance projects and initiatives in Albania and the Balkans. This included interviews with key stakeholders, such as financial institutions, investors, and policymakers, as well as a review of project documents, financial reports, and other relevant materials. The case studies were selected based on their relevance to the research objectives and research questions of the paper.

The research design and methods used in this paper allowed for a comprehensive analysis of the state of green finance in Albania and the Balkans, as well as the challenges and opportunities that exist for its development. By combining a literature review with case study analysis, this research was able to provide a detailed and nuanced understanding of the factors that contribute to the growth of

green finance, as well as the barriers that need to be overcome.

The data collection and analysis for this paper involved a combination of qualitative and quantitative methods. The qualitative data was collected through interviews with key stakeholders in the green finance sector in Albania and the Balkans. These stakeholders included representatives from financial institutions, investors, policymakers, and non-governmental organizations. The interviews were conducted using a semi-structured approach, allowing for a flexible exploration of the issues and themes related to green finance. The quantitative data was collected through a review of financial reports and other relevant materials related to green finance projects and initiatives in Albania and the Balkans. This data included information on the size and scale of green finance investments, as well as the economic, social, and environmental impacts of these investments.

The data was analyzed using a combination of qualitative and quantitative methods. The qualitative data was analyzed through a thematic approach, using coding and categorization to identify the key themes and issues related to green finance in Albania and the Balkans. The quantitative data was analyzed using descriptive statistics, allowing for an understanding of the size and scale of green finance investments in the region, as well as their economic, social, and environmental impacts.

The combination of qualitative and quantitative data analysis allowed for a comprehensive understanding of the state of green finance in Albania and the Balkans, as well as the challenges and opportunities for its development. This approach allowed for a nuanced understanding of the complex issues related to green finance in the region and provided a strong foundation for the conclusions and recommendations of the paper.

As with any study, there are limitations and potential sources of bias that should be considered when interpreting the results. Some of the limitations and potential sources of bias in this study include:

1. **Sampling bias:** While the purposive sampling technique used in this study allowed for a targeted approach to data collection, it may have introduced sampling bias. For example, if the sample of key stakeholders was not representative of the broader green finance sector in Albania and the Balkans, the results may not be generalizable to the broader population.
2. **Self-report bias:** The interviews conducted with key stakeholders relied on self-reported data, which may be subject to bias. For example, if participants provided socially desirable responses or if they were not fully forthcoming about their experiences, the data collected may not accurately reflect the realities of the green finance sector in Albania and the Balkans.
3. **Limited data availability:** The availability of financial and policy data on green finance in Albania and the Balkans may be limited, which may have restricted the scope and depth of the analysis.
4. **Time constraints:** The study was conducted within a limited time frame, which may have limited the amount of data that could be collected and analyzed.
5. **Language barriers:** As the study was conducted in Albania and the Balkans, language barriers may have limited the ability of the researchers to access and analyze data sources that were only available in local languages.

It is important to acknowledge these limitations and potential sources of bias when interpreting the results of the study, and to consider them when making recommendations for future research and practice in the green finance sector in Albania and the Balkans.

Results and Analysis

Overview of the current state of green finance in Albania and the Balkans

Green finance is still a relatively new concept in Albania and the Balkans, with limited institutional capacity and regulatory frameworks to support its development. Despite this, there is growing interest and momentum around green finance, driven by increasing awareness of the economic, social, and environmental benefits of sustainable development.

In Albania, the government has taken some steps to support the growth of green finance, including the development of a National Energy Efficiency Action Plan, which includes measures to increase access to financing for energy efficiency projects. (Mabey, N., & Gulledge, J. , 2017) There are also several international organizations and development agencies working in Albania to support the development of green finance, including the European Bank for Reconstruction and Development and the United Nations Development Program.

In the wider Balkans region, there are some notable examples of successful green finance initiatives, including the Green for Growth Fund, which provides financing and technical assistance to energy efficiency and renewable energy projects in the region. However, challenges remain, including the limited availability of data on green finance investments, inconsistent policy frameworks across different countries, and a lack of awareness and understanding of green finance among investors and financial institutions.

Despite these challenges, there is significant potential for green finance to drive sustainable development in Albania and the Balkans. (Green finance in the Western Balkans: An overview of challenges and opportunities. , 2020) By supporting investments in energy efficiency, renewable energy, and other environmentally sustainable projects, green finance can help to reduce greenhouse gas emissions, improve energy security, and promote economic growth and job creation. As such, there is a clear need for continued research, advocacy, and investment to support the growth of green finance in the region.

Analysis of the strategies to enable the growth of green financing in Albania.

To enable the growth of green financing in Albania, there are several key strategies that can be pursued. These include:

1. **Developing a regulatory framework to support green finance:** There is a need to establish a clear regulatory framework that supports the development of green finance in Albania. This could include policies that encourage the issuance of green bonds and other green financial instruments, as well as regulations that require financial institutions to disclose their environmental and social impact.
2. **Building institutional capacity:** There is a need to build institutional capacity in Albania to support the growth of green finance. This could involve establishing a dedicated green finance unit within the government, as well as supporting the development of green finance expertise within financial institutions and other relevant organizations.
3. **Promoting public awareness:** There is a need to promote public awareness of green finance and its potential benefits. This could involve targeted education and outreach campaigns, as

well as the development of tools and resources that make it easier for individuals and businesses to access green finance.

4. Providing technical assistance and capacity building: There is a need to provide technical assistance and capacity building support to financial institutions and other relevant organizations. This could involve providing training and technical assistance on issues such as green bond issuance, sustainable lending, and environmental risk management.
5. Leveraging international support: There is a need to leverage international support for the development of green finance in Albania. This could involve working with international organizations such as the European Bank for Reconstruction and Development and the United Nations Development Program to access financing and technical assistance.

While there is significant potential for green finance to drive sustainable development in Albania, there are also several challenges that need to be overcome. These include a lack of awareness and understanding of green finance among investors and financial institutions, inconsistent policy frameworks across different countries in the region, and a limited availability of data on green finance investments. By pursuing these strategies and addressing these challenges, however, it is possible to enable the growth of green financing in Albania and drive progress towards a more sustainable future. (Albania's National Climate Change Adaptation Plan 2021-2025. , 2020)

Economic, social, and environmental benefits of green finance investments in Albania

Green finance investments in Albania have the potential to bring about a range of economic, social, and environmental benefits. These benefits can be achieved through the development and implementation of various green finance mechanisms and instruments, such as green bonds, green loans, and green funds.

Economically, green finance investments can create new business opportunities, drive innovation and competitiveness, and support the transition to a low-carbon economy. Green finance can stimulate investments in renewable energy, energy efficiency, sustainable transportation, and other green sectors, leading to job creation and economic growth.

Socially, green finance can contribute to poverty reduction and social inclusion by providing access to finance for vulnerable groups, such as small and medium-sized enterprises (SMEs), farmers, and households. Green finance can also improve the living conditions of local communities by promoting sustainable infrastructure and urban development.

Environmentally, green finance investments can reduce greenhouse gas emissions and mitigate climate change impacts by promoting sustainable and climate-resilient practices. For example, investments in renewable energy and energy efficiency can reduce reliance on fossil fuels and lower carbon emissions. Investments in sustainable agriculture and forestry can promote biodiversity conservation and ecosystem services. Overall, green finance investments have the potential to create a win-win situation for the economy, society, and the environment.

Identification and accessibility to the potential green finance opportunities in the areas of renewable energy, energy efficiency, sustainable tourism, waste management, and sustainable agriculture.

Renewable Energy:

Albania has considerable potential for the development of renewable energy sources such as hydro, solar, wind, and biomass. Green finance investments in these sectors can help to reduce the country's dependence on fossil fuels and improve energy security. For example, green bonds and funds can be used to finance the construction of new renewable energy infrastructure, such as hydro and solar power plants. Furthermore, green loans and other financial incentives can be provided to households and businesses to support the installation of solar panels and other renewable energy systems.

Energy Efficiency:

Improving energy efficiency is an effective way to reduce energy consumption and lower carbon emissions. Green finance can play a crucial role in supporting energy efficiency measures in buildings, industry, and transport. For instance, green loans can be used to finance energy-efficient building retrofits, and green funds can be used to support research and development of new energy-efficient technologies. In addition, financial incentives such as tax credits and rebates can be provided to encourage the uptake of energy-efficient appliances and equipment.

Sustainable Tourism:

Tourism is a major contributor to the Albanian economy, but it also poses significant environmental challenges. Green finance investments in sustainable tourism can help to minimize the negative impacts of tourism on the environment and local communities while supporting the growth of the tourism sector. For example, green bonds can be used to finance the construction of eco-friendly hotels and resorts, while green funds can be used to support the development of sustainable tourism practices, such as nature-based tourism and cultural tourism.

Waste Management:

Inefficient waste management practices can lead to environmental pollution and health hazards. Green finance investments in waste management can help to promote sustainable waste management practices, such as recycling and composting, and reduce the amount of waste sent to landfills. For example, green bonds can be used to finance waste-to-energy projects, while green loans can be used to support the development of recycling and composting facilities.

Sustainable Agriculture:

Agriculture is a major sector in Albania, but it is also a significant contributor to greenhouse gas emissions and land degradation. Green finance investments in sustainable agriculture can help to promote climate-smart agriculture practices, such as agroforestry, conservation agriculture, and organic farming. For instance, green funds can be used to support farmers in adopting sustainable agricultural practices, while green loans can be used to finance the adoption of sustainable agricultural technologies and practices. (Accelerating green finance in Albania., 2019)

In summary, green finance investments in renewable energy, energy efficiency, sustainable tourism, waste management, and sustainable agriculture can bring significant economic, social, and environmental benefits to Albania. However, to realize these benefits, it is essential to address the challenges and barriers that hinder the development of green finance in the country.

Challenges and Recommendations

Green finance in Albania is still in its early stages of development, and it faces several challenges and barriers that hinder its growth. The main challenges include political, institutional, and financial

factors.

One of the biggest political barriers is the lack of clear and consistent policy and regulatory frameworks. The government of Albania has yet to provide a coherent and stable policy framework that can attract green investments and support the growth of green finance. Moreover, the lack of enforcement mechanisms, the inconsistency of policy implementation, and the absence of a clear and robust legal system have contributed to a lack of confidence among investors.

Institutional barriers include the lack of awareness and understanding of green finance among financial institutions, businesses, and the public. The lack of capacity building and training programs, as well as inadequate access to information on green finance opportunities and incentives, has limited the growth of the sector.

Financial barriers include the lack of access to affordable capital and financing options for green projects. The high cost of capital, limited access to financing, and a lack of financial incentives for green investments are significant challenges for the growth of green finance.

Another critical challenge is the lack of reliable and accurate data on the environmental and social impact of green investments. The lack of transparency and accountability in reporting and monitoring mechanisms has made it difficult for investors to evaluate the actual impact of their investments.

Finally, there is a need for a coordinated effort among stakeholders, including government, financial institutions, businesses, and civil society, to promote green finance and create an enabling environment for its growth. The lack of coordination and collaboration among stakeholders has contributed to the slow growth of green finance in Albania.

Addressing these challenges requires a comprehensive approach that involves policymakers, financial institutions, and civil society. Some recommended strategies include developing a clear and stable policy framework, establishing a green investment fund, creating a regulatory framework that encourages green finance, promoting public-private partnerships, and investing in capacity building and awareness-raising initiatives.

Based on the analysis of the challenges and opportunities of green finance in Albania, the following recommendations and strategies are proposed to promote the growth of green finance:

1. **Increasing awareness and education:** There is a need to increase public and private awareness of the benefits of green finance and how it can support sustainable development. Education and training programs for financial institutions, investors, and the public should be developed and promoted.
2. **Improving policy coordination:** A lack of policy coordination has been identified as a major challenge to the growth of green finance. Policy makers should work together to develop a cohesive and consistent policy framework that supports green finance initiatives.
3. **Creating green finance incentives:** To encourage investment in green projects, incentives such as tax breaks, subsidies, and reduced interest rates should be offered to financial institutions and investors.
4. **Developing a green finance market:** A well-functioning green finance market will enable the flow of capital to sustainable projects. Financial institutions should work to create and develop a market for green finance products.

5. Strengthening regulatory frameworks: Regulatory frameworks should be strengthened to ensure that green finance products and services are transparent, reliable, and effective.
6. Promoting technology and innovation: The use of technology and innovation can play a significant role in promoting the growth of green finance. Digital platforms and tools should be developed and promoted to facilitate green finance transactions.
7. Supporting research and development: There is a need for further research and development to support the growth of green finance in Albania. Funding should be provided for research and development programs focused on green finance.

By implementing these recommendations and strategies, Albania can overcome the challenges and promote the growth of green finance, supporting sustainable development and contributing to the global effort to mitigate climate change. (European Investment Bank, 2021) Based on the analysis of the challenges and barriers to the development of green finance in Albania, several recommendations and strategies can be proposed to overcome these obstacles and promote the growth of green finance in the country. These recommendations and strategies include:

1. Strengthening policy and regulatory frameworks: Albania needs to establish a clear and consistent policy and regulatory framework that promotes the development of green finance. This framework should include regulations that incentivize green investments, promote transparency and accountability, and support the development of green financial products.
2. Improving financial literacy and awareness: There is a lack of awareness and understanding of green finance among the public, investors, and financial institutions in Albania. Improving financial literacy and awareness through education and training programs can help increase understanding and interest in green finance.
3. Enhancing public-private partnerships: Public-private partnerships can play a critical role in promoting the development of green finance in Albania. Collaboration between the public and private sectors can help leverage resources, build capacity, and share knowledge and expertise.
4. Strengthening the role of financial institutions: Financial institutions in Albania can play a critical role in promoting the growth of green finance. They should develop and offer more green financial products, including loans, bonds, and insurance, and promote green investments to their clients.
5. Enhancing international cooperation and collaboration: International cooperation and collaboration can help Albania access resources, knowledge, and expertise in the development of green finance. Collaboration with international organizations, donors, and other countries can help leverage resources and promote the development of green finance in Albania.

Implementing these recommendations and strategies can help overcome the challenges and barriers to the development of green finance in Albania and promote the growth of sustainable investments in the country.

The potential role of international organizations, public-private partnerships, and civil society in

supporting green finance initiatives in Albania.

International organizations, public-private partnerships, and civil society can play a crucial role in supporting green finance initiatives in Albania. These actors can bring expertise, funding, and technical assistance to support the development and implementation of green finance projects.

International organizations such as the United Nations Development Program (UNDP), the European Bank for Reconstruction and Development (EBRD), and the World Bank Group can provide financial resources and technical assistance to help overcome some of the challenges faced by green finance initiatives in Albania. These organizations can also facilitate knowledge sharing and collaboration between stakeholders in different countries and regions, promoting the exchange of best practices and lessons learned.

Public-private partnerships can also be instrumental in advancing green finance in Albania. By bringing together government entities, private sector actors, and civil society organizations, these partnerships can leverage different perspectives and resources to design and implement effective green finance strategies. For example, private sector actors can provide funding and technical expertise, while government entities can provide regulatory frameworks and policy support.

Civil society organizations can also play an important role in advocating for and promoting the development of green finance initiatives in Albania. By raising public awareness and engaging with stakeholders, these organizations can help create demand for green finance products and services. Civil society can also serve as a watchdog, ensuring that green finance initiatives are implemented in a transparent and accountable manner.

Overall, the potential role of international organizations, public-private partnerships, and civil society in supporting green finance initiatives in Albania is significant, and their involvement can help to overcome the challenges faced by green finance initiatives in the country.

Conclusion

This paper provides an overview of the current state of green finance in Albania and the Balkans, analyzing the strategies to enable the growth of green financing and the economic, social, and environmental benefits of green finance investments. The study also identifies the potential green finance opportunities in the areas of renewable energy, energy efficiency, sustainable tourism, waste management, and sustainable agriculture.

The research reveals that green finance is not yet fully developed in Albania, with several challenges and barriers such as lack of awareness, inconsistent policies, and inadequate regulatory frameworks. However, there are potential opportunities for green finance investments in the country. The paper proposes recommendations and strategies to overcome these challenges and promote the growth of green finance in Albania, including the need for public-private partnerships, the development of a regulatory framework, and the promotion of green finance awareness. The key findings of this paper contribute to the literature on green finance in developing countries, particularly in the Balkans region, and provide valuable insights for policymakers, financial institutions, and investors who are interested in promoting sustainable development through green finance.

Green finance can have significant implications for the Albanian business and economy. Firstly, by promoting environmentally friendly investments and practices, it can help to mitigate the negative

impact of climate change and contribute to the achievement of sustainable development goals. This can lead to long-term economic benefits, such as increased competitiveness, improved productivity, and enhanced resilience to climate risks.

Secondly, the development of green finance can create new opportunities for businesses in renewable energy, energy efficiency, sustainable tourism, waste management, and sustainable agriculture sectors. This can lead to the growth of new industries and the creation of new jobs, which can contribute to economic development and reduce unemployment.

Thirdly, green finance can contribute to the attraction of foreign investment, as it can demonstrate a country's commitment to environmental sustainability and responsible business practices. This can lead to increased foreign direct investment and help to position Albania as a leader in the green economy in the Balkans region.

In conclusion, this paper has highlighted the potential of green finance as a means to promote sustainable development in Albania and the Balkans, through the support of environmentally friendly activities and investments. Despite the challenges and barriers that exist, there are significant opportunities for green finance investments in areas such as renewable energy, energy efficiency, sustainable tourism, waste management, and sustainable agriculture.

The paper has identified strategies and recommendations to enable the growth of green financing in Albania, including the need for stronger political will and institutional support, better coordination and alignment of policies, increased awareness and education, and the promotion of public-private partnerships and civil society engagement.

The potential impacts of green finance on the Albanian business and economy are significant, including the creation of new jobs and economic opportunities, increased competitiveness, and improved environmental and social outcomes. However, further research and collaboration are needed to fully realize these benefits and address the remaining challenges and barriers to the development of green finance.

Overall, this paper contributes to the growing literature on green finance in developing countries and provides insights and recommendations for policymakers, investors, and other stakeholders interested in promoting sustainable development through green finance.

References

- Akerkar, R., & Mohanty, S. (2019). Green finance and sustainable development in emerging economies. *Journal of Cleaner Production*, 228, 1561-1562.
- Arner, D. W., Barberis, J. N., & Buckley, R. P. (2015). The evolution of FinTech: A new post-crisis paradigm? *University of Pennsylvania Journal of International Law*, 36(1), 1-66.
- Arner, D. W., Barberis, J. N., & Buckley, R. P. (2018). The evolution of fintech: A new post-crisis paradigm? *Georgetown Journal of International Law*, 49(4), 1277-1334.
- Dedeoglu, O., & Ece, A. (2019). Renewable energy financing in Turkey: Challenges and solutions. *Journal of Cleaner Production*, 230, 365-374.
- Dimitrova, V., & Todorova, N. (2019). Sustainable finance in Bulgaria: challenges and opportunities. *International Journal of Sustainable Development & World Ecology*, 26(4),

301-310.

- European Bank for Reconstruction and Development (EBRD). (2019). Green finance in the Western Balkans: An overview of policies, initiatives, and opportunities. Retrieved from <https://www.ebrd.com/news/2019/green-finance-in-the-western-balkans-an-overview-of-policies-initiatives-and-opportunities.html>
- European Investment Bank. (2021). Green finance in the Western Balkans. Retrieved from https://www.eib.org/attachments/pipeline/20180194_green-finance-in-the-western-balkans_en.pdf
- Fernández-Gutiérrez, E., Pellegrini-Masini, G., & Beltrán-Esteve, M. (2020). The role of green finance in the sustainability of SMEs: A bibliometric analysis. *Sustainability*, 12(21), 9074.
- G20 Green Finance Study Group. (2016). G20 green finance synthesis report.
- Gashi, A., & Jashari, M. (2020). The importance of green finance for sustainable economic growth: Evidence from the Western Balkan countries. *Journal of Balkan and Near Eastern Studies*, 22(2), 213-229.
- Global Green Growth Institute. (2018). Green finance opportunities in Albania. Retrieved from <https://gggi.org/wp-content/uploads/2018/11/Green-Finance-Opportunities-in-Albania.pdf>
- Hoepner, A. G. F., Kant, B., & Scholtens, B. (2018). Environmental and ecological economics in the 21st century: An age-adjusted citation analysis of the ecological economics journal. *Ecological Economics*, 149, 274-284.
- Hsu, S. J., & Huang, C. Y. (2019). Does green finance promote economic growth? An empirical analysis of developing and developed countries. *Economic Modelling*, 82, 358-366.
- Hu, B., Li, X., Yang, J., & Zhang, Q. (2020). China's green finance development: Status, challenges, and policy implications. *Journal of Cleaner Production*, 257, 120546.
- International Finance Corporation (IFC). (2018). Green finance opportunities in emerging markets. Retrieved from <https://www.ifc.org/wps/wcm/connect/04d10f80-09aa-4c6f-bfa6-8aa6d8345276/Green+Finance+Opportunities+in+Emerging+Markets.pdf?MOD=AJPERE&CVID=lpR7Vwj>
- International Finance Corporation. (2019). Green finance opportunities in emerging markets: An overview of trends, players, and approaches.
- Krichene, N. (2021). Green finance in Tunisia: Opportunities and challenges. *Renewable Energy*, 166, 1-9.
- Mabey, N., & Gulledge, J. (2017). Green finance: A bottom-up approach to track global progress. *Nature Climate Change*, 7(5), 308-310.
- Malaeb, B., & Cassar, G. (2019). Green bonds: A review of sustainable investment tool for financing renewable energy. *Renewable and Sustainable Energy Reviews*, 109, 75-85.
- Ministry of Tourism and Environment, Republic of Albania. (2020). Albania's National Climate Change Adaptation Plan 2021-2025. Retrieved from <https://klima.gov.al/wp-content/uploads/2020/10/Albanias-National-Climate-Change-Adaptation-Plan-2021-2025.pdf>
- Muradoglu, G., & Tas, A. (2019). Green finance for sustainable development in Turkey. *Journal of Cleaner Production*, 229, 846-855.

- Paun, C., & Badea, L. (2019). Green finance and sustainable development in the European Union. *Sustainability*, 11(23), 6642.
- Scholten, B. (2018). Sustainable finance and investments. In *Oxford Research Encyclopedia of Economics and Finance*. doi:10.1093/acrefore/9780190625979.013.197
- United Nations Development Programme. (2019). Accelerating green finance in Albania. Retrieved from https://www.al.undp.org/content/dam/albania/docs/Green%20Finance/UNDP_Accelerating-Green-Finance-in-Albania.pdf
- United Nations Development Programme. (2020). Green finance in the Western Balkans: An overview of challenges and opportunities. Retrieved from https://www.undp.org/content/dam/serbia/docs/Green_Finance_in_the_Western_Balkans.pdf
- Wang, X., Wu, Y., Li, Z., & Liang, X. (2020). A comparative analysis of green finance development in China and the United States. *Journal of Cleaner Production*, 244, 118593. doi: 10.1016/j.jclepro.2019.118593
- World Bank Group. (2018). Green finance and investment: Country readiness and financial sector opportunities. Retrieved from <https://openknowledge.worldbank.org/bitstream/handle/10986/29683/125267.pdf?sequence=1&isAllowed=y>
- World Bank Group. (2020). Albania: Country environmental analysis. Retrieved from <https://openknowledge.worldbank.org/handle/10986/34439>
- World Economic Forum. (2021). The green finance imperative: A practical guide for financial institutions in emerging markets. Retrieved from <https://www.weforum.org/reports/the-green-finance-imperative-a-practical-guide-for-financial-institutions-in-emerging-markets>
- Ye, Q., Liu, L., & Zhu, Y. (2019). A review of green finance research. *Journal of Cleaner Production*, 208, 463-478.
- Yim, Y., Lee, M., & Park, H. (2019). A review of green bond research. *Renewable and Sustainable Energy Reviews*, 111, 414-422.
- Zhang, B., Wu, Y., Li, H., & Su, Y. (2020). Green finance development and corporate environmental responsibility: Evidence from China. *Journal of Cleaner Production*, 256, 120383.
- Zhang, G., Wu, Y., Gao, Y., & Yu, J. (2020). Green finance and economic growth: Evidence from China. *Energy Economics*, 91, 105995.
- Zhang, X., & Dong, W. (2020). Green finance, environmental performance, and firm value: Evidence from China's stock market. *Journal of Cleaner Production*, 254, 120064.
- Zheng, X., Wang, J., & Zhang, X. (2021). Financial development and green finance: A review. *Journal of Cleaner Production*, 298, 126691.

Digitalization or nepotism in the recruitment process – the case of Albania

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Abstract

The purpose of this study is to describe the influence of digital channels and types of applications for a job position and the digital means of the interviewing process. This gains special attention in light of Industry 4.0 changes in the economy and the spread of new technological developments in every aspect of society, especially after the pandemic and globalization. Primary data were collected through an online questionnaire delivered through electronic communication means. Econometric methods were used to analyze these data through Stata. The results show a slow influence of these digital means regarding the application process, which shows still the predominance of nepotism in the recruitment process. Other is the situation regarding the interviewing process, where these means are well established also from the change from manual working practices to online practices, including recruitment. Innovation scientists, Human Resource Management, and businesses are interested in knowing these findings and integrating them into their work, by facilitating the way to a sustainable era in the recruitment process.

Keywords: Meritocracy, nepotism, human resources, recruitment

Introduction

This study raises some questions regarding how far digitalization has influenced the recruitment process in Albania and how much the old ways of finding and hiring new personnel still exist in our society. The rapid development of technology and internet has not only changed the society and intercommunication but also other specific aspects of our lives such as recruitment (Duica et.al.,

2018). Therefore, the study describes the application means mostly used by Albanians (especially after the pandemic). Parallel it focuses also on interviewing types used by Albanian businesses and institutions. How did this aspect look like during and after the pandemic of Covid-19? Does nepotism still predominate over digitalization in the recruitment process? According to a bibliometric analysis of nepotism by Kaushal et.al. in 2021, nepotism is seen as biasness in relation to close relatives and friends as a result of which they get employed not because of their abilities, but because of their relationship to the employer. To this is also connected the frequency of job application, whether one to five times or over ten times, depending on the chosen application channel, let alone the possible disappointment and the difficulty to mentally prepare for the next application. These are some aspects which this paper focuses and tries to give an answer.

The research hypothesis are the following:

H. 1: Job applications by using digital means influences positively the recruitment process in Albania.

H.2: Giving an interview using digital and traditional means influences positively the recruitment process in Albania.

This paper will be a good starting point in future researches for the reality of countries with a fragile democracy and higher rates of corruption, in order to investigate the reasons behind unfair recruitment practices and what it means for the following employees performance and companies output in the economy. A fair job market competition is one of the fundamentals of the system and is a key factor in emancipating the society of a transition country like Albania in order to better face the challenges of an economic development.

The conceptual framework of this study based on the above mentioned hypothesis is as follows:

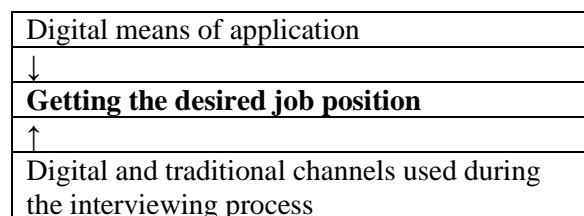


Table no. 1 Conceptual Framework

Literature Review

Different recruitment strategies are used by institutions nowadays worldwide, whether public or private. They vary from applying through an online platform of the institutions themselves or recruitment agencies, to sending the CV and/or motivational letter per email to these institutions or

by filing an online form at their websites or of the recruitment agencies (Sabatier, 2010), by using social media for the same purposes (Bejtkovský, 2018), internet portals for specific foreign countries seeking foreign specialist, as well as other forms of digital channels, e.g. Facebook, Twitter, WordPress, LinkedIn, Pinterest, Blogger, Instagram etc. (Sinha et.al., 2013). Even in the time of Gen Z student`s portfolios are being distributed through the internet, in order to effectively transmit communication skills which are so highly required by employers (Powell, et.al., 1998). At the other side, there are also other more classical means or informal recruitment methods (Nijkamp, 2001) such as sending the application documents per post or personally at the premises of the institution, or even unconventional means such as using friendships inside of the institution to hand over the documents and influence the application or to get hired directly by the owners, executives or family members. Traditional ways include also recruitment through advertisements placed on newspapers, but also the use of agencies, head hunters etc. (Dhamija, 2012). Similar ways can be said about the way you win the job position, namely about the job interview, which also include the above mentioned online channels (Sinha et.al., 2013). But there are also other forms of filtering the future employee nowadays, such as testing their knowledge online, through an online knowledge or language test, online role play, web assessments, a knowledge which can be tested in various ways, but more and more using digital means (Dhamija, 2012). Especially during and after the Covid-19 Pandemic the online interviewing process was spread rapidly worldwide due to the massive flight and movement restrictions for the fear of not spreading the virus (Jones, 2020). It remained a well-established habit for many institutions even after all the masses were waived (Przytuła, 2020) and it marks the selection fairness in the recruitment process in many cases and gives many advantages to both employers and future employees, such as by eliminating the fear of the first encounter with your first employee, by giving the possibility of candidates from overseas to avoid extra travel and accommodation costs which impedes them of taking the first step, adding the chances to hire people from all over the world and profit from the variety of human assets, not being limited to the local candidates or the ones recommended by people you know, facilitating the recruitment process, decreasing the hiring costs etc. (Dafoulas, 2002). Unfortunately, not everywhere is established this recruitment practice and in countries with a fragile democracy there do still exist the old ways of using acquaintances to apply and to succeed at an interviewing process. This influences staff turnover, the duration of unemployment for a certain category of people, firms performance, etc. (Ponzo, et. al. 2009). Lack of meritocracy in the recruitment process, leads to a lower job performance and workplace motivation, as well as employee satisfaction, higher withdrawal rate,

etc. (Serfraz, et.al., 2022). Moreover, the channel chosen from companies and other institutions to recruit new employees play a major role in a fair information distribution which in turn influences a possible resulting inequality on gender, race etc. (Russo et. al. 2000). Both parties can put and see the necessary information on web and reach to a suitable conclusion regarding choosing where and how to apply from the job seeker`s side and choosing who to hire from the employer`s side by easily keeping track of the status of the applicants (Okolie et.la., 2017). As we can see from the above literature, digital channels are one of the ways which has raised the chances to get fairly selected, and at the other side they offer a much more higher variety of job positions to apply for. There do lack studies in Albania which focus on these aspects and this research tries to describe this tendency even here.

Methodology

This study uses qualitative and quantitative data collected through a questionnaire about digitalization and recruitment process. It was created using Google forms and spread via digital communication channels to people of different age groups (working age), income and education level, who were asked to spread it to other people at a job seeking age, who they knew, according to the snowball method (Naderifar, 2017). Stata was used for statistic`s generation and econometric results. The quantitative data are of an interval discrete scale, whether the qualitative data are of a categorical nominal scale in order to give a picture of the general opinions of the respondents and use descriptive statistics to understand the trend of the recruitment practices in Albania. Further on, for the purpose of getting to a meaningful conclusion the answers were grouped in a way to better fit these qualitative variables into Logit and Probit regression analyses. The formulas used for this purpose are the following:

$$\text{LPM: } y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + u = X\beta + u \quad (1)$$

Probit:

$$P \quad y = 1 = \Phi X\beta$$

(2)

(y = 1) will be a number between 0 and 1 because the cdf of the normal distribution is a number between 0 and 1.

The logit model uses the logistic function:

$$P \quad y = 1 = G \quad X\beta =$$

$$\text{Exp}(x\beta/1 + \exp(x\beta)) = e^{X\beta} / 1 + e^{X\beta}$$

(4)

(y=1) will be a number between 0 and 1 because $\exp(X\beta)$ is positive.

Results and discussions

The results of the questionnaires show that 56.8% of the respondents are at the age of 20-24 years old, 12.2% of them are 25-29 years old, 6.8% are 30-35 years old, 9.5% are 36-45, and 14.9 are 46-60 years old. Regarding gender, 71.6% of the respondents are female, 27% Male, and 1% and did not prefer to answer. From them, 70.3% have a Bachelor degree, and 23% a Master's degree. The questionnaire is intended to ask about the recruitment experiences in general in the lives of the respondents, whether in the present, or in the past, regarding employment or internship. Therefore, over 70% of the respondents are employed, have been employed before or are/have been interns. 68.9% of them work in the private sector. From them 39.2% work in the service sector, 24 % in the trade sector.

Regarding the answers of the respondents on questions related to the dependent variables, ca. 36.8 % applied for the job or internship using an acquaintance among the management staff closely connected to the owner of the company or by using the traditional channels of application (as handing out the application in person at the premises of the institution) and 36.6 % through digital means of application, such as email, internet page of the company, of the state institution or of the agency, using the respective social networks, etc.. Whether regarding the interviewing process, 27.1 % of the respondents won the job through an informal arrangement or meeting with the management staff or the owner of the company. Related to digital means and traditional ways of conducting the interview from the future possible employers 50.1 % of the respondents answered that they got the desired job position by going through a process of online application or in person at the premises of the institutions, of recruitment agencies, after being tested online or in person, etc.. Concerning the independent variable of getting the desired job position, 43,2 % did succeed in it, and 32,4% did not.

The results using the Probit regression are as follows:

Number of obs = 74

LR chi2(2) = 16.01

Prob > chi2 = 0.0003

• Log likelihood = -42.612607 Pseudo R2 = 0.1581

<i>p. Variable</i>	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
Got Job					
Application Channel	.38335	.407728	0.9	0.628	[-1.500653 1.777732]
Interview Type	1.069864	.97483	1.09	0.13	[-.275723 1.412155]
_cons	-1.681428	.221138	-7.46	0.001	[-2.1203478 -1.328077]

The results using the Logistic Regression are as follows:

Number of obs = 74

- LR chi2(2) = 15.99
- Prob > chi2 = 0.0003
- Log likelihood = -42.617884 Pseudo R2 = 0.1580

<i>Dep. Var.</i>	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]
Got Job					
Application Channel	.3463301	.7256986	0.48	0.633	[-1.076013 1.768673]
Interview Type	1.742475	.710132	2.45	0.014	[-.3506415 3.134308]
_cons	-1.255618	.3812544	-3.29	0.001	[-2.002863 -.5083729]

According to the results, the independent variable “Interview Type using online interviews, and other conventional/traditional interview types”, is of importance for the study (P value of 0,014 for the Probit Regression and 0,13 for the Logistic regression), and one increase in this variable, increases with 174 % the employability according to the logistic regression, and 106,9% to the Probit equation. At the other hand, the independent variable “Application Channel using digital means” such as social media, emails, online forms etc. did not show a significance for the study, which implies (indicates)

that the Albanian society still suffers nepotism signs in the recruitment process, especially if one takes into account the high percentage of the respondents having used acquaintances during their application process (36.8 %), which might distort the job market by depriving more suitable candidates to even get in contact with the recruiters, let alone to succeed further until the interview.

Conclusions and recommendations/implications

In our previous study on the influence of the pandemic on job applications, resulted that word of mouth placed 50 % of the respondents regarding the channel where they heard for the first time about the new job position, which is also connected to the nepotism following even after this process, during the interview and sourcing process (Mani, et.al., 2022). The fact that even in this study following the previous one, the Application Channel using digital means such as social media, emails, online forms etc. did not show a significance for the study, implies that the Albanian society still suffers nepotism signs in the recruitment process.

More importance should be given to such results and take measures to avoid such practices, that do not help to the sustainability of the business and of the society as a whole.

References

- Bejtkovský J., Rózsa, Z., Mulyaningsih, D.H. (2018). A Phenomenon of Digitalization and E-Recruitment in Business Environment. *Polish Journal of Management Studies*, 18 (1).
- Dafoulas, G. A., Pateli, A. G., Turega, M. (2002). Business-to-employee cooperation support through online job interviews. Proceedings. 13th International Workshop on Database and Expert Systems Applications, Aix-en-Provence, France, (pp. 286-292), doi: 10.1109/DEXA.2002.1045912.
- Dhamija, P. (2012). E-Recruitment: A Roadmap towards E-Human Resource Management. *Journal of Arts & Commerce*, III, 3(2).
- DUICĂ , A., Florea, N.V. (2018). Challenges for business e –recruitment and modeling. *The Journal Contemporary Economy*, 3(3).
- Jones, R. E., Abdelfattah, K. R. (2020). Virtual Interviews in the Era of Covid-19: A primer for Applicants. *Journal of Surgical Education*, 77 (4).
- Kaushal, N., Ghawalat, S., Kaurav, R.P.S. (2021). Nepotism Concept Evaluation: A systematic review and Bibliometric Analysis. *Library Philosophy and Practice (e-journal)*. 4896. Libraries ar University of Nebraska-Lincoln.
- Mani, Lamce, Xhuvëli, Hoxhalli, (2022). Pandemic and job announcements. *10th International*

Scientific Conference Modern Research and Trends in Economics, Law and Social Policies (pp. 423-429). Elbasan: Economic Faculty, University of Elbasan.

Naderifar, M., Goli, H., Ghaljaie, F. (2017). Snowball sampling: a purposeful method of sampling in qualitative research. *Strides in Development of Medical Education Journal*, 14 (3).

Okolie, U. C., Irabor, I. E. (2017). E-Recruitment: Practices, Opportunities and Challenges.

European Journal of Business and Management, 9 (11).

Ponzo, M., Scoppa, V. (2010). The Use of Informal networks in Italy: Efficiency or Favoritism?

Journal of Behavioral and Experimental Economics (formerly The Journal of Socio-Economics), Elsevier, 39(1), 89-99.

Powell, K.S., Jankovich, J.L. (1998). Student Portfolios: A Tool to Enhance the Traditional Job Search. *Business Communication Quarterly*, 61(4).

Przytuła, S., Strzelec, G., Krysińska-Kościańska, K. (2020). Re-vision of Future Trends in Human Resource Management (HRM) after COVID-19. *Journal of Intercultural Management*. 12(4).

DOI 10.2478/joim-2020-0052.

Russo, G., Rietveld, P., Nijkamp, P., Gorter, C. (2000). Recruitment channel use and applicant arrival: An Empirical Analysis. *Empirical Economics*, 25:673-697.

Sabatier, M. (2010). Filling Vacancies: Identifying the Most Efficient Recruitment Channel. *Economics Bulletin* 30 (4).

Serfraz, A., Munir, Z., Mehta, A.M., Qamruzzaman, M. (2022). Nepotism Effects on Job Satisfaction and Withdrawal Behavior: An Empirical Analysis of Social, Ethical and Economic Factors from Pakistan. *Journal of Asian Finance, Economics and Business*, 9(3). doi:10.13106.

Sinha, V. & Thaly, P. (2013). A review on changing trend of recruitment practice to enhance the quality of hiring in global organizations. *Management*, 18, (2), 141-156.

Risk - Its Meaning, Impact and Diversification in the Albanian Banking Sector

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Abstract

In this modest work, the authors have tried to present the impact of some of the different risks that affect the sector of banking markets and financial institutions operating in Albania.

Throughout this paper, the authors have tried to analyze not only the notion of risk with its constituent elements, but also the strategies used for risk identification.

The main literature used throughout this study is mainly qualitative in nature. The lack of information regarding the management strategies used by banks and different companies due to the close relationship that exists between this information and the long-term objectives and strategies of these companies is another limiting element.

A special part of this work is dedicated to risk diversification based on studies and different literatures that are implemented in the countries of the European Union and beyond.

Keywords: *Commercial Bank, Financial Institutions, Investment Funds, Systematic Risk, Risk Diversification.*

Introduction.

The main objective of this study is to analyze the effects of risk diversification in the banking system and the impact it has on the stability of the banking system.

Study questions:

1. To explain analytically the meaning of diversification and its impact on the banking system.
2. To analyze the level of diversification of the portfolios of the second level banks.
3. To analyze the effects that diversification of portfolios has had on banking stability and on banks' profits.

The importance of the study: The findings of this study are important for different interest groups, starting from researchers or students who need to get more detailed knowledge in terms of risk diversification and its impact, for investors to understand which banks in Albania have better

diversified portfolio to base their investment strategies, for bank clients who will want to analyze the risk undertaken by specific banks, a fact that has a direct impact on the bank's solvency. Also, the findings of this study are important for academic cycles as it would add information to the available knowledge and form the basis for further research.

The scope and rationale of this study: The study evaluates the effect of risk diversification in the banking system, because most studies on risk diversification have not clearly shown the impact it has on the stability of the banking system and its impact on the growth of second-tier banks.

Limitations of the study.: This study has been mainly focused on the theoretical aspect of risk diversification in the banking system and has been limited in the study of Albanian banks, for this reason it may not be suitable for the analysis of banks outside Albania. Limitations in time and resources for obtaining information, taking into account the fact that the concept of portfolio diversification for banks in Albania is a relatively new concept, firstly for the fact that the banking system itself is new in Albania and secondly for the lack of portfolio diversification options.

Literature review: Concepts and understanding of risk.

In this chapter, the authors are focused on clarifying, evaluating and diversifying some of the main risks that affect the banking system and more.

In analyzing each of them in order to understand what they really are. Their impact on the system and beyond. And finally, the reasons why we need to diversify and how we can diversify them.

Risk management is recognized in today's business world as an integral part of good management practice. In its broadest sense, it includes the systematic application of policies, procedures and management practices for the tasks of identifying, analyzing, evaluating, treating and monitoring risk." International Journal of Business and Social Science Vol. 3 No. 7 pg 308"

Financial institutions are exposed to various risks in pursuit of their business objectives; the nature and complexity of which has changed rapidly over time. Failure to properly manage these risks exposes financial institutions to a variety of risks that directly affect the real market and, as a consequence, consumers. At worst, inadequate risk management can result in circumstances so catastrophic in nature that financial institutions cannot stay in business.

Types of risk to which investors are exposed (Banks, IFs, Investment Funds, etc.).

In this sub-chapter we will focus on the broadest and most abstract analysis of the types of risks faced by investors (Banks, IF, Investment Funds, etc.), from the types of risks, their typologies and up to the analysis of each risk in a specific way.

Non-Diversifiable Risk:

In finance and economics, non-diversifiable risk (in economics often called general risk or systematic risk) is vulnerability to events that affect aggregate outcomes such as broad market returns, total resource holdings across the economy or total income.

Diversification can be achieved through two methods:

- a) Traditional Method: Based on internal studies and expert judgments, the FI selects a group of sectors to which the FI deems it should be exposed in accordance with the risk appetite for each sector;
- b) Modern Method: Based on quantitative methods, correlations between sectors are identified in order to apply techniques, such as portfolio theory, to identify industry sectors that better diversify the portfolio.

Collateral Risk.

Imagine if the collaterals that the bank owns to mitigate the credit risk decrease in value. For example, suppose that the bank to grant a loan of 70,000 Euros has accepted a collateral of 100,000 Euros and suddenly the value of the collateral decreases below 70,000 Euros. Therefore: Concentration in undiversified collaterals should be avoided; The value of the collateral experiences increases and decreases which must be considered through different methods; Positive correlations between the value of collaterals and business cycles should be mitigated; The positive correlation between the value of the collateral and the solvency of the borrower should be monitored and minimized.

Maturity risk.

Usually, exposures in the portfolio have different maturities. The maturity of the portfolio should be monitored so that liquidity problems do not appear. Loan maturities usually fluctuate up to 20 years, while deposit maturities are smaller, usually up to 5 years. So easily there is a difference in maturity between the maturity of the financing and the maturity of the investment of the funds that lead the IF to manage the liquidity risk. Recent regulatory developments have developed the obligations to manage liquidity risk by creating two indicators that will be subject to the liquidity risk management chapter. At the core of banking administration lies the administration of the maturity of financing conditioned by the maturity of investments.

Financing Risk.

A healthy loan portfolio is sustainable if financing is done based on a healthy policy and procedure. Short-term financing and long-term investment can increase the problem of the loan portfolio

because it can channel the bank into the inability to finance the portfolio continuously. The concentration of funding resources in specific maturities or in specific instruments again worsens the risk of funding and history has shown many cases where FIs have failed not as a result of credit risk but as a result of not having a diversified funding.

Migration Risk.

Migration risk means the tendency of an exposure to move to a different classification than the initial one. Practically, it means the possibility of deterioration of credit quality and increase of credit risk.

The risk of borrower failure.

In the simplest case, we will understand failure to make payments in accordance with the repayment plan conditioned by the time in which the payments should have been made. The more days that pass from the date when the borrower has to pay, the more the quality of the loan and the classification of the borrower deteriorates.

Market risk.

Market risk is the possibility that the individual or the company that invests will suffer losses as a result of the fluctuation of the value of the financial instruments in their portfolio. Due to the lack of an expanded market and numerous investment opportunities in Albania, most investors (Bank , Investment funds and private investors) invest a large part of their funds in government instruments. For this reason, the Risk closely related to that of the market is that of Interest Rate Fluctuations. If the market interest rate were to increase, then the value of the title in the fund's portfolio would fall, and conversely, if the interest rate were to decrease, then the value of the title of the investor's portfolio would increase. As a result of the fluctuation of interest rates, the investor will suffer a loss of capital during the short term.

Liquidity risk.

This risk has to do with the lack of market liquidity for the instruments included in the investor's portfolio. As a result, the investor will encounter problems and difficulties regarding the fulfillment of contractual obligations for potential investors who may want to sell part of their quotas, due to the lack of an active market to sell the "fund's" assets.

Credit risk.

It means the situation when a title holder of an investor's portfolio is insolvent and therefore does not pay his obligations in the form of coupon or principal. The credit risk of debt securities is assessed by "Credit Risk Assessment Agencies". This rating reflects the solvency of the issuer, as well as serves as a comparative basis for assets that have a higher rating in relation to assets that have a lower

rating.

Inflation Risk.

The return on investment of portfolio assets tends to be adversely affected by inflationary pressures. In general, the decrease in the value of money is associated with a decrease in the purchasing power of the investor, but on the other hand, with a significant increase in interest rates in the market. Seen in general terms, inflation is associated with uncertainty and does not help the stability of investors and returns.

Operational risk.

Operational risk is "the risk of a change in value caused by the fact that actual losses, caused by inadequate or failed internal processes, people and systems, or by external events (including legal risk which we will talk about below) , differ from expected losses". This positive definition, adopted by the European Solvency II Directive for insurers, is a change adopted by the Basel II regulations for banks. Operational risk is, however, manageable to keep losses within a level of risk tolerance, determined by balancing the costs of improvement against the expected benefits." "Basel II: Revised international capital framework". Bis.org. 2004-06-10. Retrieved 2013-06-06-. "Solvency II Glossary – European Commission" (PDF). CEA – Groupe Consultatif. Retrieved 2014-04-29."

Reputational risk.

Reputational risk is the risk of damaging the company's credibility in the market in which it operates, including the impact of specific events that may worsen or negatively affect the public's perception of the company.

Political risk.

It has to do with the possibility of reducing the investment return in the investor's portfolio as a result of political destabilization, political crises, etc. A more accurate definition of Political Risk is the risk that the returns of an investment may suffer as a result of political changes or instability in a country. Political risk determines the expectations and inter-temporal decisions of economic units and affects the microeconomic, mesoeconomic and macroeconomic fields. Political stability or instability is one of the main determinants of the profitability of the banking sector "*Effect of Political Risk on Bank Profitability, Selim Şanlısoy, Üzeyir Aydın, Ayşe Elif Ay Yalçınkaya*".

The risk of extraordinary situations.

Extraordinary situations such as the pandemic situation, the situation of the last 2 years which has affected the global market in every aspect, reducing as a consequence the profits of the majority of businesses and therefore the return of investors from their investments, war, or pronounced crises

economic (global crisis 08'-09') can affect the expected and real return of the investor's portfolio.

Systematic risk.

Systematic risk refers to the risk that every firm operating in a certain market bear and faces. Systematic risk, or "market risk," affects the overall market, not just a particular firm or a particular industry. Systematic risk can never be eliminated, but through portfolio diversification and using strategies such as "asset allocation" and the diversification of products offered, it can be reduced. "University of Pennsylvania, Wharton. "The Causes of Systemic Risk—and Ways to Prevent Them". Governments, companies and banks are always concerned at the highest levels about the impact that systemic risk has on the financial systems at the national level but also at the global level and about the ambiguity that exists in its reduction and control and the disagreement that exists between experts on its treatment." *Steven L. SCHWARCZ. systemic and systematic risk pg. 193*".

The impact of risk on the banking system.

As was evident during the crisis of 2008 and the consequences it left behind, the systemic risk caused by the banking system had real consequences in the global economy. For this reason, analyzing the systemic risk caused by the banking system is important. The banks' own perception of the risk they face has real consequences and a domino effect in the economy in which they operate. For the above reasons, since the global crisis of 2008, market regulators have focused on finding the best methods for measuring systemic risk. The focus has been on the correlations that exist between financial firms operating in a certain market or economy.

To determine the most interconnected banks since these important and systemically interconnected banks can cause a chain reaction of financial contagion when they are disturbed. These measures of systemic risks at the "micro" level measure the contribution of each individual bank to the overall systemic risk of the market in which they operate. "Powell and Morgenson (2011). Regardless of the proven impact that systemic risk has on the banking system and consequently on the real economy, economists "Allen, Bali and Tang" in their study in 2012 proved that the existing theories and methods of measuring systemic risk in the "micro" (short term) did not have the ability to measure the macroeconomic impact of systemic risk. For this reason, they developed a "CATFIN" measure. Using data from European, American and Asian banks it tries to predict macroeconomic downturns six months into the future using "out-of-sample" tests, CATFIN of large and small banks predicts macroeconomic downturns and tries to make possible the reduction of the systemic impact on the banking system."

Linda Allen, Turan G. Bali and Yi Tang Review of Financial Studies, 2012, vol. 25, issue 10".

Risk management.

The purpose of risk management is the control of risk, followed by the coordinated and economical application of resources to minimize, monitor and control the probability or impact of unfortunate events or to maximize the realization of opportunities. Control is possible when there is a quantitative and qualitative assessment of a risk. Risks can come from various sources including uncertainty in international markets, threats from project failures (at any stage in the design, development, production or maintenance life cycles), legal obligations, credit risk, accidents, natural causes and disasters, deliberate attack by an adversary, or events of uncertain or unforeseeable cause.

Methods and Principles.

The method, for the most part consists of the following elements: a) Identification of threats. b) Sustainable assessment of assets in relation to specific threats. c) Determine risk. d) Identify ways to reduce those risks. Prioritize risk reduction measures.

Possible risk treatments.

Once risks have been identified and assessed, all techniques to manage the risk fall into one or more of these four main categories: (1) Avoidance (eliminate, withdraw, or do not engage). (2) Reduction (optimize - mitigate). (3) Partition (transfer - transfer or insurance). (4) Conservation (admission and budget). Ideal use of these risk control strategies may not be possible. Some of these may involve trade-offs that are not acceptable to the organization or individual making risk management decisions. Another source, from the US Department of Defense Defense Acquisition University, calls these categories ACAT, for Avoid, Control, Accept, or Transfer (Avoid, Control, Accept, or Transfer). This use of the acronym ACAT is reminiscent of another ACAT (for Acquisition Category) used in US Defense industry procurement, in which Risk Management features prominently in decision making and planning.

Risk management.

Select the appropriate controls or countermeasures to mitigate each risk. According to ISO / IEC 27001, the phase immediately after the completion of the risk assessment phase consists in the preparation of a Risk Treatment Plan, which should document the decisions on how each of the identified risks should be treated. Mitigating risks often means selecting security controls, which should be documented in a Statement of Applicability, which identifies which specific control objectives and controls from the standard have been selected, and why.

Implementation.

The implementation follows all planned methods for mitigating the effect of risks. Buy insurance policies for risks that are decided to be transferred to an insurer, avoid all risks that can be avoided

without sacrificing the goals of the economic entity, reduce others and keep the rest.

Plan review and evaluation.

Initial risk management plans will not be perfect. Practice, experience and actual loss results will require changes to the plan on an ongoing basis.

Risk analysis results and management plans should be updated periodically. There are two main reasons for this: a) To assess whether previously selected security controls are applicable and effective, b) To assess possible changes in the level of risk in the business environment.

Diversification.

Risk diversification is the notion of performance variability.

Diversification is a technique used to reduce unsystematic risk by investing in a variety of assets.

Diversification usually requires a company to acquire new skills, new techniques, and new facilities.

Table 1.

The table shows the connection between financial products, with markets and their diversification

		Products	
		Present	New
Markets	Present	Market penetration	Product development
	New	Market development	Diversification

Source: Worked by the authors

The notion of diversification depends on the subjective interpretation of the "new" product and the "new" market, which should reflect the perceptions of customers rather than the perceptions of managers. Primarily, it is products that tend to create new markets and new markets, then promote product innovation." Porter, Michael (1987). *"From Competitive Advantage to Corporate Strategy". Harvard Business Review. May-June (3): 43-59.*"

Conclusions and recommendations.

From the qualitative review of the literature, the authors managed to identify some important findings.

First, and perhaps most importantly, a significant number of theoretical studies have now directly addressed the issue of bank contagion. Although a generally accepted paradigm has yet to emerge, these models have greatly improved our understanding of the potential propagation of problems in

the banking system.

The second important theoretical development is in the area of systemic risk and is the development of 'third generation' models of crises, addressing the effects of "pure" and "information-based" contagion. Empirically, some valuable developments have recently occurred in explaining banking crises across countries, but knowledge of payment system contagion remains scarce, especially outside the US and in other net settlement systems.

Banking crises stemming from contagion can be stopped at an early stage at the individual bank level. Through emergency liquidity assistance if identified at the right time.

While macro-level problems would normally be addressed through more standard stabilization policies, such as open market operations.

The current empirical literature cannot resolve the age-old policy debate regarding emergency lending to individual institutions versus market lending. Furthermore, most traditional bank infection tests are inconclusive.

Finally, the vast majority of existing econometric tests of bank contagion effects are still limited to data on the United States. Event studies of bank capital returns, debt risk premia, deposit flows, or physical exposures for European, Japanese, or emerging market countries are rare or absent.

It is clear that more empirical research is needed regarding the actual importance of risk mainly in the banking system, but this agenda will not be easy to complete due to the presence of safety nets in many countries.

Similar reservations about the empirical significance and contagion character of the securities market are also advisable, but with less direct implications.

In particular, the widely used conditional correlation measure may be subject to various statistical biases since the quantification of risk itself is a very difficult feat.

It should also be noted that empirical studies regarding the risks in the banking system that originate from the foreign exchange market are non-existent in Albania. A very alarming fact is that, foreign exchange offices have been cited by the European Central Bank as the biggest money laundering "laundry machines" in Albania. Professional research in this sector is necessary.

In general, that the recent financial crises (the Japanese banking crises, the inflation and currency crisis in Venezuela, etc.) sufficiently underline the importance of understanding risk and approaching it as a tool in determining policies and encouraging market initiatives that aim for financial and monetary stability.

The purpose of this study was to analyze the risk itself as well as the most essential issues that are

closely related to it, which can then help to explain and prevent real crisis situations.

Our recommendation would be the allocation at the state level by the Bank of Albania of funds and resources for the study of risk as a concept and the consequences it has in the real economy of the state as well as for the banks themselves. In order to create a specialized research center in the field of risk, its management and diversification.

References:

- J, A., & Swary, I. Contagion Effects of Bank Failures: Evidence from Capital Markets. (1983). *Journal of Business*, 3(56).
- Bank Of Japan. (1998). *Risk Measurement and Systemic Risk. Proceedings of the Second Joint Central Bank Research Conference*. (Tokyo: BoJ, November).
- Bartholomew, P. F., & Whalen, G. W. (1995). Fundamentals of Systemic Risk, in Banking, Financial Markets and Systemic Risk, Research in Financial Services: Private and Public Policy. *JAI Press, Greenwich, Vol. 7*.
- Calomiris, C.W. and G. Gorton, 1991, Hubbard, R. (1991). The Origins of Banking Panics: Models, Facts, and Bank Regulation. *National Bureau of Economic Research*, 0-226-35588-8.
- Demirgüç-Kunt, A. and E. Detragiache, 1998, The Determinants of Banking Crises in Developing and Developed Countries, *IMF Staff Papers*, 45, 81-109.
- Harry Markowitz *The Journal of Finance*, Vol. 7, No. 1. (Mar., 1952), pp. 77-91.
- Roger Williams and Boudewijn Bertsch, B. D. (2006). Quality and risk management: what are the key issues? *The TQM Magazine*, Vol.18 No. 1, pp. 67-86.
- Boudriga, A. B. (October 19, 2009). Does bank supervision impact non-performing loan *International Journal of Business and Social Science* Vol. 3 No. 7 pg 308.
- Christophe Marinier *Equity-at-Risk and Transfer Pricing: Annualised Expected Loss versus Cumulative Expected Loss*.
- Korablev, Irina, S. Chen, and Jieying Chen *RiskCalc 4.0 UK: Model Performance Evaluation*. Moody's Analytics, 2017.
- Basel II: Revised international capital framework. *Bis.org*. 2004-06-10. Retrieved 2013-06-06-. *Solvency II Glossary – European Commission (PDF)*. CEA – Groupe Consultatif. Retrieved 2014-04-29.
- Effect of Political Risk on Bank Profitability, Selim Şanlısoy, Üzeyir Aydın, Ayşe Elif Ay Yalçınkaya. University of Pennsylvania, Wharton. *The Causes of Systemic Risk—and Ways to Prevent Them*. Steven L. SCHWARCZ. systemic and systematic risk pq.193

- Powell and Morgenson(2011). Linda Allen, Turan G. Bali and Yi Tang Review of Financial Studies, 2012, vol. 25, issue 10.
- Systemic risk, a survey by Olivier de Bandt and Philipp Hartmann, November 2000.
- Werner, Jan (2008). Risk Aversion . The New Palgrave Dictionary of Economics.
- Kahneman, Daniel; Tversky, Amos (March 1979). Prospect Theory: An Analysis of Decision under Risk. Project Management Body of Knowledge Guide 5th Edition, Glossary pg. 373.
- Porter, Michael (1987). From Competitive Advantage to Corporate Strategy. Harvard Business Review. May–June (3): 43–59.
- Edwin J. Elton and Martin J. Gruber, Modern portfolio theory, 1950 to date. Journal of Banking and Finance.
- Adam Hayes, Investopedia: <https://www.investopedia.com/terms/r/risk-seeking.asp>.
- GUIDANCE ON BOARD EFFECTIVENESS JULY 2018, <http://www.frc.org.uk/>.
- Mandelbrot, Benoit and Richard L. Hudson (2008). The (mis)Behaviour of Markets: A Fractal View of Risk, Ruin and Reward.
- Roehrig, P (2006). Bet On Governance To Manage Outsourcing Risk . Business Trends Quarterly.
- To Diversify or not to diversify by Costandinos C Markides: HARVARD BUSINESS REVIEW: <https://hbr.org/1997/11/to-diversify-or-not-to-diversify>
- Why are gainers more risk seeking: by Jiaxi Peng□ Danmin Miao† Wei Xiao† Vol. 8, No. 2, March 2013, pp. 150–160.
- Investment diversification as a strategy for reducing investment risk Article in Ekonomski Horizonti by Miljan Lekovic· August 2018.
- Bank diversification and systemic risk Exploring and explaining cross-country heterogeneity by M. Diepstraten.
- Bank Of Albania. (2019). *Ecuria e rreziqeve ne Sistemin Bankar dhe Institucionet Financiare jobanka, Raporti Vjetor i Mbikeqyrjes 2020*.
- N Berger, A., Molyneux, P., & Wilson, J. O. S. W. (2009). The oxford handbook of banking edited. *Oxford Handbooks*, 3. The Oxford Handbook of Banking pg 669. The Oxford Handbook of Banking pg 180.

Internationalization of Immigrant SMEs in Albania

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Abstract

Movement of people is not a new phenomenon, but with globalization and developments in technology, immigrant movements have been study of mainly sociology, in recent years there is a huge interest from policymakers and academics in evaluation the entrepreneurship part and its effects in host and home country economics. While most of studies are concentrated in enclave strategies, push and pull strategies survival strategies of IE, and mixed embeddedness few of them tend to illuminate the internationalization strategies of IE. Internationalization is not a new topic in International Business field, previously highly focused on MNEs , internationalization of SME is an emerging field for researchers, focusing in many dimensions like entry mode, human capital, networks, promotion, knowledge, cognitive and technology. In a context where most IEs are considered to be SME, there is a lack of research in their internationalization of them . This study aims to focus on the internationalization process of immigrant-founded enterprises located in Albania. I will investigate internationalization dimensions such as location choices, speed of internationalization, entry

modes and difference in performance between IE that operate in international markets and those who do not. This study is important because it will give valuable results for the internationalization path of immigrant enterprise, underline the strategies, and hopefully confirm the role of internationalization in firm performance.

Key Words: *immigrant entrepreneurs, internationalization, SME*

Introduction

SMEs are considered to be a very important part of a country's economy and share the largest number of companies created, which result in increase of employment and also have a significant impact in the economy of the country(Lukács, 2005). While native companies compose the major part of SME, immigrant enterprises are constantly increasing during years, due the fact that immigrants are more likely to become entrepreneurs than natives(Vandor & Franke, 2018; Vinogradov & Kolvereid, 2007), while (Kerr & Kerr, 2016) says that almost 35% of enterprises created in USA are created by immigrants or at least one co-founder is immigrant. According to ODEC data for native and foreign born entrepreneurs, in Denmark natives entrepreneurship is 7.2% while immigrant rate is 9.15%, which is 1.95% higher than natives. (Vandor & Franke, 2018).

While literature is focused more in native SME and their internationalization, research about immigrant entrepreneurship is concentrated in drivers of it. Discrimination on labor market, making for them difficult to find a job, non-fair treatment at job, or lacking training and education(Bonacich, 1973; Rametse, Moremong-Nganunu, Ding, & Arenius, 2018; Shinnar & Zamantılı Nayır, 2019) are considered to be main reasons pushing immigrants to entrepreneurship. In the same time, existence of ethnic communities provide an opportunity for immigrant to create businesses, due the fact that they can easily understand the needs of community (Edin, Fredriksson, & Åslund, 2003), need for independence (Soydas & Aleti, 2015), desire to increase their income (Fisher & Lewin, 2018). The focus in immigrant entrepreneurship should be more than in individual characteristics says (Kloosterman et al., 1999) underlining the point that IE is also highly affected by national, regional and local environments. Another important dimension of IE are also the social capital of the founder which can affect positively entrepreneurship behavior of immigrants (Kao, 2004; Yang, Ho, & Chang, 2012), while maintaining strong relations with home country, increase the trade between host and home country(Murat & Pistorresi, 2009). In the same context(Ellis & Pecotich, 2001) says that social capital and networks contribute in internationalization of firms. Taking in consideration that moving to another country contain different risks, (Kushnirovich, Heilbrunn, & Davidovich,

2018) argue that immigrants tend to have more positive view than others which leads them to take riskier actions than other entrepreneurs. Migrants take challenge by moving outside of their country and are considered to be less risk-averse than others, and also have great confidence of their ability to demonstrate success in new and unknown environments (Levie, 2007).

Based in this framework, this study is supposed to research and empirically test the internationalization process of ISME located in Albania. This will be done taking into consideration the aspects of location decisions, speed of internationalization, entry modes, and the effect of internationalization on performance. This study will gain more importance taking into consideration that the number of immigrants in Albania is constantly increasing every year.

Literature Review

With globalization, the attention of policymakers and researches is becoming more focused on immigrants, and immigrant entrepreneurship is considered to be an emerging field in which academics are calling for more attention. Even if it is not a new phenomenon, there are a lot of gaps in this field, and one of them is their internationalization. Taking into consideration that most of IE are SME, a research about them is lacking.

Internationalization of SME has taken the attention of researchers mostly in the end of last century and in the beginning of this one, but still there is a lack for an unified path of internationalization. Uppsala model is one of earliest model of internationalization, saying that this process is incremental and cumulative (Johanson & Vahlne, 1977) which starts with neighboring countries and culturally close countries due to low cost in physical distance and knowledge about markets. However, many companies miss traditional steps of incremental path, making them more oriented to global markets, mainly due to technology development and globalization of trade. These kind of companies rely their international process in technologic products and networks, making possible to be more global than tradition companies, that's why they are called born-global companies (Cavusgil & Knight, 2015; Oviatt & McDougall, 2005) Difference between two strategies is on speed of internationalization mainly, but in the same time they show a difference in also the perspective of location decisions, in which global-born companies are not focused in countries which are culturally and physically close and rely on their network or market knowledge mostly. Location decisions are highly related with knowledge of entrepreneurs about the target country, and personal networks play a decisive role in a firm's strategy. Most studies in IE confirm that immigrants keep strong ties with their home country (Vandor & Franke, 2018), and (Kerr & Kerr, 2016) goes beyond saying that immigration

entrepreneurs increase the trade of both countries and serve as a commercial bridge. Knowledge of IE for their home-country market can be leveraged to reduce uncertainty (Kunczer, Lindner, & Puck, 2019) and represent a competitive advantage for companies in international markets.(Luo & Peng, 1999) Companies prefer to enter geographically close countries due lower operational cost, and culturally close countries to decrease the liability of foreignness. (S. K. Chetty, 1999; Ghemawat, 2001) Another important dimension of internationalization is entry modes in international markets. Entry mode decisions are highly related with financial performance of SME(Brouthers, Brouthers, & Werner, 1999). Uppsala model suggest that is better for SMEs to firstly enter in international markets with low commitment modes due lack of resources such as finance and knowledge and incremental growth of commitment in this modes, knowing that commitment is highly related with risk.(Hollensen, 2007) Huge number of entry modes are clustered in three categories: non-equity/exporting modes which are associated with low risk, joint-ventures which group many of collaboration between two or more companies and wholly-owned subsidiary indicating that company own subsidiaries in international market and risk is higher.(Ahmed, Mohamad, Tan, & Johnson, 2002; Ulrich, Hollensen, & Boyd, 2014).

Research in internationalization of IE is lacking, with (Sui, Morgan, & Baum, 2015) focusing in the role that language play at internationalization of ISMEs and (Kunczer et al., 2019) showing how can IE benefit from their home country to internationalize while (Seifriz, Gondim, & Pereira, 2014) underlining the role of ethnic ties on this process.(Qiu & Gupta, 2015) published an conceptual article calling for empirical support of their propositions and (Czinkota et al., 2021) requesting more for attention to internationalization strategies of immigrant entrepreneurs.

Hypothesis:

1-IE due to their ethnic ties, social capital and market knowledge tend to firstly internationalize with home country and culturally close countries.

2-IE are more likely to follow the born-global internationalization model instead of incremental Uppsala model in terms of speed.

3-IE which internationalizes is supposed to have better financial performance than IE which focuses on ethnic enclaves or national markets.

4-IE are expected to select entry modes which require high involvement of resources and are more risky.

Methodology

Research on IE and internationalization separately has become an important part of IB research field. However it is still a missing part integrating both parts together and investigating internationalization of ISMEs. Research methods used in IE or internationalization are becoming more oriented in qualitative and mixed methods but dominantly are quantitative (Dabić, Vlačić, et al., 2020). IE research is concentrated in motivations for entrepreneurship(Rametse et al., 2018), enclave strategies(Achidi Ndofor & Priem, 2011; Arrighetti et al., 2014; Edin et al., 2003), performance, survivor of IE and impact on the economy.

Research method for this project is predicted to be qualitative and depending on data available and format, I plan to use logit analysis for my hypothesis

Sample will be formed by companies which are founded by immigrants or at least one of founders is immigrant. Processing all data that exists is difficult and has no efficiency, I will focus on companies created from the beginning of 2010 until the end of 2018. Reason behind selection of these criteria is mainly the fact that in previous years there was a financial crisis which can affect the generalization of project results. I purpose to use secondary data which are provided to university by government agencies.

Speed of internationalization is a part of consensus for finding a definite way to measure it. Most applied measure is the amount of year that take to firms to do their first international sale, trade or export(Coeurderoy & Murray, 2008; Kiss & Danis, 2008), while others compute speed as the number of subsidiaries in foreign markets divided with number of years after first international expansion (Vermeulen & Barkema, 2002). (S. Chetty, Johanson, & Martín, 2014) argue that this kind of measurement are too simple to measure the internationalization speed and measure in their work is composed by speed of learning and speed of commitment. From above mentioned models of measuring internationalization speed, the first one is more appropriate since the data will be limited in time and companies that will be analyzed are created and supposed to do their first sale during that period.

Locations decisions are strategic choice for every company(Dunning, 1977), and during internationalization should be evaluated carefully and there are many factors to take into consideration. Distance between host and home country is considered by researchers one of most important part of location decisions and mean not just the physical one, but also cultural distance (Yeoh, 2011). Physical distance can be calculated from the latitude and longitude coordinates of home market capital city and target country capital while for cultural distance between countries Hofstede cultural dimensions are generally used.(Li, Zhang, & Shi, 2020)

Researchers which are focused in entry modes in international markets mostly rely on quantitative analysis. Primary data is highly used in investigation of research modes (Ahmed et al., 2002; Hollender, Zapkau, & Schwens, 2017; Ulrich et al., 2014) while secondary data provided by different government institutions are valuable also. In this study, secondary data will be used to reach the sample while measurement scale for modes of entry will "borrowed" from work (Ulrich et al., 2014).

Expected Contribution:

This study is expected to contribute to the internationalization of the firm and immigrant entrepreneurship field by investigating the internationalization path. While previous research on SME has not taken into consideration the IE part. At the same time, IE studies clearly miss the part of internationalization, and is high concentrated in motivations for entrepreneurship, effects in economy and survivor strategies. In these conditions, this study is expected to have an internationalization of IE.

In this study, internationalization will be evaluated in 3 path dimensions and one performance dimension. In the aspect of location decisions, ISME can leverage the knowledge about home-market and networks, by starting international operations from there or culturally close ones. In this perspective, liability of being foreign becomes an advantage. The other dimension is speed of internationalization, the last one is about ISME implementing risky entry modes with high involvement. Last part of this study will be focused on differences in performance between ISME that internationalize and don't, by making more clear that internationalization is a good way to fight liability of foreign, liability of being new and small.

Finally, while few researches in internationalization of ISME have been conceptive and qualitative, this study will be unique due its quantitative approach and contribute in IE field by providing empiric results.

Another contribution will be the implications for policymakers, in case that hypothesis are supported, there is more need for training ISME, financing, and training them to support internationalization.

References

- Achidi Ndofor, H., & Priem, R. L. (2011). Immigrant entrepreneurs, the ethnic enclave strategy, and venture performance. *Journal of Management*, 37(3), 790-818.
- Ahmed, Z. U., Mohamad, O., Tan, B., & Johnson, J. P. (2002). International risk perceptions and mode of entry: a case study of Malaysian multinational firms. *Journal of Business Research*, 55(10), 805-813.

- Aldrich, H. E., & Waldinger, R. (1990). Ethnicity and entrepreneurship. *Annual review of sociology*, 16(1), 111-135.
- Arrighetti, A., Bolzani, D., & Lasagni, A. (2014). Beyond the enclave? Break-outs into mainstream markets and multicultural hybridism in ethnic firms. *Entrepreneurship & Regional Development*, 26(9-10), 753-777.
- Ayden, Y., Tatoglu, E., Glaister, K. W., & Demirbag, M. (2020). Exploring the internationalization strategies of Turkish multinationals: A multi-perspective analysis. *Journal of International Management*, 100783.
- Baycan-Levent, T., & Nijkamp, P. (2009). Characteristics of migrant entrepreneurship in Europe. *Entrepreneurship and regional development*, 21(4), 375-397.
- Benito, G. R., Larimo, J., Narula, R., & Pedersen, T. (2002). Multinational enterprises from small economies: internationalization patterns of large companies from Denmark, Finland, and Norway. *International Studies of Management & Organization*, 32(1), 57-78.
- Bonacich, E. (1973). A theory of middleman minorities. *American sociological review*, 583-594.
- Brouthers, L. E., Brouthers, K. D., & Werner, S. (1999). Is Dunning's eclectic framework descriptive or normative? *Journal of international business studies*, 30(4), 831-844.
- Cavusgil, S. T., & Knight, G. (2015). The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalization. *Journal of international business studies*, 46(1), 3-16.
- Chetty, S., Johanson, M., & Martín, O. M. (2014). Speed of internationalization: Conceptualization, measurement and validation. *Journal of World Business*, 49(4), 633-650.
- Chetty, S. K. (1999). Dimensions of internationalisation of manufacturing firms in the apparel industry. *European Journal of Marketing*.
- Chrysostome, E., & Arcand, S. (2009). Survival of necessity immigrant entrepreneurs: An exploratory study. *Journal of Comparative International Management*.
- Coeurderoy, R., & Murray, G. (2008). Regulatory environments and the location decisions of start-ups: evidence from the first international market entries of new technology-based firms. *Journal of international business studies*.
- Czinkota, M., Khan, Z., & Knight, G. (2021). International business and the migrant-owned enterprise. *Journal of Business Research*, 122, 657-669.
- Dabić, M., Maley, J., Dana, L.-P., Novak, I., Pellegrini, M. M., & Caputo, A. (2020). Pathways of SME internationalization: a bibliometric and systematic review. *Small Business Economics*,

55(3), 705-725.

- Dabić, M., Vlačić, B., Paul, J., Dana, L.-P., Sahasranamam, S., & Glinka, B. (2020). Immigrant entrepreneurship: A review and research agenda. *Journal of Business Research*, 113, 25-38.
- Drori, I., Honig, B., & Wright, M. (2009). Transnational entrepreneurship: An emergent field of study. *Entrepreneurship Theory and Practice*, 33(5), 1001-1022.
- Dunning, J. H. (1977). Trade, location of economic activity and the MNE: A search for an eclectic approach. In *The international allocation of economic activity* (pp. 395-418): Springer.
- Edin, P.-A., Fredriksson, P., & Åslund, O. (2003). Ethnic enclaves and the economic success of immigrants—Evidence from a natural experiment. *The quarterly journal of economics*, 118(1), 329-357.
- Ellis, P., & Pecotich, A. (2001). Social factors influencing export initiation in small and medium-sized enterprises. *Journal of Marketing Research*, 38(1), 119-130.
- Fatoki, O., & Patswawairi, T. (2012). The motivations and obstacles to immigrant entrepreneurship in South Africa. *Journal of Social Sciences*, 32(2), 133-142.
- Fisher, M., & Lewin, P. A. (2018). Push and pull factors and Hispanic self-employment in the USA. *Small Business Economics*, 51(4), 1055-1070.
- Ghemawat, P. (2001). Distance Still Mater. *Harvar Business Review*.
- Hollender, L., Zapkau, F. B., & Schwens, C. (2017). SME foreign market entry mode choice and foreign venture performance: The moderating effect of international experience and product adaptation. *International Business Review*, 26(2), 250-263.
- Hollensen, S. (2007). *Global marketing: A decision-oriented approach*: Pearson education.
- Johanson, J., & Vahlne, J.-E. (1977). The internationalization process of the firm—a model of knowledge development and increasing foreign market commitments. *Journal of international business studies*, 8(1), 23-32.
- Kao, G. (2004). Social capital and its relevance to minority and immigrant populations. *Sociology of Education*, 77(2), 172-175.
- Karadal, H., Shneikat, B. H. T., Abubakar, A. M., & Bhatti, O. K. (2020). Immigrant Entrepreneurship: the Case of Turkish Entrepreneurs in the United States. *Journal of the Knowledge Economy*, 1-20.
- Kerr, S. P., & Kerr, W. R. (2016). Immigrant entrepreneurship. In *Measuring entrepreneurial businesses: Current knowledge and challenges* (pp. 187-249): University of Chicago Press.
- Kiss, A. N., & Danis, W. M. (2008). Country institutional context, social networks, and new venture

- internationalization speed. *European Management Journal*, 26(6), 388-399.
- Kloosterman, R., Van der Leun, J., & Rath, J. (1999). Mixed embeddedness:(in) formal economic activities and immigrant businesses in the Netherlands. *International journal of urban and regional research*, 23(2), 252-266.
- Kunczer, V., Lindner, T., & Puck, J. (2019). Benefitting from immigration: The value of immigrants' country knowledge for firm internationalization. *Journal of International Business Policy*, 2(4), 356-375.
- Kushnirovich, N., Heilbrunn, S., & Davidovich, L. (2018). Diversity of entrepreneurial perceptions: Immigrants vs. native population. *European Management Review*, 15(3), 341-355.
- Levie, J. (2007). Immigration, in-migration, ethnicity and entrepreneurship in the United Kingdom. *Small Business Economics*, 28(2), 143-169.
- Li, Y., Zhang, Y. A., & Shi, W. (2020). Navigating geographic and cultural distances in international expansion: The paradoxical roles of firm size, age, and ownership. *Strategic Management Journal*, 41(5), 921-949.
- Lukács, E. (2005). The economic role of SMEs in world economy, especially in Europe. *European integration studies*, 4(1), 3-12.
- Luo, Y., & Peng, M. W. (1999). Learning to compete in a transition economy: Experience, environment, and performance. *Journal of international business studies*, 30(2), 269-295.
- Mata, J., & Alves, C. (2018). The survival of firms founded by immigrants: Institutional distance between home and host country, and experience in the host country. *Strategic Management Journal*, 39(11), 2965-2991.
- Michael Geringer, J., Beamish, P. W., & DaCosta, R. C. (1989). Diversification strategy and internationalization: Implications for MNE performance. *Strategic Management Journal*, 10(2), 109-119.
- Murat, M., & Pistorisi, B. (2009). Migrant networks: empirical implications for the Italian bilateral trade. *International Economic Journal*, 23(3), 371-390.
- Oviatt, B. M., & McDougall, P. P. (2005). Toward a theory of international new ventures. *Journal of international business studies*, 36(1), 29-41.
- Qiu, R., & Gupta, V. (2015). A conceptual study of immigrant born globals and their multinationalization process. *Journal of Global Entrepreneurship Research*, 5(1), 1-18.
- Ram, M., Theodorakopoulos, N., & Jones, T. (2008). Forms of capital, mixed embeddedness and Somali enterprise. *Work, employment and society*, 22(3), 427-446.

- Rametse, N., Moremong-Nganunu, T., Ding, M. J., & Arenius, P. (2018). Entrepreneurial motivations and capabilities of migrant entrepreneurs in Australia. *International Migration*, 56(4), 217-234.
- Seifriz, M. A., Gondim, S. M. G., & Pereira, M. E. (2014). Internationalization and Networks in Small and Medium-Sized Enterprises: the role of ethnic ties. *Revista Brasileira de Gestão de Negócios-RBGN*, 16(50), 5-24.
- Shinnar, R. S., & Zamantılı Nayır, D. (2019). Immigrant entrepreneurship in an emerging economy: The case of Turkey. *Journal of Small Business Management*, 57(2), 559-575.
- Soydas, Y., & Aleti, T. (2015). Immigrant and second-generation Turkish entrepreneurs in Melbourne Australia. *International Journal of Entrepreneurial Behavior & Research*.
- Sui, S., Morgan, H. M., & Baum, M. (2015). Internationalization of immigrant-owned SMEs: The role of language. *Journal of World Business*, 50(4), 804-814.
- Sun, S. L. (2009). Internationalization strategy of MNEs from emerging economies: The case of Huawei. *Multinational Business Review*.
- Ulrich, A. M. D., Hollensen, S., & Boyd, B. (2014). Entry mode strategies into the Brazil, Russia, India and China (BRIC) markets. *Global Business Review*, 15(3), 423-445.
- Vandor, P., & Franke, N. (2018). Immigrant Entrepreneurship: Drivers, Economic Effects, and Policy Implications. *Jason Clemens, eds.(2018)*, 363.
- Vermeulen, F., & Barkema, H. (2002). Pace, rhythm, and scope: Process dependence in building a profitable multinational corporation. *Strategic Management Journal*, 23(7), 637-653.
- Vinogradov, E., & Kolvereid, L. (2007). Cultural background, human capital and self-employment rates among immigrants in Norway. *Entrepreneurship and regional development*, 19(4), 359-376.
- Yang, X., Ho, E. Y.-H., & Chang, A. (2012). Integrating the resource-based view and transaction cost economics in immigrant business performance. *Asia Pacific Journal of Management*, 29(3), 753-772.
- Yeoh, P.-L. (2011). Location choice and the internationalization sequence: Insights from Indian pharmaceutical companies. *International Marketing Review*, 28(3), 291-312.

E-Agriculture: A bibliometric analysis

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Abstract

The dissemination of information concerning technological advancements in agriculture is intended to benefit farmers. Farmers are facing pressures, including the need to produce more with less to feed a growing global population, minimize environmental threats, cope with a rising global temperature, survive on water and energy, and satisfy the new food preferences of an increasingly digital generation. e-Agriculture helps to solve some of these issues. E-agriculture offers a high potential for driving economic growth and increasing income in rural areas through increased agricultural production efficiency, improved livelihoods, and value chain development. For this research, we carried out a bibliometric analysis of concepts related to electronic agriculture to determine the most cutting-edge agricultural technology. The VOS Viewer and Biblioshiny from RStudio are used to analyze the data gathered from the Lens Database. These software packages contain tools for generating and displaying bibliometric networks. They enable the formation of networks based on citation links, bibliographic coupling, or the recurrence of key phrases. The findings of this paper provide a general introduction to the advancement of electronic agriculture.

Keywords: *e-Agriculture, ICT, digital agriculture, smart agriculture, bibliometric analysis, VOSviewer, RStudio*

Introduction

Agriculture is the world's principal industry and plays a significant role in social stability and economic growth (Ma et al., 2019). However, it faces many challenges, including climate change, resource constraints, and market uncertainties (FAO, 2015). e-Agriculture has emerged as a promising approach to address these challenges by leveraging digital technologies to enhance agricultural productivity, sustainability, and livelihoods. e-Agriculture encompasses various applications, including precision farming, mobile-based advisory services, e-commerce platforms, market price publication, and extension services (Anshari et al., 2019; Hinson et al., 2019; Khan et al., 2020; Mittal & Hariharan, 2018; Mogili & Deepak, 2018; Mulla, 2013; Shafi et al., 2019; Tsouros et al., 2019; Xiong et al., 2020; Zeng et al., 2017). In this study, we conducted a bibliometric analysis of the e-agriculture literature to provide a systematic overview of the research trends and themes in

the field. This article provides a comprehensive evaluation of works related to Electronic Agriculture, allowing the establishment of quantitative and qualitative scientometric indicators to address the following topics. (1) Electronic Agricultural research increased in terms of scholarly publication? (2) Which scholars, journals, and nations have the most publications? (3) What are the studies' primary subjects of interest and emphasis? (4) What are the most important intellectual and social frameworks in Electronic Agriculture?

Scientific analysis was conducted using the open-source tool bibliometrix, a statistical package program in the R programming language capable of executing the recommended workflow for performing bibliometric analyses and comprehensive scientific mapping analyses (Aria & Cuccurullo, 2017).

This paper is organized into a section that provides a literature review on E-Agriculture to contextualize the topic and describe its fundamental principles and applications. Next, the methodology specifics are examined, and the key findings addressing the four research objectives are outlined. Finally, the study's strengths and limitations are outlined, along with recommendations for future research.

Literature review

In recent years, e-Agriculture has gained increasing attention from researchers, policymakers, and practitioners. As a result, various terms have been used to describe the intersection between agriculture and ICTs, including e-Agriculture, digital agriculture, smart agriculture, and precision agriculture. These terms reflect different perspectives on using digital technologies in agriculture, ranging from data-driven decision-making to ecosystem-based approaches (Anshari et al., 2019; Flor & Cisneros, 2015; Hinson et al., 2019; Klerkx et al., 2019; Ray, 2017; Xiong et al., 2020).

E-agricultural encompasses the conceptualization, design, development, assessment, and deployment of novel ways to utilize information and communications technologies (ICTs) in rural areas, primarily emphasizing agriculture. E-Agriculture comprises many essential parts, the most important of which are disseminating norms, standards, methodologies, and tools; cultivating individual and institutional skills; and providing governmental support (FAO and ITU, 2016).

One of the key areas of e-Agriculture research is the development and use of mobile-based applications for agricultural extension services. These applications leverage the widespread availability of mobile phones in developing countries to provide farmers with real-time information

on weather forecasts, pest management, and market prices. For example, the farmer initiative in Kenya has successfully provided mobile-based advisory services to over 1 million smallholder farmers, leading to improved crop yields and income(Krell et al., 2021).

Another area of e-Agriculture research is precision farming, which uses advanced sensors, GPS, and data analytics to optimize agricultural inputs and outputs. Precision farming can reduce resource wastage, improve crop yields, and mitigate environmental impacts. For example, precision farming techniques could reduce nitrogen fertilizer by up to 50%, leading to cost savings and environmental benefits(Bongiovanni & Lowenberg-Deboer, 2004).

Market linkages are also an essential aspect of e-Agriculture research. E-commerce platforms and mobile-based payment systems can connect farmers to markets, reduce transaction costs, and improve price transparency. For example, the eSoko platform in Ghana has facilitated direct sales between farmers and buyers, leading to higher prices and fresher produce for consumers(Van Schalkwyk et al., 2017)

In addition to these specific applications, e-Agriculture research has focused on broader issues such as knowledge management, policy frameworks, and capacity building. For example, a study by Van der Laan et al. (2018) identified critical factors for successful e-Agriculture initiatives, including stakeholder engagement, institutional support, and scalability.

In India, the National Agricultural Market (e-NAM) is an online platform that connects farmers, traders, and buyers across the country. The e-NAM platform enables farmers to sell their produce directly to buyers, bypassing intermediaries and improving their market access. As a result, the e-NAM platform has successfully reduced transaction costs for farmers and improved transparency in agricultural markets. As of 2021, the e-NAM platform was operational in over 1,000 mandis (wholesale markets) across 18 states in India and facilitated the trading of over 1.2 million tons of agricultural produce(SINGH et al., 2021).

Methodology

Bibliometric analysis is a standard and rigorous method for studying massive scientific datasets. In addition, illuminates a field's evolutionary nuances and developing areas(Donthu et al., 2021). The bibliographic data is utilized to map the country, co-authorship, occurrence of keywords, citation, bibliographic coupling, and co-citation. Co-authorship demonstrates the relationships between academics, research institutes, or countries based on the number of articles they have produced

jointly(Biscaro & Giupponi, 2014).

We conducted a bibliometric analysis of e-Agriculture research from 2012 to 2022 using the Lens database, which provides access to over 140 million scientific articles and patents. Using the Lens database, we adopted the terms (E-Agriculture OR (ICT AND Agriculture) OR (Digital AND Agriculture) OR (Smart and Agriculture) and collected data from 2012 to 2022 - 10 years - considering journal articles and conference proceedings in the English language. All were open access and gold valued. The data of the papers obtained were extracted in CSV format and analyzed with VOSviewer software and Biblioshiny from Rstudio. The final dataset consisted of 407 papers. We used VOSviewer and Biblioshiny from RStudio to analyze the data and provide descriptive insights into the research trends, co-citation patterns, network structures, and keyword themes in the e-Agriculture literature. We first conducted a co-citation analysis to identify the field's most influential papers and authors. We then used network analysis to map the relationships between research themes and keywords.

Results and discussions

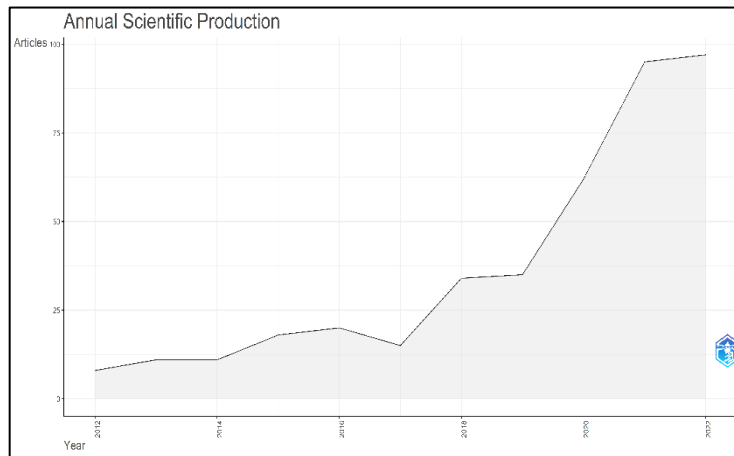
Main information about the documents

Table 1 General information regarding the data used in this paper

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2012:2022
Sources (Journals, Books, etc)	203
Documents	406
Annual Growth Rate %	28.34
Document Average Age	2.58
Average citations per doc	15.49
References	11731
DOCUMENT CONTENTS	
Keywords Plus (ID)	1416
Author's Keywords (DE)	1416
AUTHORS	
Authors	1614

Authors of single-authored docs	25
AUTHORS COLLABORATION	
Single-authored docs	25
Co-Authors per Doc	4.22
International co-authorships %	0
DOCUMENT TYPES	
conference proceedings article	2
journal article	404

The data collected were published from 2012 to 2022. There was a 28.34% annual growth rate per publication a year, which means the interest in the e-Agriculture field is increasing.



Year	Articles
2012	8
2013	11
2014	12
2015	18
2016	20
2017	15
2018	34
2019	35
2020	62
2021	95

Figure 1 Number of articles for the year.

Source Analysis

Figure 3 shows the total number of documents per source, indicating the sources with the most publications, where we find in first position Sensors with 23 publications, followed by IOP Conference Series: Earth and Environmental Science with 21 publications and so on.

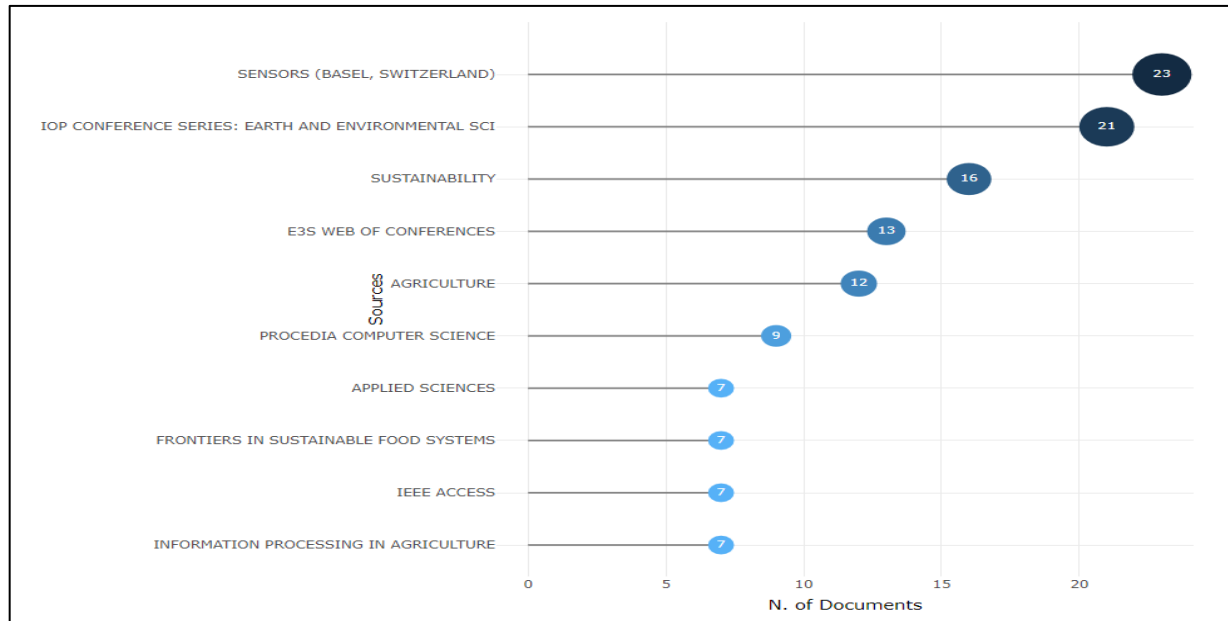


Figure 2 Top ten sources with the higher number of documents.

Table 2 shows the field's top ten academic-scientific sources with the most Impact, using Hirsch Index as an impact comparative parameter. The top ten journals with the highest Impact coincide with those shown in figure 2.

Table 2 Top ten academic-scientific sources with the most Impact using H-Index.

Element	h_index	g_index	m_index	TC	NP	PY_start
SENSORS (BASEL, SWITZERLAND)	13	23	1.182	985	23	2012
IEEE ACCESS	6	7	1.2	102	7	2018
PROCEDIA COMPUTER SCIENCE	6	9	0.75	158	9	2015
SUSTAINABILITY	6	9	1.2	102	16	2018
INFORMATION PROCESSING IN AGRICULTURE	5	7	0.556	209	7	2014
IOP CONFERENCE SERIES: EARTH AND ENVIRONMENTAL SCIENCE	5	7	0.556	73	21	2014
AGRICULTURE	4	5	0.571	32	12	2016
INTERNATIONAL JOURNAL OF ENVIRONMENTAL RESEARCH AND PUBLIC HEALTH	4	6	1.333	36	6	2020
PROCEDIA TECHNOLOGY	4	4	0.4	301	4	2013
AGRICULTURE & FOOD SECURITY	3	3	0.429	160	3	2016

Analysis

We analyzed the Author's Local Impact by analyzing various indexes such as h-index, g-index, m-index, total citations, number of publications, and the year when the first document was published. Considering that the time taken into consideration is only four years, there is a meaningful value of

the h-index. Furthermore, the Impact of the publications taken in the analysis was measured by the global citation's performance (g-index) that per se considers highly cited papers beyond the Hirsch Index and is a valuable index regarding short-term document analysis. Finally, the total number of citations and publications indicates an increasing interest in exploring more technologies that can help the implementation of e-Agriculture.

Table 3 Most Relevant authors

Authors	Articles	Articles Fractionalized
ZHANG Z	5	0.66
OUÉDRAOGO M	4	0.51
WANG L	4	0.96
ZOUGMOREÉ RB	4	0.51
BALASUNDRAM SK	3	0.49
LI Y	3	0.54
PARTEY ST	3	0.44
ZHANG Y	3	0.59
ABBAS HT	2	0.22
ABBASI QH	2	0.22

Table 4 The field's top ten authors with the most impact

Element	h_index	g_index	m_index	TC	NP	PY_start
OUÉDRAOGO M	4	4	0.571	285	4	2016
ZOUGMOREÉ RB	4	4	0.571	285	4	2016
PARTEY ST	3	3	0.429	242	3	2016
WANG L	3	4	0.429	113	4	2016
ABBAS HT	2	2	0.5	27	2	2019
ABBASI QH	2	2	0.5	27	2	2019
ALI S	2	2	0.5	29	2	2019
ALOMAINY A	2	2	0.5	27	2	2019
AMARAL LR	2	2	0.4	28	2	2018
BALASUNDRAM SK	2	3	0.4	207	3	2018

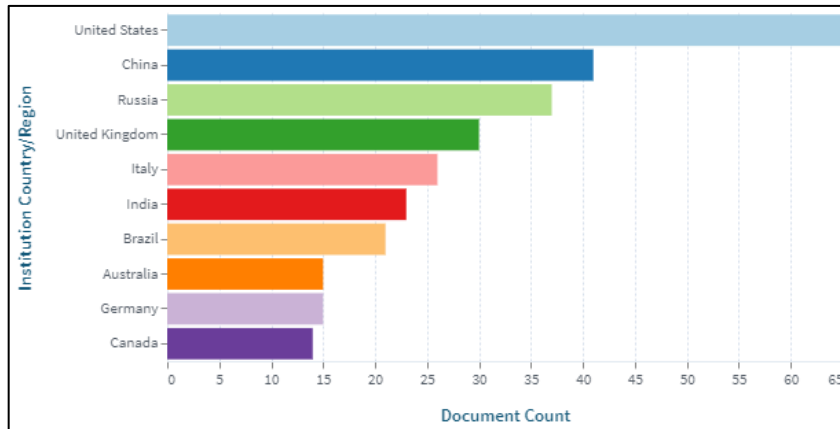


Figure 3 Main countries/regions contributed to e-Agriculture

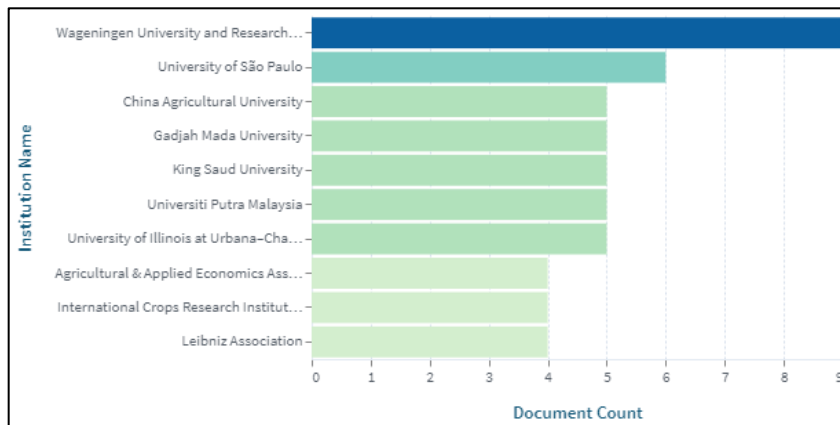


Figure 4 Main institutions contributed to e-Agriculture

One of the other essential areas of scientometric mapping is the countries where research was carried out. Figure 3 shows the ten countries with the highest frequency of publications involving E-Agriculture. Again, the United States of America stands out with 65 articles (16%), China with 41 (10%), and Russia with 37 (9%). The three countries concentrate about 35% of all documents on E-Agriculture, while 65% are distributed in more than 80 countries.

The author-co-authorship network

In the bibliometric analysis through the VOSviewer software, the parameters created a map based on bibliographic data extracted from Lens.org, with the option of bibliographic coupling of documents to identify the main publications and understand the state of the art of the concept on the application of the e-Agriculture. Co-authorship analysis of authors shows that there are 4 clusters. Regarding Lens, in order of importance, examining the central nodes of these relationships, the most prominent author is Matheu Ouédraogo, from which other relationships are established, grouped into four nodes.

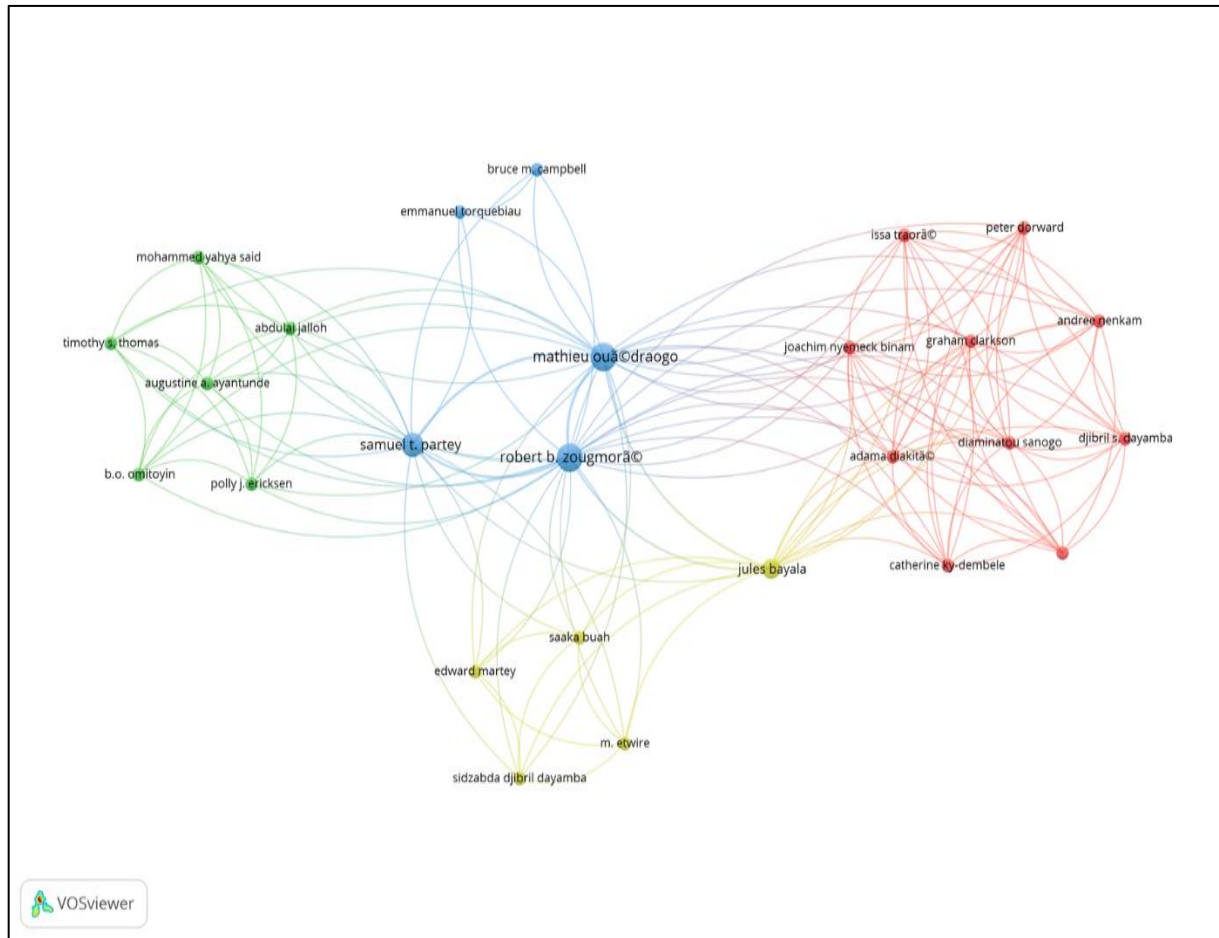


Figure 5 Network visualization of Author-Co-authorship network

Citation analysis on documents

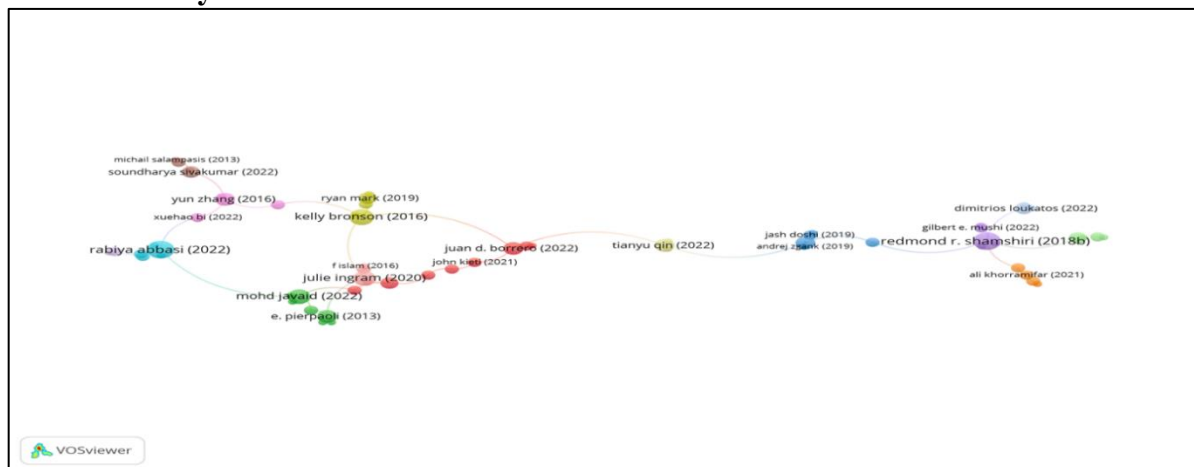


Figure 6 Network visualization of Citations-Documents

The citations-documents analysis was performed. Out of 407 documents, 63 were connected items.

Keyword co-occurrence

Keyword Co-occurrence Cluster View. In the field of e-Agriculture, the software VOSviewer was

used to build a term co-occurrence clustering view. From a total of 1504 keywords, 41 keywords with a frequency of 5 were selected, and a co-occurrence analysis was conducted on these 41 keywords, as shown in figure 7. Keywords reveal the essential information regarding the articles' primary content. The circle and label in the knowledge graph reflect a keyword's recurrence, while the circle's size represents its importance, and each color represents a different category. The distance between terms indicates the degree of their association, and various hues are used to denote the various clusters. The field's weight increases proportionally to the number of graph nodes.

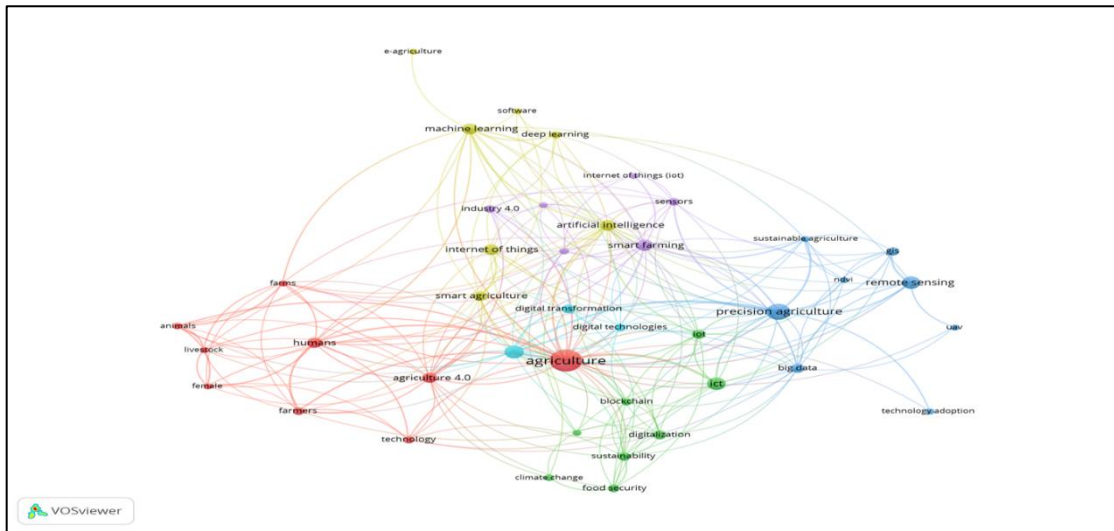


Figure 7 Bibliometric map of Lens keyword.



Figure 8 Keywords Tree map

Terms	Frequency
agriculture	51
precision agriculture	35
digital agriculture	26
ict	21
remote sensing	20
smart farming	18
agriculture 4 0	15
internet of things	15
artificial intelligence	14
machine learning	12

Conclusions and recommendations

Over the 10-year study period, a growth trend is found in the publication dynamics related to e-Agriculture. This rise in publications is the result of increased international public and private investment in agricultural research and development, as well as the rapid expansion of information and communication technologies, which encourages technical convergence. In addition, technology enables enhanced production and sustainability in light of climate change. In response to the research questions in the introduction to this study, it was determined that: (1) the topic of e-Agriculture has increasingly attracted the attention of researchers in recent years, especially between 2015 and 2020, with a significant increase in the number of authors, articles, journals, and citations. Throughout the analyzed period (10 years), publications grew at an annual rate of 28.34%, totaling 406 documents. The survey of the author's keywords and the most frequent Keywords Plus in the research was formulated, revealing the same "precision agriculture," "digital agriculture," "remote sensing," and "smart farming" among the most used.

Our bibliometric approach, specifically performance analysis, identified the significant actors (countries, institutions) linked with e-Agriculture between 2012 and 2022. Countries investing more in research and development have the most publications in advanced ICT in agriculture and the most significant production levels supporting sustainable agriculture. Outside the United States, the institutions that stand out include those in China, Russia, and the UK, based on the number of publications, agricultural output, and research and development funding of these nations.

In conclusion, it has been determined that a qualitative review conducted throughout the analysis is consistent with the quantitative results discovered and that one of the most important contributions of this study is the identification of consistent research axes in e-Agriculture for the long term, as well as the most important research trends, both of which can aid in the development of new technologies. As a result, the results of this study may be helpful not only to academics and specialists but also to companies functioning in this industry.

This study does have some limitations. Even though the Lens database offers most of the data, some records have blank, partial, or inconsistent fields. Combining this database with Wos and Scopus would expand the search by often filling in those missing elements. The process was accelerated thanks to the tools utilized, but those tools do not have specific capabilities dedicated to data cleaning. As a result, cleaning the data requires manual labor, which can be expensive when dealing with significant volumes of data. Another thing that has been seen is that new topics have surfaced swiftly in e-Agriculture. Due to this circumstance, further bibliometric studies must be conducted in a few

years.

On the other hand, the limitations listed here are opportunities for future research, such as elaborating the results of this study by adding new databases, combining the use of complementary tools, or developing this to circumvent the limitations of the tools adopted here, and optimizing Scientific mapping e-Agriculture and other areas.

References

- Anshari, M., Almunawar, M. N., Masri, M., & Hamdan, M. (2019). Digital Marketplace and FinTech to Support Agriculture Sustainability. *Energy Procedia*, 156, 234–238. <https://doi.org/10.1016/j.egypro.2018.11.134>
- Aria, M., & Cuccurullo, C. (2017). bibliometrix : An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959–975. <https://doi.org/10.1016/j.joi.2017.08.007>
- Biscaro, C., & Giupponi, C. (2014). Co-Authorship and Bibliographic Coupling Network Effects on Citations. *PLoS ONE*, 9(6), e99502. <https://doi.org/10.1371/journal.pone.0099502>
- Bongiovanni, R., & Lowenberg-Deboer, J. (2004). Precision Agriculture and Sustainability. *Precision Agriculture*, 5(4), 359–387. <https://doi.org/10.1023/B:PRAG.0000040806.39604.aa>
- Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., & Lim, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285–296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- FAO. (2015). *Climate change and food security: risks and responses*.
- FAO and ITU. (2016). *E-AGRICULTURE STRATEGY GUIDE Piloted in Asia-Pacific countries*.
- Flor, A. G., & Cisneros, A. J. (2015). e-Agriculture. In *The International Encyclopedia of Digital Communication and Society* (pp. 1–6). Wiley. <https://doi.org/10.1002/9781118767771.wbiedcs110>
- Hinson, R., Lensink, R., & Mueller, A. (2019). Transforming agribusiness in developing countries: SDGs and the role of FinTech. *Current Opinion in Environmental Sustainability*, 41, 1–9. <https://doi.org/10.1016/j.cosust.2019.07.002>
- Khan, N. A., Qijie, G., Sertse, S. F., Nabi, M. N., & Khan, P. (2020). Farmers' use of mobile phone-based farm advisory services in Punjab, Pakistan. *Information Development*, 36(3), 390–402. <https://doi.org/10.1177/0266666919864126>
- Klerkx, L., Jakku, E., & Labarthe, P. (2019). A review of social science on digital agriculture, smart farming and agriculture 4.0: New contributions and a future research agenda. *NJAS: Wageningen Journal of Life Sciences*, 90–91(1), 1–16. <https://doi.org/10.1016/j.njas.2019.100315>

- Krell, N. T., Giroux, S. A., Guido, Z., Hannah, C., Lopus, S. E., Caylor, K. K., & Evans, T. P. (2021). Smallholder farmers' use of mobile phone services in central Kenya. *Climate and Development*, 13(3), 215–227. <https://doi.org/10.1080/17565529.2020.1748847>
- Ma, L., Long, H., Zhang, Y., Tu, S., Ge, D., & Tu, X. (2019). Agricultural labor changes and agricultural economic development in China and their implications for rural vitalization. *Journal of Geographical Sciences*, 29(2), 163–179. <https://doi.org/10.1007/s11442-019-1590-5>
- Mittal, S., & Hariharan, V. K. (2018). Mobile-based climate services impact on farmers risk management ability in India. *Climate Risk Management*, 22, 42–51. <https://doi.org/10.1016/j.crm.2018.08.003>
- Mogili, U. R., & Deepak, B. B. V. L. (2018). Review on Application of Drone Systems in Precision Agriculture. *Procedia Computer Science*, 133, 502–509. <https://doi.org/10.1016/j.procs.2018.07.063>
- Mulla, D. J. (2013). Twenty five years of remote sensing in precision agriculture: Key advances and remaining knowledge gaps. *Biosystems Engineering*, 114(4), 358–371. <https://doi.org/10.1016/j.biosystemseng.2012.08.009>
- Ray, P. P. (2017). Internet of things for smart agriculture: Technologies, practices and future direction. *Journal of Ambient Intelligence and Smart Environments*, 9(4), 395–420. <https://doi.org/10.3233/AIS-170440>
- Shafi, U., Mumtaz, R., García-Nieto, J., Hassan, S. A., Zaidi, S. A. R., & Iqbal, N. (2019). Precision Agriculture Techniques and Practices: From Considerations to Applications. *Sensors*, 19(17), 3796. <https://doi.org/10.3390/s19173796>
- SINGH, N. K., V, P., & ALAGAWADI, M. (2021). Impact of E-Nam (Electronic-National Agriculture Market) in Doubling Farmers Income. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3992422>
- Tsouros, D. C., Bibi, S., & Sarigiannidis, P. G. (2019). A Review on UAV-Based Applications for Precision Agriculture. *Information*, 10(11), 349. <https://doi.org/10.3390/info10110349>
- Van Schalkwyk, F., Young, A., & Verhulst, S. (2017). Ghana's Esoko: Leveling the information playing field for smallholder farmers. In *Open Data in Developing Economies: Toward Building an Evidence Base on What Works and How* (pp. 191–205).
- Xiong, H., Dalhaus, T., Wang, P., & Huang, J. (2020). Blockchain Technology for Agriculture: Applications and Rationale. *Frontiers in Blockchain*, 3. <https://doi.org/10.3389/fbloc.2020.00007>
- Zeng, Y., Jia, F., Wan, L., & Guo, H. (2017). E-commerce in agri-food sector: a systematic literature review. *International Food and Agribusiness Management Review*, 20(4), 439–460. <https://doi.org/10.22434/IFAMR2016.0156>

The impact of transformational and interpersonal leadership in teachers' performance

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Abstract

The aim of the study was to investigate the impact of the school's transformational and interpersonal leadership style in teachers' performance. The quantitative method was the approach used in the empirical study. The structured questionnaire as well as the random cluster sample of respondents were selected in the study. It is revealed that 30-40% of the variance in teachers' performance is explained by transformational leadership according to teachers, as well as to principals. At the same time, it is showed that 32.3-45.6% of the variance in teachers' performance is explained by interpersonal leadership according to teachers, as well as to principals.

Keywords: *Transformational leadership, interpersonal leadership, teachers' performance*

Introduction and literature review

School leadership supervision and evaluation of teaching and learning are used to improve overall student achievements. To support teachers in successfully fulfilling their role in teaching and learning, effective teacher supervision and evaluation systems that inform teacher professional development and improve instruction are essential (Xhomara, 2021). School leadership styles are

supposed to be the important variables that influence teachers' performance. Xhomara, Karabina, and Hasani (2022) revealed that 9.9% of the variance according to students and 44.4% according to principals on students' achievements is explained by managerial leadership; at the same time, management increase the prevention of disruptive behaviors and students' life skills, and collegial school management predicts the prevention of disruptive behaviors and students' life skills (Xhomara, 2019). The study aims to investigate the relationship between the school's transformational and interpersonal leadership styles and teachers' performance, as well as the influence of these school leadership styles on teachers' performance. The *research questions* include: (2) Is there any relationship between the transformational leadership style and teachers' performance? (2) Is there any relationship between the interpersonal leadership style and teachers' performance?

Conceptual framework

The framework for the study was developed from an extensive review of existing evidence about leadership in schools. The review began with a search for relevant empirical research through Sage and ERIC using the keywords *transformational*, *interpersonal leadership*, and *teachers' performance*. Figure 1, summarizing the framework resulting from the review, proposes a set of relationships among the three constructs: transformational and interpersonal leadership style as independent variables that are supposed to influence teachers' performance dependent variable.

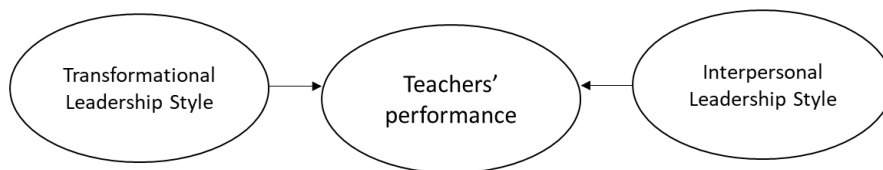


Figure 1: Conceptual framework of school leadership styles and teachers' performance

Literature review

The relationship between school leadership styles and teachers' performance

School leadership supervision and evaluation of teaching and learning are used to improve overall student achievements. To support teachers in successfully fulfilling their role in teaching and learning, effective teacher supervision and evaluation systems that inform teacher professional development and improve instruction are essential (Xhomara, 2021). Thomas, Tuytens, Devos,

Kelchtermans, & Vanderlinde (2020) demonstrated that the transformational leadership of the principal is directly related to teachers' job attitudes in a positive way; and Ross, Lutfi, & Hope (2016) revealed that distributed leadership correlated with teachers' affective commitment. Wirawan, Tamar, & Bellani (2019), as well as Xhomara and Baholli (2022), found that principals' emotional intelligence and class participation significantly predicted task-oriented as well as academic performance; and Katewa, & Heystek, (2019) showed that school principals unknowingly use distributed leadership together with instructional leadership to collaborate and share their leadership with teachers. Wenno (2017) showed that between principal managerial leadership and teacher performance there is a very high correlation, and Abu Nasra, & Arar (2020) found that teachers' in-role performance increases as they perceive their principals' leadership style as more transformational and less transactional.

The school principals' authentic leadership behaviors had a positive effect on teachers' perceptions of school culture (Karadag, & Oztekin-Bayir, 2018; Boies & Fiset, 2019); meanwhile, Cirigliano, (2017) found that effective instructional leadership providing teachers with necessary resources and professional development, providing students with necessary materials, evaluating instruction through formal and informal observations, and analyzing data.

Okçu (2014), as well as Chow (2016), determined that there was a positive and moderate relationship between school administrators' transformational leadership style and skills to manage diversity; meanwhile, Urick & Bowers (2014), as well as Preyear (2015) found that the school and principal context predicted high degree of leadership shared with teachers. Influencing complex instructional practices like cognitive activation with challenging content, a combination of leadership styles is most promising (Pietsch, & Tulowitzki, 2017; Matson, 2018); meanwhile, principals' supervisory, leadership and communication competences, and student-centered teaching are significantly related to teachers' work performance and critical thinking skills (Owan, & Agunwa, 2019; Xhomara, 2022). Correlation results were generated between teachers' perceptions of principal leadership and teacher performance (Sivertson, 2018); and student performance was related to prior knowledge, the comprehensive learning approach and leadership characteristics, as well as teacher perceptions of leadership style, affect commitment to the school (Xhomara, 2020; Rowley, 2013; Spencer, 2019). From another point of view, Magee (2012), as well as Ogbonna (2017) revealed no significant differences in overall school performance and leadership style; meanwhile, Tsayang (2011) pointed out that school management teams overrated themselves as displaying collaborative behaviors than they were rated by teachers. Somech, & Wenderow (2006) shows the impact of directive leadership

on teachers' performance; Marfan, & Pascual (2018) showed that principals are more likely to get involved in the former practices than in those related to teachers' work in the classroom, and amount of students' study time correlates positively with academic achievements of students (Xhomara & Hasani, 2018). Cooper, Macaluso, & Stanulis (2019) suggest that teacher-leader efficacy is rooted both in the teacher leaders' self-perceptions and in how those perceptions influence and are influenced by principals' expectations and leadership behaviors. Chow (2013), as well as Setlhodi (2019), highlight the subcultures within subject departments resulting from the different leadership styles; meanwhile, Semarco & Cho, (2018) showed that headteachers' problem-solving behavior, clarifying behavior and monitoring operations behavior influenced their planning activities as leaders, as well as individual study work, influences students' academic success (Xhomara, 2020).

The transformational and transactional leadership scales both correlated significantly positively with innovation climate, affiliation, principal positions in schools, and collaborative activity at both the teacher and the school levels (Oterkiil, & Ertesvåg, 2014; Gipson, Pfaff, Mendelsohn, Catenacci, & Burke, 2017); meanwhile, Bogler (2001) revealed that principals' transformational leadership affected teachers' satisfaction both directly and indirectly through their occupation perceptions. It has resulted that there are statistically significant relationships between lectures attendance and academic achievements of students (Xhomara, 2017); as well as there is a moderate, positive, and significant relationship exists between transformational leadership and overall teachers' job satisfaction (Tadele, 2014); and teachers' perceptions of supportive leadership are closely linked with transformational and distributed leadership (Mancuso, Roberts, & White, 2011). So, there is a little gap in the literature review about the relationship between school leadership styles and teachers' performance. In conclusion, school leadership styles, including transformational, interpersonal, postmodern, and contingency instructional leadership styles are important variables that impact teachers' performance. Therefore, it is mainly hypothesized that:

The variance in teachers' performance is explained by the school leadership styles (Main Hypothesis).

Based on the main hypothesis, operational hypotheses have been formulated as follows:

H # 1: The variance in teachers' performance is explained by the transformational leadership style.

H # 2: The variance in teachers' performance is explained by the interpersonal leadership style.

Methodology

Method and design

The quantitative approach was the method used in the empirical study. Therefore, correlational and regressive techniques are used to test the alternative hypothesis. Transformational leadership style and interpersonal leadership style are considered independent variables. Meanwhile, teachers' performance is considered a dependent variable.

The structured questionnaire was used to collect the primary quantitative data of independent and dependent variables from teachers and principals. The dimensions and items of the structured questionnaire are based on transformational leadership style, interpersonal leadership style, and teachers' performance variables. The structured questionnaire is based on the relevance of *the Questionnaire for leadership style* (Atsebeha, 2016). The constructed questionnaire was piloted with a small group of respondents and then applied in the study to gather the primary data. The Cronbach alpha of the structured questionnaire reliability scale values are between .86 to .93. Therefore, there is a high level of internal consistency of the instrument used in the study. The questionnaires were administered at the end of the third term of the academic year.

Participants

The target population of the study is the population of teachers and principals of high schools in the main municipalities in Albania. From the target population, the cluster random sample of teachers (N = 279) and principals (N = 87) was selected to be used in the study to gather quantitative data. Relating to qualification, 15.1% of the teachers and 18.2% of the principals have BA studies; 84.9% of the teachers and 81.8% of the principals have MA studies. Relating to experience, 90% of the teachers and 100% of the principals have up to 10 years of experience in teaching and leadership respectively; meanwhile, 10% of the teachers report up to 20 years of teaching experience. A breakdown of the cluster random sample of teachers included 153 females (54.8 percent) and 112 males (40.1 percent); meanwhile, the cluster random sample of principals included 50 females (57.5 percent) and 37 males (42.5 percent). The teachers and principals were willing positively to answer the questions about the instrument.

Procedure

The findings of the instruments were summarized in a synthetic way to use as the basis for the analysis of the findings. A descriptive statistic, as well as a bivariate correlation statistic, were used for the processing of data collected by the research instrument. The relationship between transformational leadership style, interpersonal leadership style, and teachers' performance was

investigated using the Pearson correlation coefficient. Linear multiple regression was used to assess the skills of four control measures to predict teachers' performance levels by transformational leadership style and interpersonal leadership style. Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no violations noted.

Results and discussion

Descriptive statistics

Transformational leadership

Table 1: Transformational leadership frequencies

	Transformational leadership			
	Teachers		Principals	
	Frequency	Percent	Frequency	Percent
Valid				
Never	97	34.8	15	17.2
Seldom	98	35.1	30	34.5
Occasionally	70	25.1	10	11.5
Often	14	5.0	26	29.9
Always			6	6.9
Total	279	100.0	87	100.0

Transformational leadership frequencies indicate that 69.9% of the teachers claimed that they never or seldom face transformational leadership; 5% of the respondents often or always; meanwhile, 25.1% of them confirmed occasionally face transformational leadership. At the same time, 51.7% of the principals claimed that they never or seldom show transformational leadership; 36.8% of the respondents often or always; meanwhile, 11.5% of them confirmed that occasionally show transformational leadership. Central tendency values for teachers ($M= 2.00$, $SD = .89$), as well as for principals ($M= 2.74$, $SD = 1.25$) indicate the same tendency for values as measured by frequencies. Hence, there are differences in the transformational leadership values (never or seldom: 18.2%; often or always: -31.8%; occasionally: 10%) between the teachers and principals. Therefore, the two groups of respondents, teachers (69.9%) as well as principals (51.7%) claimed that transformational leadership is shown mostly never or seldom in the school.

Interpersonal leadership

Table 2: Interpersonal leadership frequencies

Interpersonal leadership					
Teachers			Principals		
	Frequency	Percent	Frequency	Percent	
Valid	Never	98	35.1	6	6.9
	Seldom	70	25.1	16	18.4
	Occasionally	70	25.1	22	25.3
	Often	41	14.7	22	25.3
	Always			21	24.1
	Total	279	100.0	87	100.0

Interpersonal leadership frequencies indicate that 60.2% of the teachers claimed that they never or seldom face interpersonal leadership; 14.7% of the respondents often or always; meanwhile, 25.1% of them confirmed occasionally face interpersonal leadership. At the same time, 25.3% of the principals claimed that they never or seldom show interpersonal leadership; 49.4% of the respondents often or always; meanwhile, 25.3% of them reported that occasionally show interpersonal leadership. Central tendency values for teachers ($M= 2.19$, $SD = 1.07$), as well as for principals ($M= 3.41$, $SD = 1.23$) indicate the same tendency for values as measured by frequencies. Hence, there are differences in interpersonal leadership values (never or seldom: 34.9%; often or always: -34.7%; occasionally: -0.2%) between the teachers and principals. Therefore, the most of teachers (60.2%) claimed that interpersonal leadership is shown mostly never or seldom; meanwhile, approximately most of the principals (49.4%) reported that interpersonal leadership is shown most often or always.

Teachers' performance

Table 5: Teachers' performance frequencies

Teachers' performance					
Teachers			Principals		
	Frequency	Percent	Frequency	Percent	
Valid	Low level	9	3.2	1	1.1
	Pre-intermediate level	47	16.8	11	12.6

Intermediate level	45	16.1	8	9.2
Upper-intermediate level	149	53.4	40	46.0
Advanced level	29	10.4	27	31.0
Total	279	100.0	87	100.0

Teachers' performance' frequencies indicate that 20% of the teachers confirmed that there is a low or pre-intermediate level of teaching; 69.5% of the teachers an intermediate or upper-intermediate level of teaching; meanwhile, 10.4% of teachers claimed that there is an advanced level of teaching. At the same time, 13.7% of the principals reported that there is a low or pre-intermediate level of teaching; 45.2% of the principals an intermediate or upper-intermediate level of teaching; meanwhile, 31% of principals claimed that there is an advanced level of teaching.

Central tendency values for teachers ($M= 3.49$, $SD = 1.11$), as well as for principals ($M= 3.84$, $SD = 1.22$), indicate the same tendency for values as measured by frequencies. Hence, there are substantial differences in teachers' performance' (low or pre-intermediate level: 6.3%; intermediate or upper-intermediate level: 24.3%; advanced level: -3.3%) claimed by teachers and principals.

Therefore, approximately the most of teachers (69.5%), as well as the most of principals (45.2%) reported that there is an intermediate or upper-intermediate level of teaching performance.

Inferential analysis

H # 1

Table 6: Pearson correlations (r) outputs of the relationships between transformational leadership and teachers' performance variables

		Correlations			
		Teachers		Principals	
		Students' achievements	Transformational leadership	Students' achievements	Transformational leadership
Pearson Correlation	Students' achievements	1.000	.300	1.000	.400
	Transformational leadership	.300	1.000	.400	1.000
Sig. (1-tailed)	Students' achievements	.	.001	.	.000
	Transformational leadership	.001	.	.000	.
N	Students' achievements	279	279	87	87

Transformational leadership	279	279	87	87
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As shown in Table 6, according to teachers there is a positive correlation between transformational leadership and teachers 'performance variables, $r = .300$, $n = 279$, $p > .005$; as well as according to principals $r = .400$, $n = 87$, $p > .005$. Hence, high scores for the transformational leadership approach are associated with high scores of teachers 'performance according to teachers, as well as according to principals. Since $p > .005$ indicates that the relationship between transformational leadership and teachers 'performance is significant.

Table 7: Beta Standardized Coefficients of the relationships between transformational leadership and teachers 'performance variables

		Coefficients ^a Teachers									
Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part
	(Constant)	3.397	.146		23.202	.000	3.109	3.685			
1	Transformational leadership	.056	.067	.050	.839	.402	-.075	.187	.050	.050	.050

a. Dependent Variable: Teachers' performance

		Coefficients ^a Principals									
Model		Unstandardized Coefficients		Standardized Coefficient	t	Sig.	95.0% Confidence Interval for B		Correlations		
		B	Std. Error				Lower Bound	Upper Bound	Zero-order	Partial	Part
	(Constant)	3.786	.265		14.279	.001	3.259	4.314			
1	Transformational leadership	.409	.089	.400	.554	.001	-.127	.226	.060	.060	.060

a. Dependent Variable: Teachers' performance

According to teachers, as shown in table 7 the beta value for teachers 'performance is .300;

meanwhile, according to principals, the beta value for teachers 'performance is .400. The result means that according to teachers 30% of the variance on teachers 'performance is explained by transformational leadership; meanwhile, according to principals 40% of the variance on teachers 'performance is explained by transformational leadership. Based on statistical outputs shown above, *H # 1: The variance in teachers' performance is explained by the transformational leadership style*, is supported.

H # 2

Table 8: Pearson correlations (r) outputs of the relationships between interpersonal leadership and teachers 'performance variables

		Correlations			
		Teachers		Principals	
		Students' achievements	Interpersonal leadership	Students' achievements	Interpersonal leadership
Pearson Correlation	Students' achievements	1.000	.323	1.000	.456
	Interpersonal leadership	.323	1.000	.456	1.000
Sig. (1-tailed)	Students' achievements	.	.001	.	.002
	Interpersonal leadership	.001	.	.002	.
N	Students' achievements	279	279	87	87
	Interpersonal leadership	279	279	87	87

As shown in Table 8, according to teachers there is a positive correlation between interpersonal leadership and teachers 'performance variables, $r = .323$, $n = 279$, $p < .005$. At the same time, according to principals, there is a positive correlation between interpersonal leadership and teachers 'performance variables $r = .456$, $n = 87$, $p < .005$. Hence, high scores of interpersonal leadership approach are associated with high scores of teachers 'performance according to teachers, as well as according to principals. Since $p < .005$ indicates that the relationship between interpersonal leadership and teachers 'performance is significant.

Table 9: Beta Standardized Coefficients of the relationships between interpersonal leadership and teachers 'performance variables

Coefficients^a_Teachers

Model	Unstandardized		Standardized	t	Sig.	95.0% Confidence		Correlations		
	Coefficients					Interval for B	Zero-order	Partial	Part	
	B	Std. Error	Beta			Lower Bound				Upper Bound
(Constant)	3.758	.135		27.866	.000	3.492	4.023			
1 Interpersonal leadership	.413	.055	.323	-2.055	.004	-.222	-.005	-.123	-.123	-.123

a. Dependent Variable: Teachers' performance

Coefficients^a Principals

Model	Unstandardized		Standardized	t	Sig.	95.0% Confidence		Correlations		
	Coefficients					Interval for B	Zero-order	Partial	Part	
	B	Std. Error	Beta			Lower Bound				Upper Bound
(Constant)	3.904	.319		12.235	.000	3.270	4.538			
1 Interpersonal leadership	.551	.088	.456	.052	.005	-.171	.180	.006	.006	.006

a. Dependent Variable: Teachers' performance

According to teachers, as shown in table 9 the beta value for teachers 'performance is .323; meanwhile, according to principals, the beta value for teachers 'performance is .456. The result means that according to teachers 32.3% of the variance in teachers 'performance is explained by interpersonal leadership; meanwhile, according to principals, 45.6% of the variance in teachers 'performance is explained by interpersonal leadership. Based on statistical outputs shown above, *H # 2: The variance in teachers' performance is explained by the interpersonal leadership style, is supported.*

Conclusions and implications

One main limitation of the study should be acknowledged as part of the conclusions. The measurement of the school's transformational, interpersonal, as well as teacher performance is made based on self-reported instruments. The purpose of the study was to investigate the relationships between the school's transformational, interpersonal, and teachers' performance, as

well as the influence of these school leadership styles on teachers' performance. The prior assumption was that there is an association between these school leadership styles and teachers' performance.

The study showed that according to teachers (69.9%) as well as the principals (51.7%) transformational leadership is shown mostly never or seldom in the school. At the same time, it is found that according to most teachers (60.2%) interpersonal leadership is shown mostly never or seldom; meanwhile, according to approximately most of the principals (49.4%), interpersonal leadership is shown most often or always.

It is found a positive correlation between transformational leadership and teachers 'performance ($r = .300$) according to teachers; as well as according to principals ($r = .400$). The study demonstrated that according to teachers 30% of the variance in teachers 'performance is explained by transformational leadership; meanwhile, according to principals 40% of the variance on teachers 'performance is explained by transformational leadership. It is found a positive correlation between interpersonal leadership and teachers 'performance ($r = .323$) according to teachers, as well as according to principals ($r = .456$). It is demonstrated that 32.3% of the variance in teachers 'performance is explained by interpersonal leadership according to teachers; meanwhile, according to principals, 45.6% of the variance in teachers 'performance is explained by interpersonal leadership.

Therefore, educational institutions should promote transformational and interpersonal leadership styles as important variables that influence teachers' performance. Overall, the findings of this study enhanced theoretical and practical understanding of transformational and interpersonal leadership styles as important variables that influence teachers' performance.

References

- Abu Nasra, M., & Arar, K. (2020). Leadership Style and Teacher Performance: Mediating Role of Occupational Perception. *International Journal of Educational Management*, 34(1), 186-202.
- Atsebeha, A. A. (2016). *Leadership style questionnaire*. In: "Principals' Leadership Styles and their Effects on Teachers 'performance in the Tigray region of Ethiopia". Ph.D. Thesis. The University of South Africa.
- Bogler, R. (2001). The Influence of Leadership Style on Teacher Job Satisfaction. *Educational Administration Quarterly*, 37(5), 662-683. <https://doi.org/10.1177/00131610121969460>.

- Boies, K., & Fiset, J. (2019). I Do as I Think: Exploring the Alignment of Principal Cognitions and Behaviors and Its Effects on Teacher Outcomes. *Educational Administration Quarterly*, 55(2), 225-252.
- Bush, T. (2003). *Leadership and Management Development in Education*: Sage: London.
- Bush, T. (2003). *Theories of Educational Leadership and Management*. 3rd edn. London: Sage.
- Chow, A. (2013). Managing Educational Change: A Case of Two Leadership Approaches. *International Journal of Leadership in Education*, 16(1), 34-54.
- Chow, A. W. K. (2016). Teacher Learning Communities: The Landscape of Subject Leadership. *International Journal of Educational Management*, 30(2), 287-307.
- Cirigliano, N. (2017). Exploring the Leadership Practices of National Catholic Educational Association Distinguished Catholic Elementary School Principals and Defining the Leadership Needed to Survive the 21st Century Challenges. *ProQuest LLC*, Ed.D. Dissertation, University of San Francisco.
- Cooper S. K., Macaluso, M., & Stanulis, R. N. (2019). The Interplay between Principal Leadership and Teacher Leader Efficacy. *Journal of School Leadership*, 26(6), 1002-1032.
<https://doi.org/10.1177/105268461602600605>.
- Gipson, A. N., Pfaff, D. L., Mendelsohn, D. B., Catenacci, L. T., & Burke, W. W. (2017). Women and Leadership: Selection, Development, Leadership Style, and Performance. *The Journal of Applied Behavioral Science*, 53(1), 32-65. <https://doi.org/10.1177%2F0021886316687247>.
- Karadag, E., & Oztekin-Bayir, O. (2018). The Effect of Authentic Leadership on School Culture: A Structural Equation Model. *International Journal of Educational Leadership and Management*, 6(1), 40-75.
- Katewa, E., & Heystek, J. (2019). Instructional and Distributed Self-Leadership for School Improvement: Experiences of Schools in the Kavango Region. *Africa Education Review*, 16(2), 69-89.
- Katewa, E., & Heystek, J. (2019). Instructional and Distributed Self-Leadership for School Improvement: Experiences of Schools in the Kavango Region. *Africa Education Review*, 16(2), 69-89.
- Magee, I. D. (2012). Leadership Styles and School Performance: Is There a Gender Difference in Expectations for Teachers? *ProQuest LLC*, Ph.D. Dissertation, The University of Southern Mississippi.
- Mancuso, S. V., Roberts, L. & White, G. P. (2011). Teacher retention in international schools: The

- key role of school leadership. *Journal of Research in International Education*, 9(3), 306-323. <https://doi.org/10.1177/1475240910388928>.
- Marfan, J. & Pascual, J. (2018). Comparative study of school principals' leadership practices: Lessons for Chile from a cross-country analysis. *Educational Management Administration & Leadership*, 46(2), 279-300. <https://doi.org/10.1177/1741143217732792>.
- Matson, B. D. (2018). A Study of Teachers' and Principals' Beliefs about Leadership Behaviors in Relation to School Performance. *ProQuest LLC*, D.Ed. Dissertation, Indiana University of Pennsylvania.
- Ogbonna, S. C. (2017). Factors beyond Instruction That Impact School Performance: Leadership Practices and School Culture in High Achieving and Low Achieving Public Schools. *ProQuest LLC*, Ed.D. Dissertation, Texas A&M University-Commerce.
- Okçu, V. (2014). Relation between Secondary School Administrators' Transformational and Transactional Leadership Style and Skills to Diversity Management in the School. *Educational Sciences: Theory and Practice*, 14(6), 2162-2174.
- Oterkiil, C., & Ertesvåg, S. K. (2014). Development of a measurement for transformational and transactional leadership in schools taking on a school-based intervention. *Educational Management Administration & Leadership*, 42(4), 5-27. <https://doi.org/10.1177/1741143214523011>.
- Owan, V. J., & Agunwa, J. N. (2019). Principals' Administrative Competence and Teachers' Work Performance in Secondary Schools in Calabar Education Zone of Cross River State, Nigeria. *Online Submission, Humanities, and Social Sciences Letters*, 7(1), 20-28.
- Pietsch, M., & Tulowitzki, P. (2017). Disentangling School Leadership and Its Ties to Instructional Practices--An Empirical Comparison of Various Leadership Styles. *School Effectiveness and School Improvement*, 28(4), 629-649.
- Preyear, L. (2015). A Qualitative Multi-Site Case Study: Examining Principals' Leadership Styles and School Performance. *ProQuest LLC*, Ed.D. Dissertation, University of Phoenix.
- Ross, L., Lutfi, G. A., & Hope, W. C. (2016). Distributed Leadership and Teachers' Affective Commitment. *NASSP Bulletin*, 100(3), 159-169. <https://doi.org/10.1177/0192636516681842>.
- Rowley, S. P. (2013). Questioning Leadership: A Study of Leadership Style, Teacher Perceptions, and Student Achievement. *ProQuest LLC*, Ph.D. Dissertation, Capella University.
- Semarco, S. K. M., & Cho, S. (2018). The Predictive Influence of Headteachers' Task-Oriented Managerial Leadership Behaviors on Teachers' Retention Intentions in Ghana. *Educational*

- Management Administration & Leadership*, 46(6), pp. 908-925.
- Setlhodi, I. I. (2019). Ubuntu Leadership: An African Panacea for Improving School Performance. *Africa Education Review*, 16(2), 126-142.
- Sivertson, M. (2018). The Relationship between Intrinsic Motivation, Extrinsic Motivation, and Teachers' Perceptions of Principal's Leadership on Teacher Performance. *ProQuest LLC*, Ed.D. Dissertation, Grand Canyon University.
- Somech, A. (2005). Directive Versus Participative Leadership: Two Complementary Approaches to Managing School Effectiveness. *Educational Administration Quarterly*, 41(5), 777-800. <https://doi.org/10.1177/0013161X05279448>.
- Spencer, A. Jo M. (2019). Leadership for School-Based Teacher Learning and Development in an Era of Reform and Accountability: A Complex Phenomenon. *ProQuest LLC*, Ed.D. Dissertation, The George Washington University.
- Tadele A. T. (2014). The relationship between transformational leadership and job satisfaction: The case of government secondary school teachers in Ethiopia. *Educational Management Administration & Leadership*, 42(6), 903-918. <https://doi.org/10.1177/1741143214551948>.
- Thomas, L., Tuytens, M., Devos, G., Kelchtermans, G., & Vanderlinde, R. (2020). Transformational school leadership as a key factor for teachers' job attitudes during their first year in the profession. *Educational Management Administration & Leadership*, 48(1), 106-132. <https://doi.org/10.1177/1741143218781064>.
- Tsayang, G. (2011). A Comparative Analysis of SMTs (School Management Teams) and Teachers Perceived Preferred Leadership Style: A Case of Selected Primary Schools in Botswana. *Online Submission*, US-China Education Review B, 3, pp. 382-392.
- Urick, A., & Bowers, A. J. (2014). What Are the Different Types of Principals across the United States? A Latent Class Analysis of Principal Perception of Leadership. *Educational Administration Quarterly*, 50(1), 96-134.
- Wenno, I. H. (2017). Effect of Principal Managerial Leadership and Compensation towards Physics Teacher Performance in Senior High School in Baguala District-Ambon. *International Education Studies*, 10(1), 233-244.
- Wirawan, H., Tamar, M., & Bellani, E. (2019). Principals' Leadership Styles: The Role of Emotional Intelligence and Achievement Motivation. *International Journal of Educational Management*, 33(5), 1094-1105.
- Xhomara, N. (2017). *Lectures attendance as a predicting variable of academic achievements of*

- students. INTED2017: 11th annual International Technology, Education and Development Conference. International Multidisciplinary Conference. Valencia (Spain) on the 6th-7th-8th of March 2017. Conference-Abstract Proceedings, ISBN: 978-84-617-8491-2. ISSN: 2340-1079. DOI: [10.21125/inted.2017](https://doi.org/10.21125/inted.2017). [https://library.iated.org/publication/INTED2017/Nazmi Xhomara](https://library.iated.org/publication/INTED2017/Nazmi_Xhomara).
- Xhomara, N. (2018). Influence of School Leadership Style on Effective Teaching and Teacher-Student Interaction. *Pedagogy*, 132(4), 42-62. <http://www.pedagogika.leu.lt/index.php/Pedagogika/article/view/1136/420>. DOI: <https://doi.org/10.15823/p.2018.132.3>.
- Xhomara, N. (2019). The Collegial School Management as a Predicting Variable on Prevention of Disruptive Behaviors and Students' life Skills, *Pedagogy*, 136(4). DOI: <https://doi.org/10.15823/p.2019.136.10>.
- Xhomara, N. (2020). How Prior Knowledge, Learning, Teaching, and Assessment affect Students' achievements in Mathematics, *Research in Education and Learning Innovation Archives*, 25, 68-91. DOI: 10.7203/realia.25.15780.
- Xhomara, N. (2020). Individual study work and lecturer support as predictors of students' academic success. *International Journal of Knowledge and Learning*, Vol. 13, Issue 3. Indexed in Scopus & Emerging Sources Citation Index (Clarivate Analytics). DOI: 10.1504/IJKL.2020.109881. <https://www.inderscience.com/info/inarticle.php?artid=109881>.
- Xhomara, N. (2021). *Instructional Leadership and Effective Teaching and Learning*. Leadership in a Changing World. Monograph. Nova Science Publishers, NY, USA. September 20, 2021. ISBN: 978-1-68507-079-3. DOI: <https://doi.org/10.52305/PVLE5825>. <https://novapublishers.com/shop/instructional-leadership-and-effective-teaching-and-learning/>.
- Xhomara, N. (2022). Critical Thinking: Student-centred Teaching Approach and Personalised Learning, as well as Previous Education Achievements, Contribute to Critical Thinking Skills of Students, *International Journal of Learning and Change*, 14(1), 101-120. DOI: doi.org/10.32861/rje.71.29.35.
- Xhomara, N., & Baholli, I. (2022). Influence of Class Participation and Coursework on Academic Performance in the Context of Blended Learning, *International Journal of Online Pedagogy and Course Design (IJOPCD)*, 12(1), 1-14. DOI: [10.4018/IJOPCD.295951](https://doi.org/10.4018/IJOPCD.295951).

Xhomara, N., & Hasani N. (2018). *Amount of students' study time as an important predictor of academic achievements of students*. MIRDEC-10th, International Academic Conference Global and Contemporary Trends in Social Science (Global Meeting of Social Science Community) 06-08 November 2018, Barcelona, Spain. ISBN: 978-605-81247-2-1.

<https://www.mirdec.com/barca2018proceedings>.

Xhomara, N., Karabina, M., & Hasani, N. (2022). The Perceptions of Students and Principals on the Improvement of Students' Achievements by the Managerial and Transformational Leadership Styles, *Pedagogy*, 144(4), 119–136. <https://doi.org/10.15823/p.2021.144.7>.

Scalability of SQL engine based on columnar in-memory data representation

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Abstract

The purpose of the study is to investigate the performance, security, scalability, and problems of open-source databases which will help find a solution for different requirements and use cases. There is an increasing demand for real-time data processing that traditionally has been handled by databases and data warehousing systems. In modern systems, data is growing at an exponential rate which adds complexity and different challenges for managing this flow. Open-source databases share excellent features. However, these systems still have drawbacks like scalability problems in analytical, machine learning, and mixed workloads for medium/large datasets. To fulfill the demand and solve these problems, was necessary to build a SQL engine component for open-source databases to support highly mixed workloads with massively parallel processing based on the columnar in-memory data store. To build this hybrid model were used open-source technologies based on different studies. The performance study of the SQL engine hybrid component shows an increase in performance by many orders of magnitude. The results demonstrate that with the help of the SQL engine component an open-source database can handle a highly mixed workload based on large datasets in one single hybrid database model with improved security, scalability and minimizing costs.

Keywords: *SQL, in-memory database, database scalability, open source database, massive parallel processing (MPP).*

Introduction

The exponential growth of data generated by various sources has presented significant challenges for data management systems. Traditional row-based storage systems often encounter performance limitations as the size of data increases due to their linear access patterns. To address this challenge, a new approach to data representation has emerged, which stores data in a columnar format in memory. This approach is considered a promising solution for efficiently storing and accessing large data sets and supporting transactional open-source databases (OLTP) with analytical capabilities (OLAP). SQL engines are a popular choice for managing and analyzing data in enterprise systems. Despite their widespread use, there is a lack of research investigating the scalability of these engines. With the growing size of data sets, it is crucial to understand how SQL engines perform when

managing large volumes of data. This is especially important for organizations that rely on these systems for data management and analysis. Thus, further research is required to explore the scalability of SQL engines and identify methods for optimizing their performance in handling large data sets. This paper aims to investigate the scalability of a hybrid model that consists of open-source MySQL Community Edition for transactional workloads and a custom-made component for analytical workloads. Specifically, we will focus on whether SQL engines utilizing columnar in-memory data representation are scalable for managing and analyzing large data sets while supporting transactional workloads in one hybrid model. The findings of this study may have practical implications for organizations that rely on SQL engines for data management, particularly those dealing with large data sets in a mixed workload environment. By exploring the scalability of SQL engines utilizing columnar in-memory data representation, the study may shed light on the benefits and limitations of this approach and provide insights into how organizations can optimize their data management systems for mixed workloads.

Literature Review

The scalability of SQL engines has been a critical research area in the field of database management. A plethora of research studies has investigated the benefits of columnar in-memory data representation for analytical workload.

Abadi et al. (2008) proposed column store, a column-oriented database system that is designed for MPP architectures. They found that column store provides significant performance improvements for analytical queries compared to row-oriented database systems. Stonebraker et al. (2005) also presented the benefits of columnar data representation for analytic workloads and demonstrated the performance improvements of their column-store database system. Lang et al. (2014) conducted a performance evaluation of columnar databases on MPP clusters for scientific data processing workloads. They found that columnar databases outperformed row-oriented databases for a majority of their benchmark queries. Data compression is essential for columnar databases as it can significantly reduce storage requirements and improve query performance. Shkapenyuk et al. (2009) proposed a columnar compression technique called Run-Length Encoding (RLE) that reduces the storage requirements for columns with repeating values. Lemire et al. (2010) presented a new columnar compression technique called Binary Interpolation Search Compression (BISC) that is optimized for modern processors. Li et al. (2014) proposed a hybrid compression scheme for columnar databases that combines RLE and Dictionary encoding to provide better compression ratios. Parallel query processing is necessary for large-scale analytical workloads to achieve high

query performance. Raman et al. (2013) proposed a parallel query processing framework for columnar databases that optimizes query execution across multiple processing units. Pavlo et al. (2012) presented a column-store database system that uses a shared-nothing architecture to improve query performance and scalability. Kimura et al. (2012) proposed a distributed column-store system called Agora that uses a novel query routing algorithm to improve query performance. Columnar data representation is particularly well-suited for MPP architectures due to its ability to parallelize data processing. Abadi et al. (2013) presented a column-store database system called Vertica that is designed for MPP architectures. They found that Vertica can achieve high query performance and scalability on large clusters. Mariani et al. (2016) proposed a distributed column-store database system called HPE Vertica that is designed to run on commodity hardware. They found that HPE Vertica can achieve high query performance and scalability on large clusters. Query optimization is crucial for improving the performance of analytical queries on columnar databases. Neumann and Mühlbauer (2011) proposed a query optimization technique for columnar databases that exploits the columnar data layout to reduce I/O costs. They found that their technique can significantly improve the performance of analytical queries. Kim et al. (2012) presented a query optimizer for columnar databases that considers both column-wise and row-wise access patterns to improve query performance. They found that their optimizer can achieve better query performance than traditional query optimizers. A hybrid storage model that combines row-based and column-based storage can be effective for supporting mixed workloads. Singh et al. (2011) proposed a hybrid storage model that combines a row-based database with a column-based database for supporting mixed workloads. They found that their approach can achieve good performance for both analytical and transactional workloads. MySQL and MariaDB Column Store are popular open-source database management systems. To support mixed workloads, both systems provide transactional support and parallel query processing. Singh and Huang (2019) proposed a performance tuning approach for MySQL and MariaDB Column Store. Their approach involves tuning several configuration parameters, such as buffer pool size, number of threads, and query cache size. A recent study by Pavlo et al. (2017) evaluated the performance and cost-effectiveness of several in-memory database solutions for mixed workloads. They found that columnar in-memory data representation was highly effective at reducing contention and improving query response times, resulting in significant cost savings. They also found that columnar in-memory data representation provided better performance for complex analytical queries, which are common in mixed workloads. A study by Zhang et al. (2020) evaluated the security implications of using columnar storage methods for big data analytics. They found that

columnar storage methods can improve security by reducing the risk of data leakage and improving the scalability of security mechanisms. They also found that columnar storage methods can improve the performance of data masking and encryption techniques.

While some studies do mention support for transactional workloads, they do not explicitly address the incorporation of OLAP (Online Analytical Processing) and OLTP (Online Transaction Processing) workloads within the same system or a hybrid solution. It is noteworthy that certain closed-source database management systems have been architected to support both online analytical processing (OLAP) and online transactional processing (OLTP) workloads by utilizing hybrid storage models that combine columnar storage for analytical queries and row-based storage for transactional queries. Nevertheless, there is still a lack of research on the optimization and performance of hybrid systems in comparison to studies focused solely on either columnar or row-based databases. As a result, there is an urgent need for further research to investigate the integration of OLAP and OLTP workloads within open-source databases.

Methodology

One promising solution to fill in the gap, the research on this matter is to integrate a widely used open-source database, such as MySQL Community Server 8.0.xx by MySQL. (2022), with a closed-source custom-made columnar storage engine, which share similarity to MariaDB Column Store (2022), and other columnar storage engines. This hybrid model holds the potential of scalability to provide a comprehensive solution for managing diverse data processing needs while effectively managing multiple and mixed workloads within a single database, without 3rd party ETL (Extract, Transform, Load) processes and enhance security within the database management system. Therefore, this study aims to investigate the scalability, performance, optimization, and cost efficiency of a such hybrid system, providing valuable insights into the effective management of OLAP and OLTP workloads within a unified database environment.

To evaluate the scalability and performance we conducted a series of experiments using a cluster of nodes with MPP architecture. The aim of our study was to assess the ability of these engines to handle mixed workloads consisting of both OLTP and OLAP queries, which is a common scenario in modern data processing. In pursuit of this goal, we developed a custom columnar storage which integrates well with MySQL Community Server 8.0.xx, specifically designed to support analytics workloads. Our hybrid system employs a massively parallel distributed data architecture, utilizing the columnar in-memory data representation to achieve efficient processing of analytical queries on large datasets.

Additionally, we compared the performance of our hybrid model with that of the standard row-based storage component provided by MySQL Community Server. The performance comparison encompasses a variety of industry-standard benchmarking tools including TPC-H, TPC-C and CH-benCHamrk with different dataset sizes 10 GB, 100 GB, and 1 TB to validate the speedup provided. In addition to performance evaluation, we also assessed the cost-saving potential of this hybrid model, taking into consideration the hardware and infrastructure required to support different systems. To achieve this, we utilized a cloud-based platform, such as Amazon Web Services (AWS). Our study contributes to a deeper understanding of the performance and scalability of SQL engines based on columnar in-memory data representation with standard row-based storage component provided by MySQL Community Server, particularly in the context of mixed workloads. The results of this study hold significant implications for organizations seeking to effectively process large datasets and support hybrid solution, while minimizing hardware and infrastructure costs.

Infrastructure specific setup

To ensure accurate performance evaluation and comparison of MySQL Community Server and our hybrid model against other industry-standard benchmarking tools, we implemented our system on a cloud-based platform, specifically Amazon Web Services (AWS) following the recommended practices outlined in Kozlov et al. (2018). The choice of AWS was based on its ease of setup and scalability, as well as the availability of a variety of instance types, including compute-optimized, memory-optimized, and storage-optimized, allowing us to select the most suitable instance type for our specific use case, especially supporting MPP architecture. Our cluster was deployed using Amazon Elastic Compute Cloud (EC2) instances, with each instance running Amazon Linux 2, which is supported by MySQL Community Server following best configuration practices for security and performance by Percona (2021) and the custom-made Column Store to support hybrid model. We utilized two different instance types for our experiments: the r5.24xlarge instance with 96 vCPUs, 768GB of memory, and high network and storage performance, and the r5.8xlarge instance with 32 vCPUs, 256GB of memory, and high network and storage performance. The choice of instance type was based on the size of the workload and the desired level of parallelism. To benchmark the performance of our system, we generated and loaded datasets into MySQL Community Server and our hybrid model. We also used industry-standard benchmarking tools, including CH-benCHmark, TPC-H and TPC-C with different dataset sizes (10 GB, 100 GB, and 1 TB), to validate the speedup provided following the recommendations practice by Elsayed, H., et al. (2021). To monitor the performance of our system, we used Amazon CloudWatch, which provides metrics on EC2 instance

performance and the SQL engines. Additionally, we monitored the costs of the transactions with AWS Cost & Usage Report following AWS Billing and Cost Management user guides (2022). With the detailed documentation of Best Practices for Security, Identity, & Compliance by AWS (2022) appropriate security measures were also implemented, such as configuring network security groups and enabling SSL encryption for data in transit. Access to the EC2 instance was controlled using IAM roles and policies. This infrastructure-specific setup ensured that our experiments were conducted in a controlled environment, allowing for accurate performance evaluation and comparison, following best practice provided by Amazon Web Services Documentation (2022).

Custom-made component

Our study presents a novel custom-made component that supports a hybrid model consisting of open-source MySQL Community Server that handle transactional workload (OLTP), and custom-made component utilizing an in-memory columnar data representation. The component is optimized for the massively parallel processing (MPP) architecture and built on the column-store paradigm, where data is stored in columns, offering faster and more efficient queries and aggregations, crucial for large-scale data analysis (OLAP). The custom-made component has been developed to work seamlessly with open-source MySQL databases and features a distributed architecture comprising multiple nodes, each responsible for processing a portion of the data. The master node coordinates the processing and ensures data consistency across the cluster. Our component's design bears similarities to other columnar databases, such as MariaDB Column Store (2022), and leverages the benefits of this architecture, including faster query performance and reduced I/O requirements. The component is optimized for MPP architectures, making it highly suitable for large-scale analytics workloads. In-memory columnar data representation enables rapid data access and low-latency analytics queries, while the distributed architecture allows for efficient scalability and improved fault tolerance. Our custom-made component provides a robust and efficient solution for supporting the hybrid model, enabling fast and scalable analytics queries and efficient data retrieval operations following the columnarization process. Columnarization is the process of reorganizing data from a row-based storage format into a column-based storage format. In a columnar storage format, each column of a table is stored separately in memory, which allows for highly efficient query processing. This is because columnar storage can leverage compression techniques, such as run-length encoding, dictionary encoding, and vectorization, which are highly effective for highly repetitive data, as is often the case in analytical workloads. It also involves breaking down a table into its constituent

columns and storing each column as a separate structure in memory. Each column is then compressed independently using techniques optimized for the type of data being stored. This approach allows for more efficient use of memory and improved query performance, as only the columns required for a specific query need to be read from disk. Its distributed architecture and in-memory columnar data representation make it particularly well-suited for large-scale data analytics workloads, offering a significant advantage in handling large and complex data sets.

As our custom-made component is a closed source technology, we are unable to share further technical information due to proprietary and confidentiality concerns. The component contains proprietary algorithms that are the foundation of our competitive advantage. Additionally, sharing further technical information could potentially compromise the security and integrity of the component, making it vulnerable to malicious attacks or unauthorized access. As such, we must take appropriate measures to protect and maintain the confidentiality of our proprietary technology. While we understand the importance of transparency in scientific research, we must also balance the need to protect our intellectual property and maintain a competitive advantage.

Results and discussion

We conducted a rigorous mixed workload benchmark using the CH-benCHmark, TCP-C and TCP-H with the help of OLTPBench framework to evaluate the performance of a target service instance. To ensure the accuracy of our findings, we provisioned and configured the target service instance and created a mixed workload schema consisting of TPC and CH-benCHmark queries.

Benchmark 1

We generated and loaded a substantial 100 GB dataset onto the target service instance, and during the benchmark, we set the incoming rate of TPC-C transactions to 400 per second, corresponding to a total of 24,000 transactions per minute, and the incoming rate of CH-benCHamrk transactions to 4 per second, corresponding to 240 transactions per minute. We ran 128 concurrent sessions of TPC-C (OLTP) and 8 concurrent sessions of CH-benCHamrk (OLAP) to fully evaluate the performance

of the target service instance. Furthermore, we compared the performance and infrastructure cost of the hybrid model against standard MySQL Community Server.

Table 5: CH-benCHamrk results with 100GB dataset.

	<i>Hybrid model</i>	<i>MySQL Community Server</i>
Instance shape	r5.8xlarge	r5.8xlarge
Cluster size	2	2
OLTP throughput (transactions per minute)	24,000	24,000
OLTP latency	0.05 seconds	0.05 seconds
OLAP throughput (transactions per minute)	5.2	0.055
OLAP latency	62 seconds	1,128.4 seconds
Cost (AWS estimate in USD)	0.0264\$	0.6903\$

Under the mixed workload benchmark, the OLTP throughput for both instances were 24,000 transactions per minute with an average latency of 0.05 seconds. The hybrid model showed a significant improvement in OLAP performance compared to the standard MySQL Community Server. The OLAP throughput for the hybrid model was 5.2 transactions per minute, which is approximately 94 time better than the standard MySQL Community Server's OLAP throughput of 0.055 transactions per minute. The hybrid model also had a lower latency of 62 seconds compared to the standard MySQL Community Server's latency of 1,128.4 seconds, which is approximately 18.2 time slower than the hybrid model's latency. The estimated cost for hybrid model instance was 0.0264\$, while the standard MySQL Community Server instance was estimated to cost 0.6903\$. Based on CH-benCHmark results with a 100GB dataset, the hybrid model exhibited superior OLAP performance and lower cost compared to the standard MySQL Community Server, resulting in a cost reduction of approximately 26 time cheaper.

Benchmark 2

We also conducted a transactional (OLTP) workload test, which is a benchmark commonly used to evaluate database systems ability to handle high-volume online transaction processing workloads. We used the sysbench framework to run the benchmark. We provisioned and configured the target service instance shape r5.8xlarge and created the OLTP workload schema (TPC-C) on the instance. We generated and loaded a 10 GB dataset onto the target service instance. We then started with one concurrent session and gradually increased the number of concurrent sessions to observe the impact on throughput and latency.

Table 2 TPC-C benchmark results with 10GB dataset.

<i>Concurrency</i>	1	4	16	64	128	256	512	1,024	2,048	4,096
<i>MySQL Community Server</i>	70	401	980	2,338	3,515	4,281	4,784	2,487	474	145
<i>Hybrid model</i>	75	412	970	2,324	3,490	4,302	4,885	2,653	510	161

The conducted concurrency testing for both MySQL Community Server instance and the hybrid model instance revealed a negligible difference in throughput at varying concurrency levels. This difference was so minimal that it did not have any noticeable impact on the overall performance of the instances. As expected, these results suggest that the hybrid model does not provide any significant advantage in improving OLTP performance for MySQL Community Server.

Benchmark 3

To test the performance of a target service instance for heavy workloads, a common approach is to use the TPC-H benchmarks. These benchmarks are designed to simulate data warehousing applications. It consists of a suite of business-oriented ad-hoc queries and concurrent data modifications. To conduct a performance test, we generated and loaded a 1 TB GB dataset onto the target service instance.

Table 3: TPC-H benchmark results with 1 TB dataset

	<i>Hybrid model</i>	<i>MySQL Community Server</i>
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Instance shape	r5.24xlarge	r5.24xlarge
Cluster size	1	1
Total elapsed time	3,810 seconds	1,180,059 seconds
Costs (AWS estimate in USD)	48.62\$	1,506\$

In this benchmark, the hybrid model instance outperformed the standard MySQL Community Server instance in both total elapsed time and costs. The hybrid model instance completed the benchmark in 3,810 seconds with a cost of \$48.62, while the standard MySQL Community Server instance took 1,180,059 seconds to complete the benchmark at a cost of \$1,506. This represents a significant advantage for the hybrid model instance, which completed the benchmark approximately 309 time faster and costs approximately 31 time cheaper than the standard MySQL Community Server.

Conclusions and implications

Our studies provide valuable insights into the scalability, performance, and cost-effectiveness of the hybrid model. However, it is important to note that our approach has limitations that must be considered. One limitation is the use of synthetic workloads derived from TPC benchmarks and CH-benCHamrk, which may not fully represent all real-world use cases. While these benchmarks are designed to simulate real-world scenarios, there may be variations in actual workloads that we did not account for. Additionally, our testing was limited to a specific set of instance shapes and cluster sizes, which may not be comprehensive enough to cover all possible scenarios. To address this limitation, future studies could expand the range of instance shapes and cluster sizes tested to obtain a more comprehensive view of performance and cost-effectiveness. Furthermore, while we evaluated the MySQL Community Server in the hybrid model, it would be beneficial to support other database solutions in future studies to provide further context and insights into the relative strengths and weaknesses of different open-source database technologies. It is also important to acknowledge that our custom-made component is developed to support an analytic workload and is available only for MySQL. We also identified areas for improvement in terms of data compression and memory management. Therefore, further research and development are necessary to optimize the performance and efficiency of this component to support better the hybrid model. Despite these limitations, our studies provide valuable information considering the significant performance benefits and cost savings that can be achieved using the hybrid model, particularly for OLAP and

mixed workloads. These findings have important implications for organizations seeking to optimize the scalability, performance, and cost-effectiveness of their database solutions, particularly those dealing with large amounts of data, complex analytical queries, and mixed workload. While our benchmark studies provide valuable insights, it is important to consider the limitations of our approach when interpreting the results. Our findings can be used as a starting point for further research and testing in a more comprehensive and diverse range of scenarios.

References

- Kozlov, A., Kogan, K., Trushkina, M., Kuznetsov, M., & Kabanov, Y. (2018). Deploying MPP Database on Public Cloud Infrastructure. *In Proceedings of the 17th International Symposium on Parallel and Distributed Computing.*
- Elsayed, H., Alam, M., Eltabakh, M., & Ouzzani, M. (2021). OLAP versus OLTP: A Comprehensive Evaluation on Industry Standard Benchmarks. *Journal of Database Management, 32(2), 1-21.*
- Abadi, D., Madden, S., & Ferreira, M. (2008). Column-store vs. row-store performance: An empirical study. *In Proceedings of the ACM SIGMOD International Conference on Management of Data.*
- Stonebraker, M., Abadi, D., Batkin, A., Chen, X., Cherniack, M., Ferreira, M., ... & Zdonik, S. (2005). C-Store: A column-oriented DBMS. *Proceedings of the VLDB Endowment, 1(2), 197-218.*
- Lang, H., Scheuerl, T., Willhalm, T., & Bientinesi, P. (2014). Performance evaluation of columnar databases on MPP clusters for scientific data processing. *Journal of Parallel and Distributed Computing, 74(1), 2265-2279.*
- Shkapenyuk, V., Balmin, A., & Beyer, K. S. (2009). The case for compressed column-stores. *Proceedings of the 35th International Conference on Very Large Data Bases, 2(1), 94-105.*
- Lemire, D., Kaser, O., Aouiche, K., & Liddle, S. (2010). Faster query processing with binary interpolation. *Information Systems, 35(3), 263-278.*
- Li, F., Zhang, X., Jiang, Z., & Chen, L. (2014). A hybrid compression scheme for column-store databases. *Proceedings of the 13th International Conference on Parallel and Distributed*

Computing, Applications and Technologies, 62-69.

- Raman, V., Deshpande, A., & Abadi, D. J. (2013). A cost-based query optimizer for column-stores. *Proceedings of the ACM SIGMOD International Conference on Management of Data, 731-742.*
- Pavlo, A., Angulo, D., Aslett, M., Barker, S., Bhattacharjee, B., Brown, D., ... & Zdonik, S. (2012). A comparison of approaches to large-scale data analysis. *Proceedings of the ACM SIGMOD International Conference on Management of Data, 165-178.*
- Kimura, H., Yasunami, S., Yamauchi, Y., Takagi, M., Mori, H., & Kitagawa, H. (2012). Agora: A distributed column-store system for real-time big data processing. *Proceedings of the 38th International Conference on Very Large Data Bases, 1565-1568*
- Abadi, D. J., Madden, S., & Ferreira, M. (2013). Vertica: SQL and advanced analytics in a columnar database. *Proceedings of the ACM SIGMOD International Conference on Management of Data, 195-206.*
- G. Mariani, J. Kepner, K. O'Brien, and R. Glassbrook, "HPE Vertica Distributed RDBMS Architecture: Combining Scalability, Elasticity, and Efficiency," in *Proceedings of the IEEE International Conference on Data Engineering, 2016, pp. 1533-1534.*
- Neumann, T., et al. (2011). "Efficiently Compiling Efficient Query Plans for Modern Hardware." *Proceedings of the ACM SIGMOD International Conference on Management of Data.*
- Kim, J., Kim, M., Han, W., & Lee, J. (2012). "Query Optimization Techniques for Column-Oriented Database Systems." *Proceedings of the ACM SIGMOD International Conference on Management of Data.*
- Singh, I., Cheng, E., Färber, F., Freytag, J.C., Hsu, M., Kanne, C.-C., Leis, V., Neumann, T., Pölit, C., Reiss, F.R., Schwalb, M., Taft, N., & Tzoumas, K. (2011). HStore: A High-Performance, Distributed Main Memory Transaction Processing System. *Proceedings of the VLDB Endowment.*
- Zhang, X., Xia, Z., & Du, X. (2020). Big Data Analytics Security Based on Columnar Storage. *IEEE Access, 8, 115057-115069.*
- MySQL. (2022). MySQL Community Edition. <https://www.mysql.com/products/community/>
- Percona. (2021). MySQL Best Practices for Security and Performance. Retrieved on December 2022 from: <https://www.percona.com/resources/technical-presentations/mysql-best-practices-for-security-and-performance>
- Amazon Web Service. (2022) Documentation. Retrieved on December 2022 from:

<https://docs.aws.amazon.com/>

AWS. (2022). AWS Billing and Cost Management User Guides. Retrieved on December 2022 from https://docs.aws.amazon.com/account-billing/?icmpid=docs_homepage_cloudfin

AWS. (2022). AWS Best Practices for Security, Identity, & Compliance. Retrieved on December 2022 from : https://aws.amazon.com/architecture/security-identity-compliance/?cards-all.sort-by=item.additionalFields.sortDate&cards-all.sort-order=desc&awsf.content-type=*all&awsf.methodology=*all

MariaDB. (2022). MariaDB Column Store Documentation: Retrieved on December 2022 from <https://mariadb.com/kb/en/mariadb-columnstore/>

Myocardial infarction and diabetes mellitus as a potential risk of high death rate

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Abstract

The size of the problem: Cardio – vascular disease is a significant global burden nowadays. Type 2 Diabetes is increasingly prevalent and cardio – vascular disease is the leading cause of death in this population. Globally, 387 million people are living with diabetes mellitus and it is estimated to be rising to 592 million by 2035.

T2D approximately doubles the risk of death. CVD is the principal cause of death in T2D.

The aim is to give a better understanding of the epidemiology of Diabetes Mellitus and Cardio-vascular disease and patho-physiology, in order to diagnose and treat accurately the disease with possible minimal complications by managing at the same time other cardio-vascular risk factors and comorbidities.

This is a review of several meta - analysis of previous large studies that lead to the following conclusions:

- *T2D is a major independent risk factor for CVD (WHO, n.d.).*
- *Endothelial dysfunction and progression of atherosclerosis is accelerated in patients with T2D (Libby P., 2001. Zeadin, et al., 2013)*
- *Patients with T2D are at significantly increased CV risk (Sarwar et al, 2010).*
- *Additional risk factors associated with T2D (Sarwar et al., 2010. Seshasai et al., 2011. Lewington S. et al., 2002. Grundy et al., 2004. Taylor AJ., 2006. Balkau B, et al., 2007).*

Hypertension, dyslipidaemia, visceral adiposity, hyperglycaemia and renal dysfunction are all associated with further increasing CV risk.

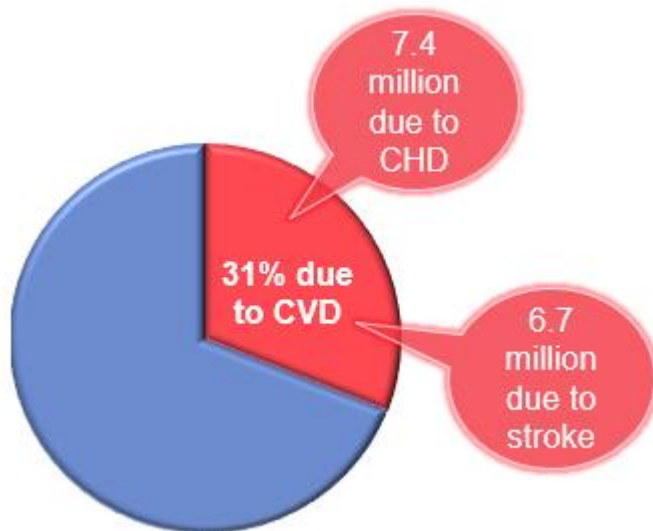
Key words: *burden of Diabetes Mellitus, increasing prevalence of T2D and CVD, patho-physiology, T2D as a major risk factor, additional comorbidities.*

Introduction

The size of the problem:

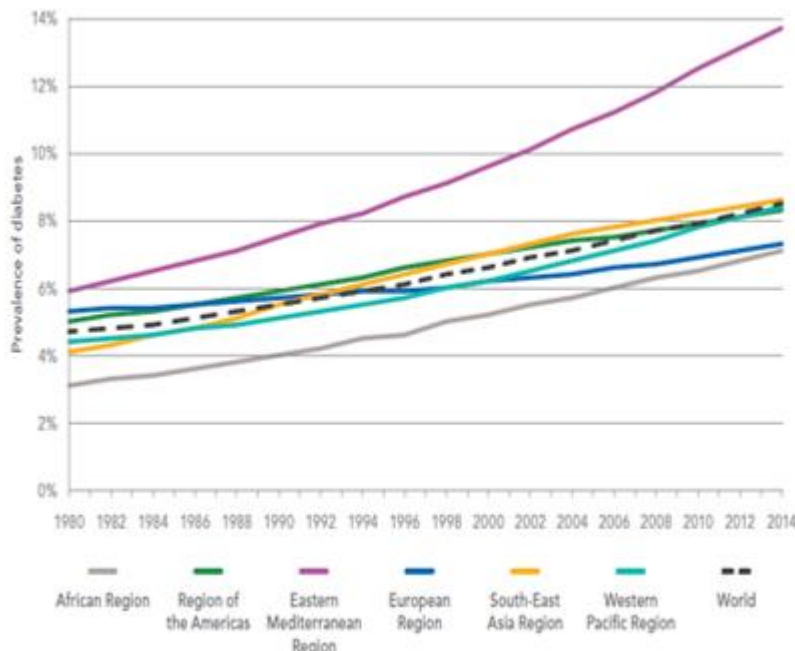
CVD is a significant global burden. An estimated 17.5 million people died from CVD in 2012, representing 31% of all global deaths. Of these deaths, an estimated 7.4 million were due CHD and 6.7 million were due to stroke.

Figure 1: Total global deaths in 2012 ~ 56 million (WHO, 2015)



Burden of Diabetes: >420 million people in the world have diabetes Prevalence of 8.5% and increasing among the adult population. T2D approximately doubles the risk of death (Libby P., 2001): Rising to 592 million by 2035 (WHO, 2016).

Graph 1:



T2D is increasingly prevalent and CVD is the leading cause of death in this population. Some 387 million people worldwide, or 8.3% of adults, are estimated to have diabetes. About 80% live in low- and middle-income countries. If these trends continue, by 2035, some 592 million people, or one adult in 10, will have diabetes (WHO, 2016).

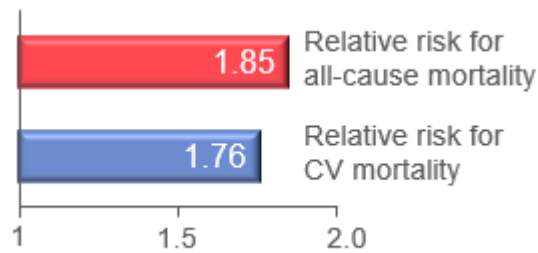
"Diabetes caused 4.9 million deaths in 2014; Every seven seconds a person dies from diabetes" (IDF Diabetes Atlas, 2014).

These relative risk data are derived from a systematic review and meta-analysis of studies (published 1190–2010) on mortality in T2D (Libby P., 2001).

The analysis included 35 studies (220,689 patients; mean follow-up 10.7 years). Strong positive associations were made between CVD mortality and T2D in men and women, although of varying degrees and age groups in all the studies that reported on this relationship. RRs were 1.76 (95% CI: 1.66–1.88) for CVD mortality and 2.26 (95% CI: 1.7–3.02) for stroke. Other consistent associations with increased mortality were smoking, retinopathy, PVD, hypertension, low or high alcohol intake, poor lipid profile, age and sex, combination of drugs such as sulphonylureas and metformin and in those on insulin. Nephropathy (microalbuminuria or gross-albuminuria) showed increased relative mortality risk, whereas HbA_{1c} and duration of diabetes had inconsistent outcomes with mortality.

Morrish et al was a mortality follow-up of 4713 patients who participated in the WHO Multinational Study of Vascular Disease in Diabetes. CV disease was the most common underlying cause of death, accounting for 44% of deaths in T1D and 52% of deaths in T2D.

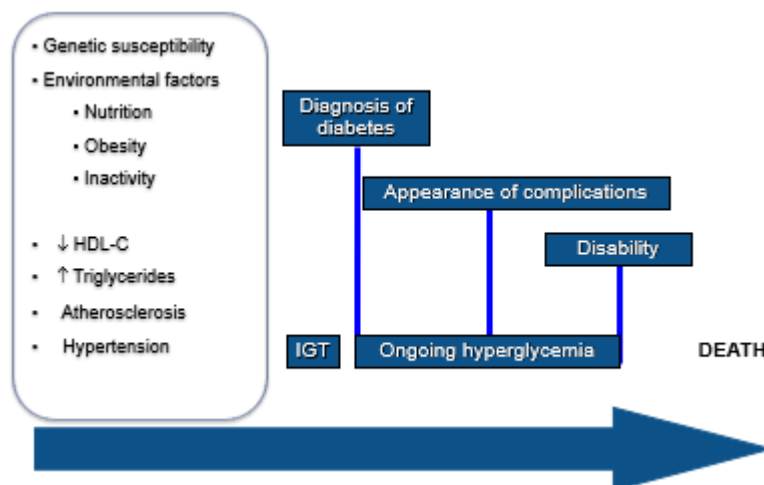
Graph 2:



Progression of diabetes depends on: Genetic susceptibility, environmental factors (Nutrition, Obesity, Inactivity), ↓ HDL-C, ↑ Triglycerides, Atherosclerosis, Hypertension.

Managing type 2 diabetes is related to accurate Diagnosis – Glucose control (Improve glycemic control to reduce symptoms and microvascular risk), managing cardio-vascular risk (Reduce macrovascular risk especially by controlling lipids and blood pressure)- and managing comorbidities (obesity, depression, fatty liver, kidney, eye and neuropathic diseases).

Figure 2: Progression of Diabetes Mellitus



Patho - physiology

T2D is a major and independent risk factor for both microvascular and macrovascular complications. Diabetes complications are divided into microvascular (due to damage to small blood vessels) and macrovascular (due to damage to larger blood vessels) (WHO, n.d.).

The risk of stroke in newly treated patients with T2D diabetes is more than double that of the general population (Libby P., 2001).

People with diabetes are 2-4 times more likely to have CV disease than those without diabetes (Zeadin, et al., 2013).

Damage to the kidney filtering systems from diabetes (diabetic nephropathy) is a leading cause of

kidney failure (Sarwar et al., 2010).

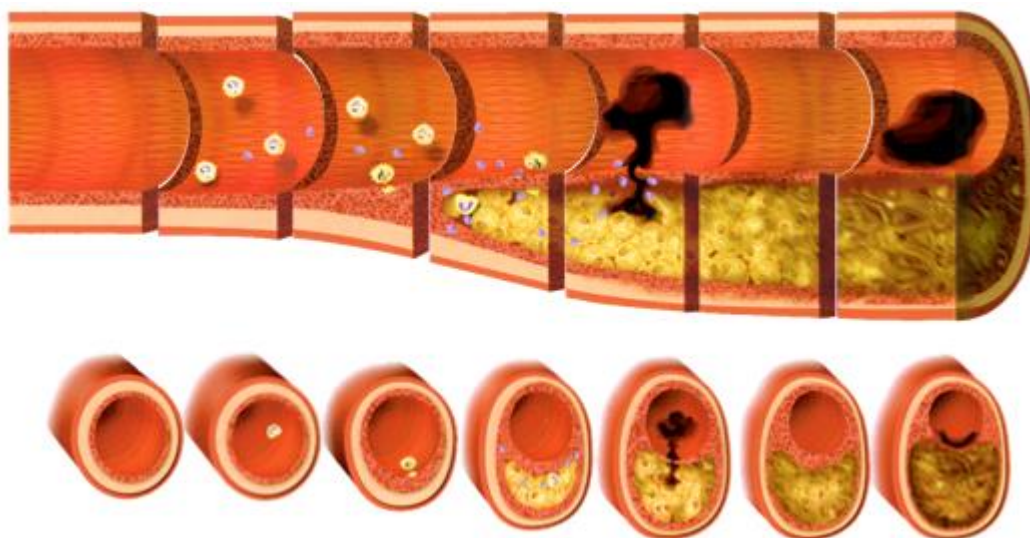
Microvascular damage to the retina from diabetes (diabetic retinopathy) is a leading cause of blindness (Seshasai et al., 2011).

Damage to the nerves from diabetes (diabetic neuropathy) is a leading cause of foot wounds and ulcers, which frequently leads to foot and leg amputation (Lewington S, et al., 2002).

The most prevalent CV disease is coronary heart disease followed by stroke.

Endothelial dysfunction drives atherosclerotic progression (Zeadin et al., 2013). Dyslipidaemia, inflammation and hypertension can drive endothelial dysfunction and lesion initiation. Monocytes are recruited across the arterial wall and bind lipids, differentiating into macrophages that become lipid-laden foam cells. The ensuing inflammatory environment leads to further leukocyte recruitment, causes smooth muscle migration and proliferation, and drives lesion development. Inflammatory mediators weaken the fibrous cap of the developing plaque causing instability. Rupture of the fibrous cap leads to an influx of blood coagulation factors into the lipid core of the plaque causing development of a thrombus, which, if occlusive, can cause an MI or stroke. The thrombus can reabsorb, often resulting in a fibrotic and calcified plaque that can cause significant stenosis resulting in e.g. angina. Or further erosion of the endothelial layer may result in an occlusive thrombus, leading to MI or stroke (Libby, 2001).

Figure 3:



Type 1 and type 2 diabetes have been shown to accelerate the development of atherosclerosis, yet despite the clinical importance of vascular disease in patients with diabetes, understanding of the relative contributions of insulin resistance and hyperglycaemia to atherogenesis is not complete. The

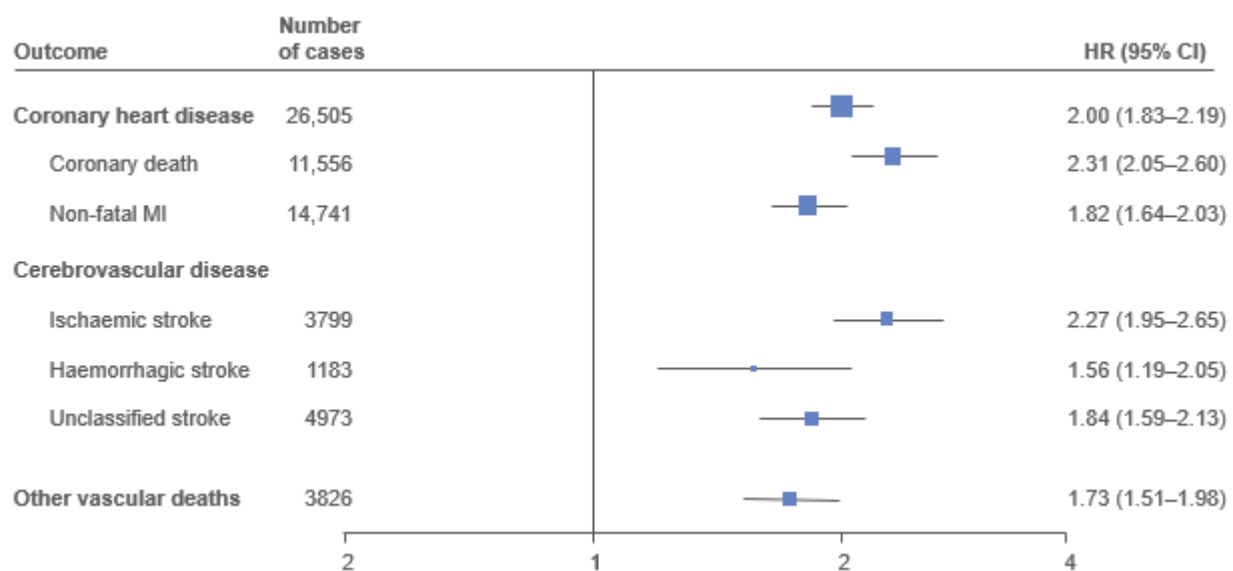
molecular and cellular pathways are involved in disease progression also remain unclear (Singleton et al., 2003).

Visceral adiposity is related to inflammation, insulin resistance, dyslipidaemia and atherosclerosis. Interactions are complex, inter-related and not necessarily causal. It is becoming apparent that adipose tissue is an active endocrine and paracrine organ that releases several bioactive mediators that influence not only body weight homeostasis but also inflammation, coagulation, fibrinolysis, insulin resistance, diabetes, and atherosclerosis.

The cellular mechanisms linking obesity and atherosclerosis are complex and have not been fully elucidated. Experimental and/or clinical evidence suggests potential roles for TNF- α , beta-adrenoreceptors, IL-6, IRS-1, PI3K. Adipokines are mediators of endothelial injury, an early event in the pathogenesis of atherosclerosis.

T2D as a major risk factor

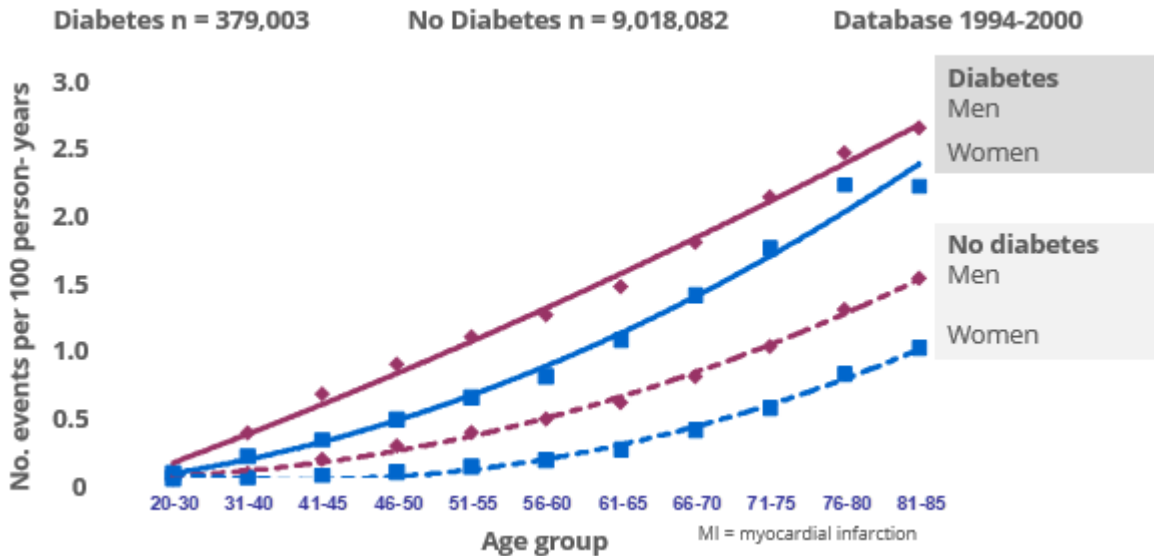
Figure 4: Hazard ratio (diabetes vs no diabetes)



This meta-analysis was performed on individual records of diabetes, fasting blood glucose concentration and other risk factors in people without initial vascular disease from studies in the Emerging Risk Factors Collaboration. Analyses included data for 698,782 people (52,765 non-fatal or fatal vascular outcomes; 8.49 million person-years at risk) from 102 prospective studies. The analysis shown was based on 530,083 participants (adjusted for age, smoking status, body mass index and systolic blood pressure, and stratified by sex and trial arm).

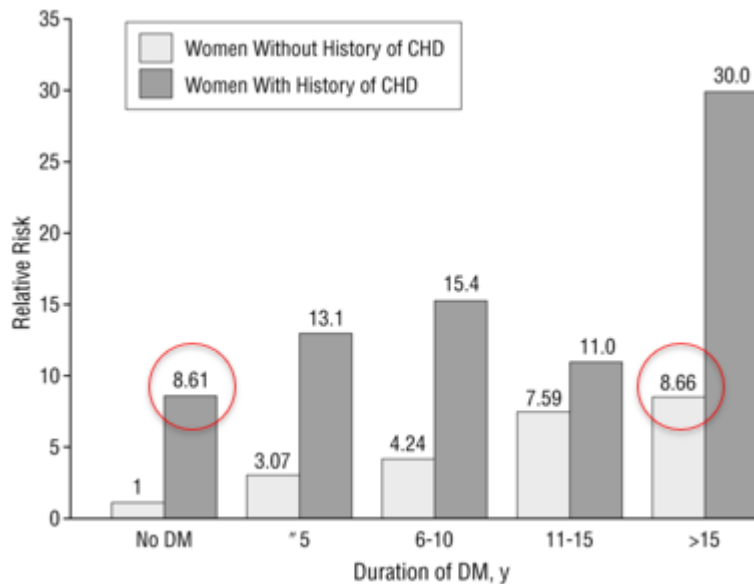
Compared with people without, the presence of diabetes approximately doubled the risk for coronary heart disease, ischaemic stroke, unclassified stroke, and deaths attributed to other vascular diseases. HRs were about a third higher for coronary death than for non-fatal MI (Sarwar et al., 2010).

Graph 3: Absolute Risk of MI is Higher in People with Diabetes (Booth GL, et al., 2006).



Type 2 Diabetes for >15 Years Duration Confers a Similar Risk of Fatal CHD as Prior CHD and No Diabetes. This was proved by a 20year follow-up of 121,046 women aged 30 to 55 years in Nurses' Health Study (Hu F, et al., 2001).

Graph 4:

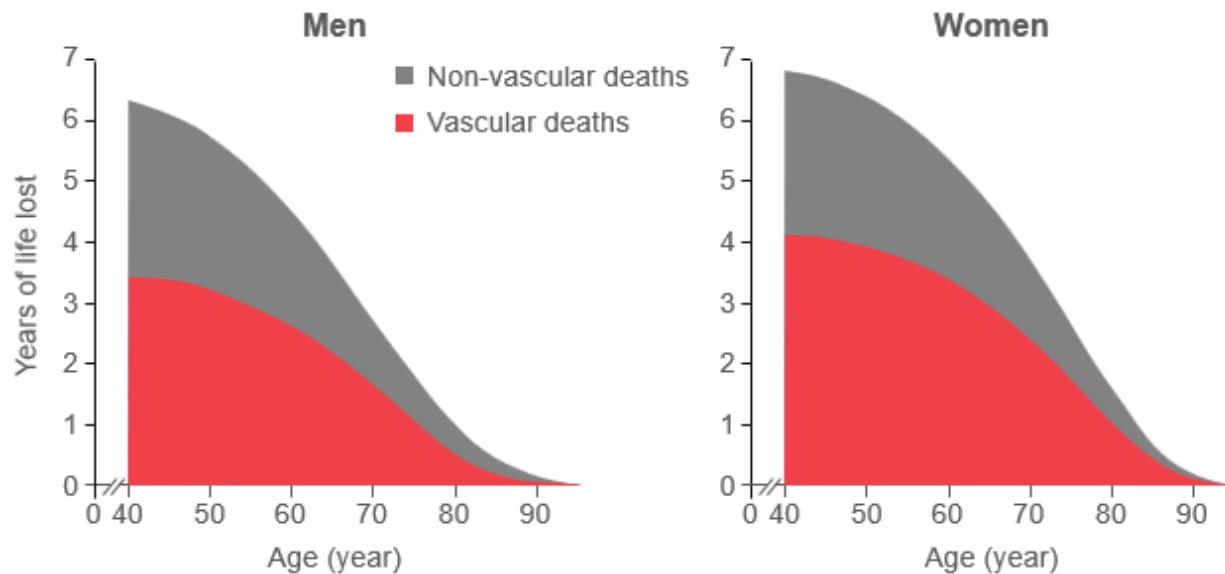


Diabetes is associated with significant loss of life years.

On average, a 50-year old with diabetes but no history of vascular disease is ~6 years younger at time of death than a counterpart without diabetes.

A study calculated hazard ratios for death according to baseline diabetes status from individual participant data on 123,205 deaths among 820,900 people in 97 prospective studies. The graphs below show the estimated numbers of years of life lost owing to diabetes among participants who had diabetes but no known cardiovascular disease at the time of enrollment.

Graph 5:

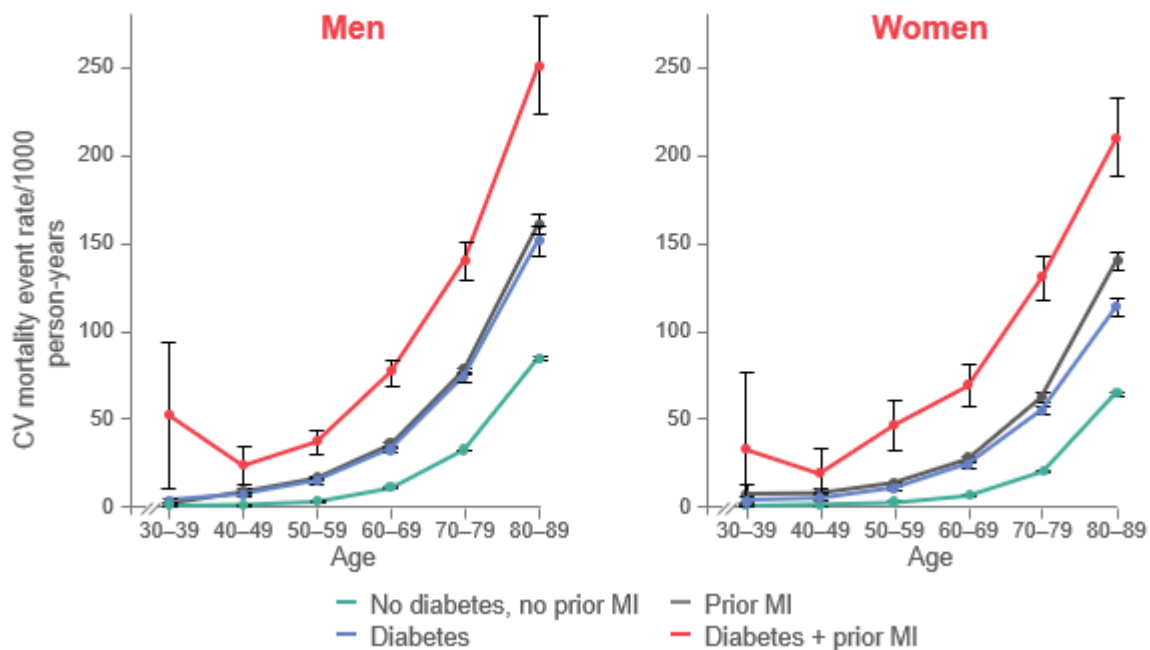


At 40, 50, and 60 years of age, men with diabetes but without a history of vascular disease would incur about 6.3, 5.8, and 4.5 years of life lost, respectively. The corresponding years of life lost for women with diabetes in middle age were 6.8, 6.4, and 5.4 years, respectively. About 58%, 9%, and 30% of this survival difference at 50 years of age can be attributed to excess vascular, cancer and non-cancer, non-vascular deaths, respectively.

Therefore, people with diabetes who had no visible vascular disease at the time of enrollment died approximately 6 years younger than individuals without diabetes (Seshasai et al., 2011).

Diabetes confers significant CV risk; combination of diabetes and history of MI further increases risk. The graphs below show the rate of fatal CV events in men and women of increasing ages according to the presence of diabetes and/or prior MI.

Graph 6:



The data are based on the 3.3 million population of Denmark aged over 30 years. Of these, 71,801 (2.2%) received glucose-lowering treatment and were categorised as patients with diabetes mellitus. This analysis found that the risk of CV death was similar between men with diabetes and prior MI, compared with men with diabetes without prior MI (HR: 2.44 and 2.42 in the 2 groups, respectively; $p = 0.60$). In women, CV death was slightly higher in those without diabetes who had prior MI (HR: 2.62 and 2.45 in the 2 groups; $p < 0.001$) (Svensson et al., 2013).

Additional risk factors

Additional risk factors are common in T2D. Modifiable CV risk factors are often found in patients with T2D.

Between 2003 and 2006 the Swedish National Registry collected data on 66,065 patients with T2D who had a mean age of 64 years (Svensson et al., 2013).

Comorbid hypertension was recorded in approximately 60% of the patients, 68.1% were receiving antihypertensive medication and 49.5% were receiving lipid-lowering medication.

Among 3392 participants in the Dallas Heart Study, the mean age (weighted to the population of Dallas County based on the 2000 US Census) of the overall population was 44.4 years (Das et al., 2006).

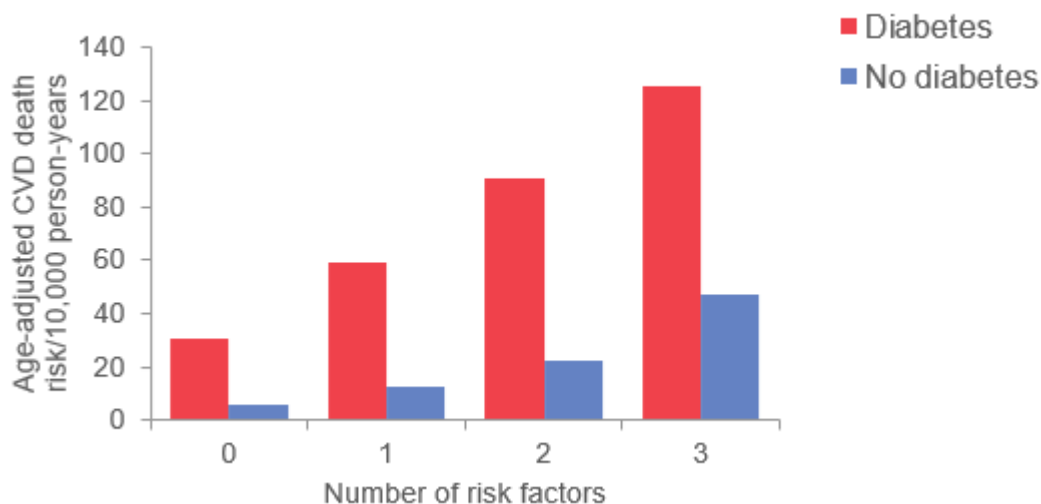
In this study, 7.8% of participants had DM (the estimated prevalence of undiagnosed DM was 3.2%

[mean age, 46.3 years], and the prevalence of diagnosed DM was 4.6% [mean age, 51.9 years]) (Das et al., 2006).

Of the undiagnosed DM population, 30.5% were current smokers, 45.1% hypertensive and 16.7% were receiving "any LDL treatment" (Das et al., 2006).

CV death is increased in patients with diabetes and multiple risk factors. The Multiple Risk Factor Intervention Trial (MRFIT) investigated the predictors of CVD mortality among men with and without diabetes in a survey of 347,978 men (361,662 men screened; 347,978 men were eligible for inclusion; 342,815 without diabetes and 5363 with diabetes).

Graph 7:

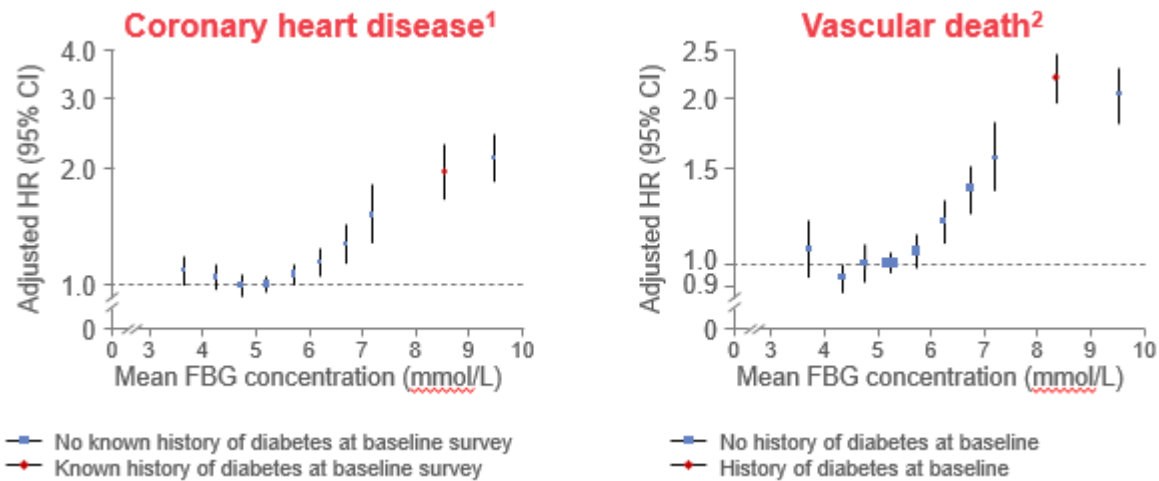


Absolute risk of CVD death was about 3 times higher for diabetic than non-diabetic men. CV risk factors assessed during the study included cholesterol over 200 mg/dL, smoking and systolic blood pressure above 120 mm Hg. For diabetic men with higher values for each risk factor and their combinations, absolute risk of CVD death increased more steeply than for non-diabetic men.

Dysglycaemia is an independent risk factor for adverse CV outcomes. Hyperglycaemia has been shown to be an independent risk factor for poor CV outcome in patients with T2D.

The Emerging Risk Factors Collaboration meta-analysis investigated CV outcomes in participants of 102 prospective studies.

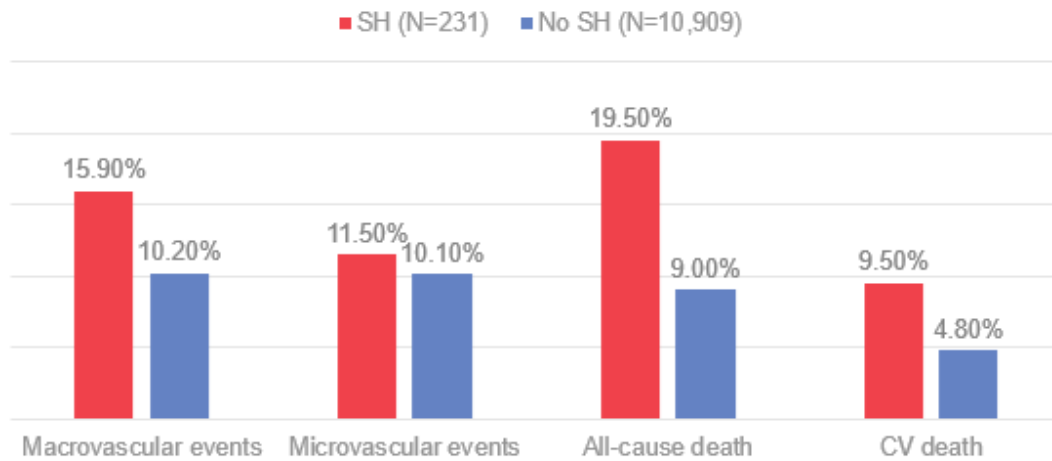
Graph 7:



CHD analysis was based on 279,290 individuals and investigated CV risk according to glucose levels, regardless of previous diagnosis of diabetes (Sarwar et al.,2010). Fasting blood glucose concentration was non-linearly related to risk of CHD with risk increasing most in those with glucose levels of 7 mmol/L or more. HRs were about 50% higher in people with a history of diabetes and with fasting blood glucose concentrations of at least 7 mmol/L than in people with a history of diabetes but fasting glucose levels lower than 7 mmol/L. Risk of vascular death was based on 16,211 deaths in 50 studies and showed the same non-linear relationship with mean fasting glucose (Seshasai et al., 2011).

The UKPDS study followed 3055 individuals with newly - diagnosed T2D for a median duration of 7.9 years. This study also demonstrated that HbA_{1c} is an independent and significant risk factor for coronary artery disease and fatal MI.

According to Advance study (Zoungas et al., 2010) severe hypoglycemia can also lead to adverse cardio-vascular outcomes. Graph 8: Percentages of patients with adverse outcomes stratified by the existence or absence of severe hypoglycaemia.

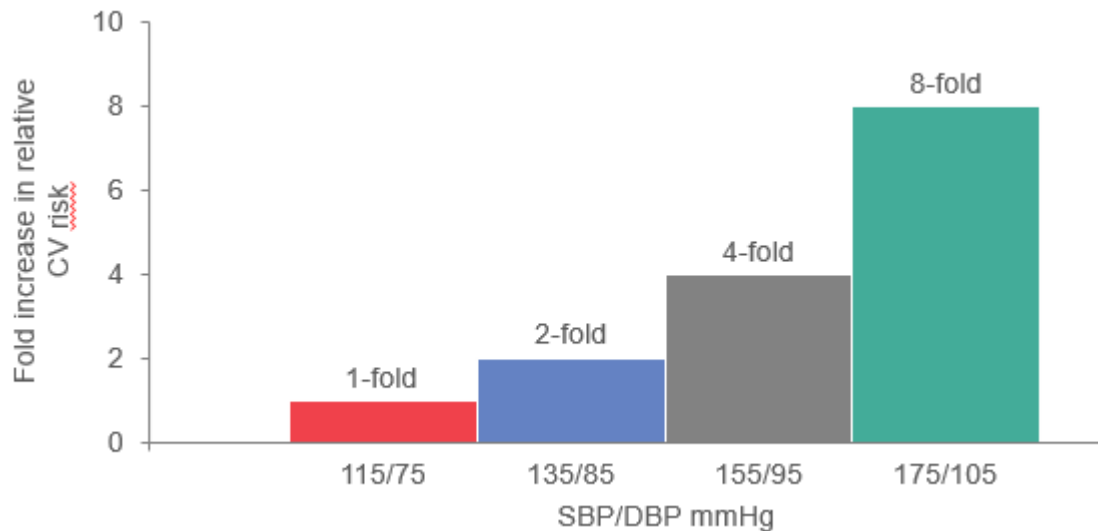


HR (95%CI) 3.53 (2.41-5.17) 2.19 (1.40-3.45) 3.27 (2.29-4.65) 3.79 (2.36-6.08)

The patho – physiological mechanisms of severe hypoglycaemia are: blood coagulation abnormalities last up to 7 days, inflammation persists up to 48 hours, sympathoadrenal response and endothelial dysfunction.

Hypertension: each 20/10 mmHg BP increase doubles the risk of CV mortality. Hypertension is strongly associated with increased CV risk and mortality.

Graph 9:

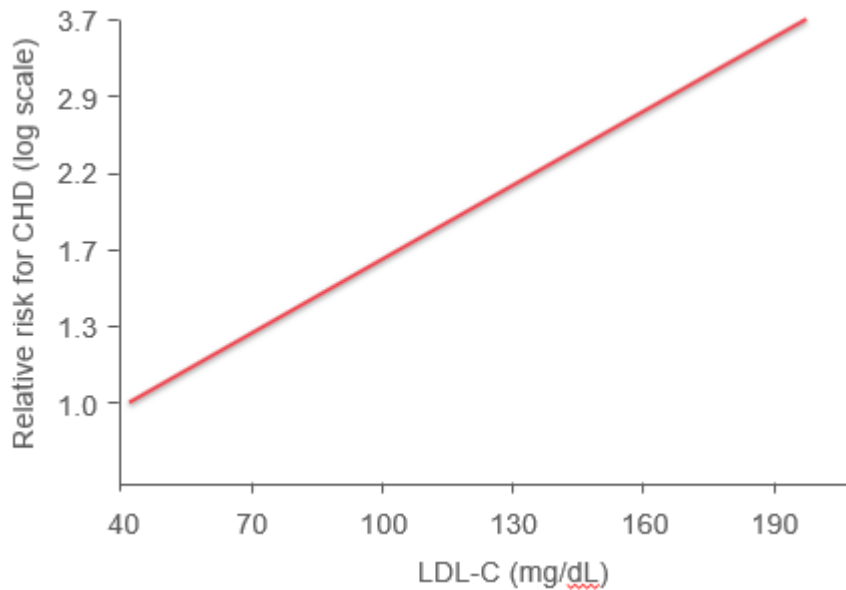


The data are from a meta-analysis of individual data from 1 million adults who participated in 61 prospective studies. At ages 40–69 years, each increase of 20 mmHg in SBP or 10 mmHg in DBP is associated with a doubling in CV risk (Lewington et al., 2002).

Dyslipidaemia: increased LDL-C increases risk of CHD. There is a log-linear relationship between LDL-C levels and relative risk for CHD. This relationship is consistent with a large body of

epidemiological data and with data available from clinical trials of LDL-lowering therapy (Grundy et al., 2004).

Graph 9:

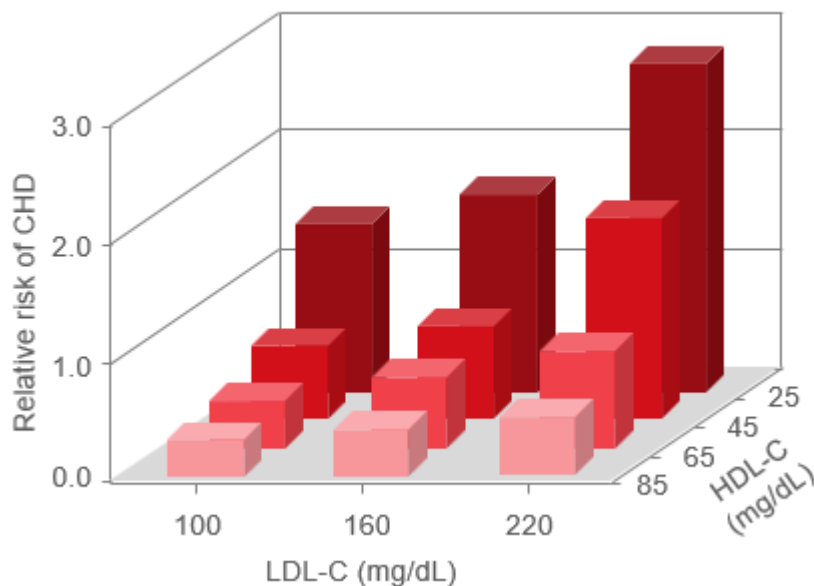


These data suggest that for every 30-mg/dL change in LDL-C, the relative risk for CHD is changed in proportion by about 30%. The relative risk is set at 1.0 for LDL-C=40 mg/dL.

Increased LDL-C and decreased HDL-C are associated with raised risk of CHD.

The Framingham Study provided the first compelling evidence of a role for low HDL-C as an independent risk factor for CV disease (Taylor, 2006).

Figure 5 below shows the relationship between HDL-C and LDL-C in the Framingham cohort.



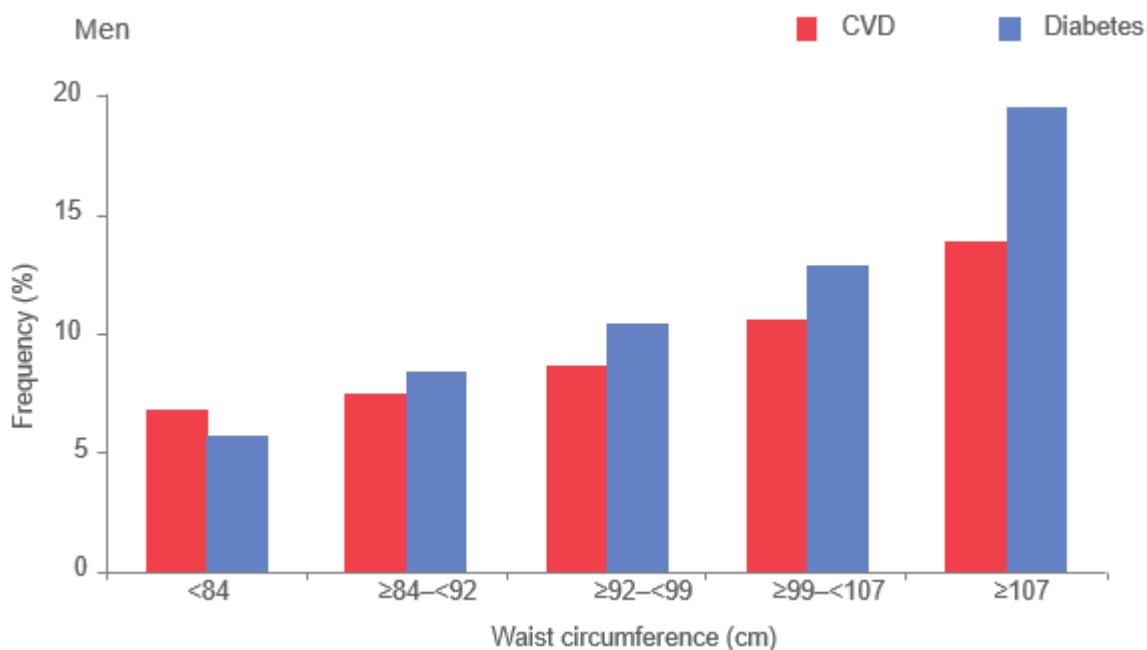
The levels of LDL-C shown cover a range of values highly relevant to clinical practice:

100/dL (2.6 mmol/L) is the guideline goal value for intensive management of LDL in high-risk patients; 160 mg/dL (4.1 mmol/L) is the guideline goal value for patients at low CV risk; 220 mg/dL (5.7 mmol/L) represents marked hyperlipidaemia requiring immediate pharmacologic intervention. The values of HDL-C shown straddle the 40 mg/dL (1.02 mmol/L) and 50 mg/dL (1.29 mmol/L) cut-off values for low HDL-C in men and women, respectively.

Low HDL-C levels are associated with a higher risk of CHD irrespective of the level of LDL-C. Conversely, higher levels of HDL-C are associated with lower CV risk at any level of LDL-C.

Abdominal obesity is associated with increased risk of both diabetes and CVD. Abdominal obesity is associated with an increased risk of both diabetes and CVD (Balkau et al., 2007).

Figure 6:



In this study, waist circumference was used to measure visceral obesity in 168,000 primary care patients across 63 countries. The age- and region-adjusted frequency of CVD increased with waist circumference in both women and men; data are shown for 69,409 men (Balkau et al., 2007).

Men in the highest waist circumference category had 2.2-fold more CVD than those in the lowest circumference band. The frequency of T2D showed an even stronger graded increase with a more than 3-fold increase from the lowest to the highest waist circumference category.

Women showed even greater increases in risk between categories; 2.6-fold increase in frequency of CVD; 6-fold increase in T2D.

Conclusions:

- T2D is a major independent risk factor for CVD (WHO, n.d.)
- Endothelial dysfunction and progression of atherosclerosis is accelerated in patients with T2D (Libby P., 2001. Zeadin, et al., 2013)
- Patients with T2D are at significantly increased CV risk (Sarwar et al., 2010).
- Additional risk factors associated with T2D (Sarwar et al., 2010. Seshasai et al., 2011. Lewington S. et al., 2002. Grundy et al., 2004. Taylor AJ., 2006. Balkau B, et al., 2007):
 - Hypertension, dyslipidaemia, visceral adiposity, hyperglycaemia and renal dysfunction are all associated with further increasing CV risk.

References

- Balkau B, et al. (2007). *Circulation*. 116:1942–1951.
- Booth GL, et al. (2006). *Lancet*. 368:29
- Das et al. (2006). *Am Heart J*. 151:1087–93
- Grundy et al. (2004). *Arteriosclerosis, Thrombosis, and Vascular Biology*. 149-161.
- Hu F, et al. (2001). *Arch Intern Med*. 161:1717-1723
- IDF. (2014). *Diabetes Atlas*. 6th Edition. <http://www.idf.org/diabetesatlas/update-2014>
- Lewington S, et al. (2002). *Lancet*. 360:1903–1913.
- Libby P. (2001). *Circulation*. 104:365-372.
- Sarwar et al. (2010). *Lancet*. 375(9733):2215–2222
- Seshasai et al. (2011). *N Engl J Med*. 364:829–41
- Singleton et al. (2003). *Diabetes*. 52:2867–73.
- Svensson et al. (2013). *Diab Vasc Dis Res*. 10:520–9.
- Taylor AJ. (2006). *European Heart Journal*. Supplement. 8:F74-80
- WHO. (2015, Jan). *CVD Factsheet N° 317*. <http://www.who.int/mediacentre/factsheets/fs317/en/#>
- World Health Organisation (2016)
- World Health Organisation.
http://www.who.int/diabetes/action_online/basics/en/index3.html.
- Zeadin et al. (2013). *Can J Diabetes*. 37:345-350.
- Zoungas et al. (2010). *Diabetes Res Clin Pract*. 89(2):126-33

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