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Schemelinin Konstantin Sergeevich

ORCID:0000-0002-3636-1583

## THE SCHEME OF REVERSE CALCULATION OF LOSSES AND DURATION OF THE WAR

**Abstract:** *The article describes a reverse calculation scheme for losses and duration for absolutely any armed conflict, and also gives a numerical example of calculation for a controlled civil war between conditional opponents. Direct calculation emphasizes military power, and reverse calculation emphasizes losses, therefore, the use of reverse calculation allows you to: better prepare for the upcoming war, predict the degree of future destruction, assess the stability of the ruling regime to fall as a result of hostilities, as well as identify a potentially unacceptable level of their losses.*

**Keywords:** war, civil war, military science. military affairs, armed conflict, military conflict, military actions

### **§1. Direct and reverse calculation**

Direct calculation of losses is currently used everywhere. In the case of direct calculation, the combat capabilities of their and enemy forces are compared, on the basis of which a conclusion is made about the success or failure of the upcoming armed conflict.

The reverse calculation begins with the results of the war - first, the upcoming total losses of the parties are estimated, then there is a transition to their own losses, from which the conclusion follows about the acceptability or unacceptability of a future armed conflict.

The theoretical basis for the reverse calculation of conventional wars is the classification of wars from my book «Money» [1], and the theoretical basis for wars aggravated by civil conflict is my «Theory of Civil Wars» [2, p. 893-940].

**Note 1.** The following logical constructions are not intended to analyze fleeting wars such as blitzkrieg (in which the enemy does not have time to carry out the planned mobilization), but are quite applicable if a fleeting war was planned, and in the course of the fighting the conflict was transformed into a conventional war; also, the reverse calculations does not apply to cases where one of the parties uses superweapons: for example, firearms against tribes living in the conditions of the Stone Age or bomber aircraft against countries without air defense.

### **§2. The scheme of reverse calculation for losses and the duration of any war**

#### 1. Estimation of total losses.

In this paragraph, the upcoming war is first classified, and then a conclusion is made at what level of irretrievable losses of soldiers and civilians of both opposing sides such a war is likely to end. Irretrievable losses mean losses from all causes, including

death on the battlefield, death from the consequences of injuries, frostbites, starvation, extrajudicial massacres, terror, and so on.

2. Evaluation of the ratio of losses of civilians and soldiers.

In this paragraph, based on past wars, and also taking into account the potential desire of one or opposing sides to minimize losses among the civilian population, a predictive ratio between dead civilians and dead soldiers is derived. As in the previous clause, the dead are those who the dead and the deceased from all military causes.

3. Evaluation of the ratio of the number of dead soldiers of both opposing sides to each other.

This ratio is very important and directly depends on the differences in the degree of armament of the armies, on the morale of the soldiers, on the quality of communications, medical care, and so on.

From this ratio, the possible future losses of the parties are calculated.

4. Calculation of the rate of bloodshed.

For this calculation, the intensity of hostilities is important, usually expressed in monthly or daily (for short-term conflicts) losses. The intensity of hostilities directly depends on the number of troops directly involved in the battles; on the type of hostilities (defense or attack), the complexity of the terrain, and so on.

5. Calculation of the duration of the war.

The duration of the upcoming war is calculated by two values: the estimated number of losses of soldiers and the rate of bloodshed.

6. Is it worth leading the situation to war?

This item is additional, that is, not mandatory in this calculation. Point 6 refers exclusively to the competence of the top military-political leadership of the country, while points 1-5 are available for analysis to a wide range of researchers. In this paragraph 6, the military-political leadership of the country must decide whether it is worth leading the conflict to an armed confrontation or whether it is better reach an agreement with a potential adversary, even if on the basis of significant concessions.

### ***§3. Example of reverse calculation of casualties and war duration***

Initial data (numbers in this example are conditional, not related to reality):

1. Let's say there are two opposing countries - Blue and Green.
2. An uprising took place on the territory of the Green country, in which more than 20% of the population participated. The Blue country troops came to the aid of the rebels.
3. Blue country ready to attack, Green country ready to defend.
4. Blue country has an advantage in the technical equipment of their armies.
5. Both sides are trying to humanely treat the civilian population.
6. The population of the country of the Green is 50 million people.

**Note 2.** The calculations that each side of the upcoming conflict will make will differ from each other, so, for example, we will continue to make calculations from the point of view of the Blue country. If, for example, calculations are made on the part of the Green country, then the final values will certainly turn out to be different (states are different, which means that the assumptions will be different): for example, the Green

country can accept the total number of deaths not 1%, but 0,9% or 1,1%; in addition, they can estimate the losses of their soldiers to the enemy as 1 to 1, not 1 to 3 - and so on.

### **Reverse calculation of losses and duration of the war between the Blue country and the Green country.**

#### 1. Estimation of total losses.

According to the theory of civil wars, this conflict is a controlled civil war:

*Definition № 3. A controlled civil war is a war between the citizens of one country, in which over 10% of the country's population is fighting against the central government, and a single powerful foreign force has a decisive influence on the course of hostilities and the result of the confrontation. [2, p. 914].*

According to the Law about Civil Wars Losses, a controlled civil war is likely to end with a casualty rate on the order of 1% of the country's pre-war population:

Law about Civil Wars Losses

*Any civil war ends with a level of irrecoverable losses from all causes of soldiers and civilians, usually in the range from 0.5% to 6%, less often - over 10% of the pre-war population of the country: (...)*

*2) a controlled civil war tends to end with a casualty rate of about 1%;*

*(...)*

[2, p. 922].

Thus, the conflict under consideration will probably end when the number of irretrievable losses of all participants in the conflict will be 1% of the pre-war population of the Green country, or 500 thousand people.

#### 2. Evaluation of the ratio of losses of civilians and soldiers.

Suppose that, according to the results of calculations in similar wars, it turned out that the ratio of losses of civilians and soldiers is 1 to 2, that is, one dead or dead civilian falls on two dead or dead soldiers.

Thus, in the coming war, the following will probably die:

500 thousand people / 3  $\approx$  160 thousand civilians.

500 thousand people / 3 \* 2  $\approx$  340 thousand soldiers.

3. An estimate of the ratio of the number of dead Blue country soldiers to the number of dead Green country soldiers.

Suppose that, based on the results of calculations in similar wars, the military leadership of the Blue country decided that the soldiers of the Blue country would die three times less often than the soldiers of the Green country, that is, the ratio of irretrievable losses from all causes for the soldiers of the Blue country and Green country is 3 to 1.

Therefore, in a future conflict, the following will probably perish:

340 thousand soldiers / 4 = 85k soldiers of Blue country

340 thousand soldiers / 4 \* 3 = 255 thousand soldiers of Green country

#### 4. Calculation of the rate of bloodshed.

Let, assessing the upcoming hostilities and their scope, the military leadership of the Blue country will count the future of their own irretrievable losses from all causes of the order of 3000 soldiers per month as real.

#### 5. Calculation of the duration of the war.

We calculate according to the losses of the Blue country, so an estimate of their rate of bloodshed is in the previous paragraph 4.:

85 thousand soldiers / 3 thousand soldiers per month  $\approx$  28 months or 2 years and 4 months.

#### 6. Should the Blue country lead the conflict to war?

The military forecast of the upcoming conflict from the BLU country point of view is as follows:

- a) the duration of a future war may be of the order of 2.5 years;
- b) own losses are estimated at 80-90 thousand soldiers;
- c) enemy losses can be on the order of 250000 soldiers and 150000 civilians.

Assume that the results of the calculations show the Blue country: the upcoming war will be difficult, the victory will not be complete, as a result of the conflict, the government of Blue country will probably resign, there will be too much money to restore the destroyed, so the Blue country should make significant concessions in the negotiations instead of armed struggle.

#### **Conclusions:**

1. A reverse calculation scheme for losses and duration is described for any war, including small border conflicts, heavy bloody wars, as well as all kinds of civil wars.

2. An example of calculating losses from an armed conflict is given and the duration of a conditional controlled civil war is calculated.

3. It was revealed that the parties to the conflict will assess their own and other people's losses, as well as the duration of the war in different ways.

4. The combination of forward and backward calculation allows you to more fully describe the war, which means that after the implementation of all the additional pre-war measures required by the reverse calculation, the country's military leadership will face fewer surprises on the battlefield, as a result of which it will conduct a campaign more successfully and with fewer losses for myself.

5. The reverse calculation may reveal a potentially unacceptable level of losses for one of the parties to a future conflict, which will force that party to intensify peace negotiations and, ultimately, prevent an upcoming war.

6. Knowledge of forthcoming probable losses allows a more complete understanding of future victory and defeat: victory may turn out to be unconditional, incomplete or pyrrhic, and defeat may be either complete or incomplete or partial.

7. The use of backward calculation allows the government to understand the limits of its stability, since too much of its own losses can lead the ruling regime to fall (forced early resignation or coup d'état), regardless of whether the country has failed or won.

8. The reverse calculation allows you to predict the degree of future destruction and loss among civilians, which allows you to answer the question: how much money after the war will the winner have to invest in restoring the territory he destroyed?

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