

THE POSSIBLE CHOICE

Dimitar Nedialkov

***Summary:** The article analyses the negative consequences of (excessively) large income inequality and examines their direct and indirect impact on Bulgaria's national security. According to the author, income inequality can lead to economic and political instability, social tensions, unemployment, increase in crime and other destructive processes for society. Some measures are being discussed to reduce the problem of high inequality, such as changing the tax system, which unfortunately are met with tremendous resistance from the high earners and their lobbyists.*

***Key words:** income, inequality, poverty, risk, national security.*

INTRODUCTION

In troubled times such as those of the early 2020s, witnessing the war in Ukraine, the growing competition with new power players such as China, the return to a Cold War logic in Africa and other regions of the world, the resurgence of "classic" threats (border security, proliferation of weapons of mass destruction, etc.) and the consolidation of new ones (hybrid threats, disinformation, economic warfare, etc.), the search for a cement for European cohesion is a fundamental – if not founding – issue for a common security and defence policy. (Paile-Calvo, June 2023)

The military conflicts in the Middle East, North Africa and Ukraine impose new strategies for the conduct of military operations and development of modern technologies related to security systems. (Slavov, 2022) In the field of aviation, light multirole aircraft have unequivocally proven themselves on the battlefield. Analyzing their operations, this type of aircraft is more cost effective even compared to new frontline combat aircraft.

EXPOSITION

Considering the need to rearm our military aviation with new combat and training-combat platforms, a careful review of the prospects for a possible choice is necessary. One of the paradoxes of the current state of our military aviation is the variety of platform types. This undoubtedly makes the ability to maintain the system itself exponentially more expensive. In addition, the training of military pilots requires a highly proven platform for the transition to the next main combat aircraft F-16 Block 70 type. Ultimately, in terms of combat capabilities and effectiveness, the new multirole aviation training and combat platforms have long surpassed a large part of the existing in service combat aircraft from previous generations.

The creation and development of any new capability is accompanied by the acquisition of technical/technological resources and the need to acquire new knowledge and skills and build the necessary competencies for the full use of the newly acquired resources. (Dimitrov, 2022, str. 2)

Future military pilots must possess a number of competencies, the most important of which are:

- Ability to apply operating procedures;
- Ability to manage aeronautical communications;
- Flight management;
- Leadership, teamwork and self-management;
- Making decisions and solving problems;
- Situational awareness;
- Coordination and transmission of data, etc.;

It is known that competences are formed on the basis of knowledge, skills, attitudes and behavior. (Dimitrov, 2022, str. 5)

When making such a choice of a future multi-functional training-combat platform, of course we must look for the lessons of practice in the past.

When the Aviation School in the Kingdom of Bulgaria decided to acquire sufficiently modern parameters and capabilities, commensurate with world standards, its modern infrastructure and building fund was first built near the city of Kazanlak. This happened in late 1926 with the help of the Italian government. The school building itself was built according to an Italian design. Right next to it, "Caproni-Milano" takes the concession of the unrealized aviation factory of the Czechoslovak company "Aero - Prague".

The Italian specialists created a team of Bulgarian engineers and craftsmen and began in 1933 to strictly fulfill the contractual agreements with the Bulgarian authorities. It starts all over again with the production of the training machines KB-1, KB-2UT/A, KB-3 and KB-4. Then, from 1939, the Bulgarian Kaproni factory produced the multi-purpose KB-5, the twin-engine KB-6 and the KB-11 close support aircraft. Until the expiration of the concession, the Bulgarian-Italian factory produced over 150 quality aircraft, which were used by the Bulgarian military aviation until the end of the 1940s, when they were replaced by Soviet aviation equipment. (Dimitrov, 2022, str. 2)



Photo 1: Multi-purpose aircraft KB-11 used for close air support of the Bulgarian army at the end of 1944. Fifty serial aircraft were produced in "Bulgarian Kaproni"

(Source: Autor`s photoarchive)

Until 1954, the famous Bulgarian training aircraft and light bombers Laz-7 and Laz-7M were produced in the already nationalized factory. In fact, the Italians are the only strategic partners of Bulgaria in the field of aviation, who have contributed to the industrial development of the country in this field. This is a sufficient argument, when the question of renewing our aviation park arises, to look in this direction again. Moreover, Italy is a member of the European Union, which implies a simplified mode of cooperation. The deliveries of aviation equipment from there have already been proven to be good, so that we can look for the possible replacement of the L-39 and Su-25 type aircraft with 5th generation platforms. The Italians have proven and recognized as the best in Europe and one of the best in the world solution for the Bulgarian military aviation. This is the multipurpose M-346.

The M-346 Fighter Attack (FA) built by the Aircraft Division of the Italian Aerospace and Defence company Leonardo (in honour of the great Leonardo da Vinci), is the combat configuration of the M-346 AJT (Advanced Jet Trainer) "Master" retains all the capabilities of the trainer, while at the same time, offering additional operational features.



Photo 2: The M-346 Fighter Attack built by the Aircraft Division of the Italian Aerospace and Defence company Leonardo, in combat configuration

(Source: Leonardo photoarchive)

The first flight of the M-346 took place in July 2004. In terms of its capabilities, it is a new generation multi-role aircraft that can be used to train advanced cadets and pilot officers, as well as performing a wide range of Air-to-Ground and Air-to-Air combat missions, such as:

- close air support;
- air interdiction;
- air reconnaissance;
- intercepting and combat with an air opponent in the subsonic range;
- training of flight personnel for combat skills before transition to a main combat aircraft of a new generation.

Recently other big aviation companies like AIRBUS have recognized the excellence of the Italian product, signing an MoU (Memorandum of Understanding) with Leonardo to jointly seek and pursue new market opportunities for the M-346. (Dimitrov, 2022, str. 5)

Based on the available information, 126 M-346 have been procured by 8 Countries worldwide with many more opportunities destined to come considering the emerging market of +400 new A/C delivery in the next 20 years.

The great success of the M-346 is due to its proven performance which allows pilots to exceptionally execute a wide flight envelope, not permitted with aircraft of a similar class (Nedyalkov, 2009):

- Maximum level speed (Low Altitude) 1090 km/h (Mach = 1.2);
- Stall speed 102 kts;
- Maximum take-off weight as a strike aircraft with 3,000 kg combat load 10,400 kg;
- Relative load on the wing 336 kg/ sq.m;
- Rate of climb (TOW) 115 m/sec;
- Ceiling 13,716 m;
- Take Off Run (TOW) 500 m;
- Ferry Range (Clean / 2 external tanks) 1,925 / 2,550 km;
- Endurance 140 min. / 180 min. (Clean/2 external tanks);
- G-load +8.0 / -3.0;
- Thrust/weight ratio 0.84;
- Fatigue Life 30 years.

The characteristic of Fatigue Life is particularly important, given the fact that this aircraft is capable to ensure the training of F-16 Block 70 pilots, with the US made aircraft entering into service with Bulgarian Air Force in the coming years. The power plant consists of two ITEC F124-GA-200 of the American company "Honeywell" with a maximum thrust of 27.9 kN for each. The engine on condition maintenance philosophy helps to significantly reduce maintenance and down times. The cold section of the engine is checked every 4,000 hours and the hot section every 2,000 hours.

Some might claim that technical data is different from actual operational data and we are not in a position to refute such ideas however, for the time being, what we can state are two simple facts: first, the M-346 has achieved over 100,000 In-Service Flight hours worldwide with some of the most demanding military customers. It means that the cutting-edge M-346 has cemented its position as the world's best advanced jet trainer. Secondly, the International Flight Training School (IFTS), the training service that the Italian Air Force offers to the other international air forces, has already been selected by Japan, Singapore, Qatar, Canada, Austria, Germany, United Kingdom, while the Sweden, Kuwait, Saudi Arabia, Hungary and Spain also appear to be very close to finalizing a deal. It is significant to remember that all IFTS Lead-In Fighter training courses are carried out using the M-346.

The M-346 is equipped with an Embedded Tactical Training System (ETTS) to simulate in-flight tactical scenarios, weapons, sensors, Computer

Generated Forces (CGF, both friend and foe). The actual aircraft in-flight (Live) can be linked to full mission simulators on the ground (Virtual), part of a complete Ground Based Training System (GBTS) and to CGF (Constructive), making it possible to connect all the actors in a highly advanced training environment: this is the proven LVC system and technology offered by Leonardo paired with the aircraft and GBTS. (Memorandum, 2023)

In its combat variant, the M-346 can carry over 3,000 kg of combat payload distributed on 7 hardpoints and it is capable to employ both guided and unguided weapons, some of them expected to equip the F-16 Block 70. Its effective use against air and ground adversaries is ensured by a helmet-mounted display system for targeting and indication, and a powerful "Grifo" multi-mode radar with a look-up detection range of over 100 km. These are complemented by a weapons control and comprehensive self-protection systems. Access to a satellite communications system increases the effectiveness of using available weapons and improves the exchange of information along the chain of command. Thus, the abilities to command, control and share information are improved, i.e. situational awareness of the combat space is ensured. (Iztrebitel M-346FA, 2022, str. 4) This fact helps such an aviation platform to be used to solve another important tactical task – air reconnaissance.

As an air reconnaissance and targeting system, there is the option of mounting a pod equipped with sensors for day and night conditions or targeting equipment in the ventral pylon. The head-up display indication helps pilots to act without distraction in a combat environment.

The aircraft has a four-channel, Fly-By-Wire flight control system with quadruple redundancy, making the M-346 safe enough for initial training and easy to operate by a crew even with initial combat flying skills.

In our opinion, within the scope of performing tasks of close air support and air interdiction of operations at full combat load, the M-346 capabilities are extremely interesting, resulting in being even superior to combat and training combat aircraft currently available in Bulgaria, and the qualities of the equipment and weapons determine unparalleled levels of combat effectiveness. This also applies to the performance of RECCE tasks. In this area, the M-346 would fill the huge information deficit in the Bulgarian army.

In modern combat conditions, it is increasingly necessary to intercept low-speed targets. This practice is also valid for Bulgaria in recent years with the proven difficulties of doing this with supersonic interceptors. Not to mention the cost of performing such a task, which is many times lower when using M-346-type aircraft. For comparison, the combat radius of the aircraft when performing an interception of an air target can reach 600 km, and the duration of duty in an area can exceed 2.0 hours. The time required to

intercept a target within a radius of up to 100 km at an average altitude from the moment of the signal submission is comparable to that of the F-16 and MiG-29. In addition, the dimensions of the aircraft fully correspond to the possibilities of being exploited from shelters with the dimensions of those at Bulgarian airbases. (Iztrebitel M-346FA, 2022, str. 7-8)

CONCLUSION

With these indicators, the M-346 can successfully not only be considered as an option to replace the L-39ZA and Su-25 in service in Bulgaria. It has the ability to complement to a considerable extent the performance of air policing tasks together with the MiG-29, and then with the F-16. Thus, with a single platform, the tasks currently performed by three types of aircraft can be covered with a higher degree of efficiency, which would reduce the operational costs of aviation equipment in the Air Force by almost as many times. For these reasons the M-346 FA represent a win-win solution for the Bulgarian Air Force and tax payers.

BIBLIOGRAPHY:

- Димитров, Р. (2022). *Сборник с доклади от научна конференция „110 години знания, умения и традиции“*. Военна академия "Георги С. Раковски", стр. 2; // Dimitrov, R. (2022). *Sbornik s dokladi ot nauchna konferentsiya "110 godini znaniya, umeniya i traditsii"*. Voenna akademiya "Georgi S. Rakovski", str. 2, 5. ISBN: 978-619-7711-04-2;
- Недялков, Д. (2009). *Самолетостроенето в България*. Албатрос МДВ, стр. 126-154 // Nedyalkov, D. (2009). *Samoletostroeneto v Balgarya*. Albatros MDV, str. 126-154;
- Меморандум за разбирателство между Airbus и Leonardo за общ подход към бъдещия пазар на интегрирани системи за обучение*. Париж, 21.06.2023 г. // *Memorandum za razbiratelstvo mezhdub Airbus i Leonardo za podhod kam badeshtiya pazar na integrirani sistemi za obuchenie*. Parizh, 21.06.2023 g.;
- Изтребител M-346FA Fighter Attack за Българските ВВС (Справочно издание)*. Леонардо, 2022, стр. 4 // *Iztrebitel M-346FA Fighter Attack za Balgarskite VVS (Spravochno izdanie)*. Leonardo, 2022, str. 4, 7-8;
- Славов, С. (2022). Системата за ПВО на Украйна в конфликта с Русия. *Сборник с доклади от научна конференция „110 години знания, умения и традиции“*. Военна академия "Георги С. Раковски", стр. 27-28. ISBN: 978-619-7711-04-2 // Slavov, S. (2022). *Sistema za PVO na Ukraina v konflikta s Risiya*. *Sbornik s dokladi ot nauchna konferentsiya "110 godini znaniya, umeniya i traditsii"*. Voenna

akademiyā “Georgi S. Rakovski”, str. 27-28. ISBN: 978-619-7711-04-2

Paile-Calvo, S. (June 2023). European Strategic Culture in the Citizens' Eyes. *Security and Defense* (1), 9-22. <https://institute.nvu.bg/sites/default/files/inline-files/2023-1-01-paile-calvo.pdf>